Editors

Dr. J. Karthikeyan | Dr. Ting Su Hie| Dr. Ng Yu Jin

Learning Outcomes of Classroom Research

About the Book

It is a fact that Teaching and Research are interwoven. Every potential teacher is a researcher and their classroom is a platform to execute their innovation in research. Students of such teachers are gifted as they too are involved in the process of research either as a sample or as a co-investigator. This book is one such evidence that portrays the outcome of classroom research in the form of theoretical research. The students were exposed to collect knowledge about the recent advancement in Engineering and Technology from authentic academic portals and fragment them in a standard framework. Even if the subheadings are common, the literature review conducted against each subheading is different from person to person. Gathering resources, following a unique way of writing and understanding the nuances of academic writing by the budding engineering students are the learning outcomes of the whole process. Though faculty assistance played a key role in organizing the whole process, the students demonstrated enthusiasm and incessant thirst to acquire knowledge.

"Success is no accident. It is hard work, perseverance, learning, studying, sacrifice and most of all, love of what you are doing or learning to do".

Pele

LEARNING OUTCOMES
OF
CLASSROOM RESEARCH

Edited by

Dr. J. KARTHIKEYAN
Dr. TING SU HIE
Dr. NG YU JIN

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ARTIFICIAL INTELLIGENCE'S IMPACT ON OUR EVERYDAY LIVES

M SIVASUBRAMANIAN
M.Tech. Integrated Computer Science
Email ID: sivasubramanian.m2021c@vitstudent.ac.in

What is Artificial Intelligence?

[1]Artificial intelligence is a field of computing that focuses primarily on the transmission of anthropomorphic intelligence and thinking into machines that can assist humans in many ways. Artificial intelligence was a term that John McCarthy used in 1956. AI has slowly sprung up and grown stronger in many fields such as engineering, mathematics, physics, technology all of which have led to the current tremendous shift in this field which we are witnessing now.

[2]This is an idea that proposes that machinery can acquire intelligence. It encompasses areas like machines can learn on their own, adapt to a specific circumstance and self-correct their own mistakes. i.e., Machinery may think on their own without being encoded with commands.

History of Artificial Intelligence

[3]The story of Artificial intelligence has always been a fantasy fiction novel that turned into reality. Homer was a pioneer of AI when he stated that the gods were served at their dinner table by mechanical 'tripods' who guessed what the gods liked. It was not until the late past century that the AI community could construct mechanisms that existed only as theories in the literature. The term 'Mechanical man' piqued René Descartes' curiosity. Gottfried Wilhelm Leibniz envisioned the possibility that mechanical machines might solve complex problems with mathematical logic, but Leibniz never claimed that machineries could think on their own. Etienne Bonnot, Abbé de Condillac theorised that knowledge could be poured into a statue's head to make it think. Writers of science fiction have long speculated about the idea of computers acting like humans. The works of Isaac Asimov, L. Frank Baum, and Jules Verne, who explored the prospect of intelligent robots, inspired many AI researchers.[4]In 1847 and 1936, George Boole and Alan Turing defined the formal language and Turing machine for logical interpretation, respectively.One year later, J. Neumann and O. Morgenstern proved the theory of decisions. Herbert Simon affirmed in 1965, "Machines can do almost anything that man is capable of performing". However, the scientific community realized that algorithms cannot be created for everything that man is capable of doing so. In 1972, Alain Colmerauerformalized PROLOG, anArtificial Intelligence system building language.

Artificial Intelligence in India

[5]The utilization of AI in India is not optimal and is far behind the developed industrial countries such as United States of America, England, France, Japan. Due to the widespread linguistic diversity in India, the use of AI has been severely constrained to language interpretation applications not considering other fields. As indicated by Khemani, an educator at Department of Computer Science and Engineering at IIT Madras stated that exceptionally refined laboratories in various publicly funded eminent institutions such as IIT, IISc are extremely confined due to the low allocation of funds from the Indian Government. The projects they work on includes creating a robotic army to

guard the borders to minimize the loss of human beings in warfare, terrorist attacks and oppressor assaults. They are also targeted on perfecting the security of nation by analysing various battlefield tactics and combat zone data gained from AI to drive out a reasonable strategy to enhance the protection of nation. Their focus on civilian uses of AI incorporates the creation of exploratory robots, a chess playing robot and so on.

[6]India's sustainable and substantial growth relies on development of AI in its niche and corner to a large extent. Minor developments in one domain of India affects common fraction of the population of the planet straightforwardly. Artificial intelligence can certainly boost up the progress of the nation by supplanting poor infrastructure, bureaucracy, corruption, social and monetary hurdles which the country currently witnessing now. As there are opportunities, there are also many boundaries in victimization of AI. AI can revolutionize the health industry catering to the massive sections of individuals treating absolutely everyone equally. Handling public data in India has been a massive task conventionally which can be resolved with the application of AI. So, we can come to conclusion the future of India greatly relies on development of Artificial Intelligence in our country.

Various Applications of Artificial Intelligence

[7]Language processing: Language understanding, or the process of converting a spoken language to its written form and translating one language to another without any semantic errors, is one of the notable domains where AI plays a role. There are various domains in the fields, such as comprehending speech and converting it to writing form, translating a dialect, linguistic information processing, addressing a logical question raised during translation, and retrieving linguistic information.[8]Gaming:A great impact is made on the industry of gaming by Artificial Intelligence. It is one of the fastest-growing frameworks in the planet.Using a technique known as brute force technology, machines scan thousands of moves at once. Microsoft Xbox employs artificial intelligence to detect body motion and reply to gamers in a more exciting way. Even though computers are not as intelligent as humans, they cannot be vanquished in a chess game since AI is used. In this industry, we are seeing Himalayan improvements, but the truth is that it is still taking baby steps.

[9]Medical technologies: AI in health industry is growing day by day feeding to requirements of humanity. Deep learning algorithms analyses data retrieved from wearable watches, artificial pace-makers and other monitoring sensors placed in a body of an individual in various domains of medicine. The technology of augmented medicine allows medical practitioners to give a greater personalized cure to their patients. Be that as it may, it is unwelcomed by physicians who are not okay with the evolution of contemporary medicine. There is a necessity for upgradation of medical curriculum based on the state-of-the-art technologies evolving in this field. The elements of AI have helped in the detection of many diseases such as epilepsy, hypoglycaemia and atrial fibrillation.[10]'Smart Homes': Smart home technologies have helped in metamorphosis of authentic conventional homes to a well-connected hi-fi home, a more customised one. With the help of a technology that utilizes various types of sensors, wireless connections and algorithms, we are able to create a home that serves our needs in a more effective way. Smart homes are able to control various home activities such as room temperature, lightings, irrigation in the garden based on prevailing weather conditions, gap and shutting of doors and windows and presenting maximum

security to burglary. These homes help in energy conservation via switching of lights whenever it is unnecessary, halting the glide of water when no longer in use in use and so forth.

Growth of Artificial Intelligence

[11]Man-made brainpower has progressed quick as of late, both as far as assets given to it and as far as the outcomes it produces. Expanded venture has been filled by and added to huge headways in man-made reasoning's innovative capacities. These fast advances apply not only to AI, but also to robots, sensors, and the digitalization that connects them all. These breakthroughs have already begun to show up in a range of applications, for example, AI outflanking people at confounded vital games, the improvement of chatbots and remote helpers like Alexa and Siri, and Amazon's new clerk less and cashless staple shops.This has sparked both enthusiasm for technology's capacity to drive economic growth and anxiety about the destiny of human employees in a world where computer algorithms can do many of the activities that humans can. Some have adopted a more radical stance. Elon Musk has cautioned that "Man-made intelligence addresses a basic danger to the presence of human civilisation."

[12]This review surveys the potential for a connection among social science and Artificial Intelligence considering the new rise of man-made reasoning (AI) and its suggestions for understanding human conduct. An audit of discussions about AI and 'master frameworks' uncovers current suspicions about the contrast between human conduct and man-made consciousness. These discussions uncover a restricted comprehension of sociological ability, a solid manner of speaking of progress, and a wide scope of suppositions on the best in class. These arguments are demonstrated to rely on some important dichotomies and an interpretative flexibility linked with the thoughts of insight and mastery by depending on contemporary issues in the social investigation of science.The extent to which we are prepared to embrace these elements of AI discourse is reflected in the breadth of conceivable linkages between sociology and AI. One of the most significant choices is to see the AI phenomena as an opportunity to reconsider sociology's core assumption that human behaviour is inherently "social."

Artificial Intelligence in Healthcare Appliances

[13]Watson, IBM's precision medicine platform, has gotten a lot of press because of its focus on cancer detection and treatment. Clients acknowledged that it was so hard to prepare Watson how to deal with specific types of malignant growth and coordinate Watson into care techniques and frameworks, along these lines' early energy for this use of the innovation decreased. Watson is an assortment of 'intellectual administrations' conveyed by means of use programming interfaces, containing voice and language, vision, and information examination programs dependent on AI.The Watson APIs are technically feasible, according to most experts, but tackling cancer therapy was a too ambitious goal. Numerous medical care associations are tormented by AI execution challenges. In spite of the fact that standard based frameworks installed in EHR frameworks are broadly utilized, especially in the NHS, they do not have the accuracy of more algorithmic AI based frameworks. These standard based clinical choice emotionally supportive networks are hard to keep up with as clinical information advances, and they are regularly unfit to adapt to the torrential slide of information and data created by genomic, proteomic, metabolic, and other 'omic-based' ways to deal with treatment.

[14]In the field of upheld living for the old and incapacitated, AI innovations joined with brilliant automated frameworks are driving the way for better life quality. As of late, an outline of shrewd home functionalities and instruments for people with loss of independence (PLA) was delivered, just as keen arrangement models dependent on remote sensor organizations, information mining, and AI. Besides, HMIs dependent on look investigation empower people with disabilities to control wheelchairs and robot support vehicles without the utilization of a joystick or sensors appended to the body.RUDO, an "surrounding astute framework," can help blind people in living close by located individuals and working in specific enterprises like informatics and hardware. Blind individuals can use a solitary UI to get to numerous functionalities of this keen aide. During the indispensable periods of parenthood, a "brilliant right hand" in view of AI can help pregnant ladies with nourishing and other required direction. It might give "progressed" ideas utilizing its own insight related to "cloud-based correspondence channels among all gatherings included."[15]As per the first clarification, AI gadgets might be isolated into two gatherings. AI (ML) moves toward that break down organized information like as imaging, genomic, and EP information fall under the primary gathering. In clinical applications, AI calculations try to group people's elements or gauge the probability of sickness results. Normal language processing (NLP) innovations, which extricate data from unstructured information like clinical notes/clinical diaries to supplement and improve organized clinical information, fall under the subsequent gathering. NLP processes plan to change over texts into machine-coherent organized information that may consequently be broke down utilizing AI methods.

Artificial Intelligence in Manufacturing and Production

[16]The new specialized insurgency and the new modern transformation are all around perceived to acquire foothold. We think another time of 'Web in addition to Artificial Intelligence (AI)' is not too far off, set apart by ubiquitous organizations, information driven, shared administrations, cross-line coordination, mechanized knowledge, and mass development. Assembling is essential to the country's economy, individuals' vocations, and public safety. As far as assembling models, fabricating strategies, and biological systems, the profound combination of assembling innovation with data correspondence innovation, savvy innovation, and item related aptitude specifically is permitting a game-evolving shift.This innovative technology greatly streamlines the human labour infrastructure while also benefiting mankind.

[17]Present day modern and coordination frameworks depend on progressively inescapable and incredible figuring organizations to work. Expanses of information are continually made by sensors, machines, frameworks, brilliant gadgets, and people inside these organizations. Large Data is being examined faster, more widely, and more significantly than any other time, on account of developing PC capacities. Assembling frameworks for computerized visual assessments, issue ID, and support have started to utilize progressed intellectual processing and profound learning advancements. Support learning approaches are in effect effectively used to material taking care of frameworks and creation planning. Businesses hoping to transform constant information into noteworthy decisions are searching for ways of consolidating AI philosophies with customary Operational Research methodology. For general creation frameworks, information double-dealing for canny independent direction is basic. Deng et al. workfocuses at processing frameworks and attempts to gauge machining boundaries that will bring about trustworthy risk-free processing. As a component of the

second-request fourth-second procedure, they utilize a neural organization to address the restricting hub cutting profundity. Tooth et al's. work takes a gander at assessing the measure of time it will take to complete ventures in a task shop. In their mathematical trials, they build up a profound learning approach for expectation that is unrivalled than earlier relapse or organization-based forecasts utilizing colossal information.

[18]AM is a quick rising and developing assembling discipline, similar as AI is in educational applications. Both are versatile since they are attached to strategic and self-referential/duplicating thoughts. The osmotic computational procedure, which is utilized in AM osmotic mass assembling, is utilized in AI-related Cyber-Physical Systems (CPS). Computer based intelligence AM, as it has self-proliferated, is a new field that can be consistently or efficiently joined together. The review takes a gander at current forward leaps in the subject of AM process stream, just as how it identifies with AI applications. As an outcome, a rundown of calculated, hierarchical, and modern cycle stages, just as current and planned AI-AM applications, has been arranged. The extended strategy in this manner makes the way for a metaperspectively installed osmotic decentralized figuring worldview, just as an osmotic assembling worldview dependent on glocal capacities, for both nearby and worldwide dispersed material and data transport organizations and related association diagrams.

Artificial Intelligence in Security and Surveillance
[19]Listed below are a few examples of machine learning applications in the cybersecurity area that might have a big influence on international security. Labour Requirements Reduced and Automation Increased Traditional human surveillance methods that cyber surveillance has supplemented or replaced have tended to be more labour-intensive. Increased use of machine learning might hasten this trend, possibly bringing sophisticated cyber capabilities previously only available to giant corporations or nation-states within reach of smaller businesses or even people. There are already several cases of very inexperienced programmers, dubbed "script kids," who are unable to design their own cyber-attack programmes but can efficiently mix, match, and execute code written by others. Narrow AI will expand the capabilities accessible to such actors, reducing the threshold for assaults by individuals and non-state actors while also expanding the scope of potential attacks for all actors. There are already several cases of very inexperienced programmers, dubbed "script kids," who are unable to design their own cyber-attack programmes but can efficiently mix, match, and execute code written by others. Narrow AI will expand the capabilities accessible to such actors, reducing the threshold for assaults by individuals and non-state actors while also expanding the scope of potential attacks for all actors. Discovering New Cyber Vulnerabilities and Attack Vectors Using Artificial Intelligence Microsoft and Pacific Northwest National Laboratory researchers have already developed a method for automatically producing harmful inputs and determining which inputs are most likely to lead to the identification of security vulnerabilities using neural networks and generative adversarial networks.

[20]Our second discussion of the employment of artificial intelligence in domestic security brought up several serious AI-related dangers. The deployment of artificial agents for government monitoring of citizens is a visceral illustration of such hazards. One such incident is discussed in Oliver Stone's recent film "Snowden." At best, government spying reveals a government's willingness to act. Motive might not have its same general ethical weight as actions.When the government in question is repressive, though, this difference might be more difficult to make. Less

trusting assessments of US government monitoring say that surveillance has not always been a neutral instrument in the US. Inequitable surveillance, however lawful on the surface, can be used to perpetuate injustice. Artificial intelligence is becoming more sophisticated, allowing all resourceful governments—repressive and benign alike—to monitor their citizens. Artificial intelligence is as of nowbroadlydeployed in domestic security;therefore, it isn't just a theory. The use of algorithmic or data-driven systems for surveillance and administrative law has been widely written about by legal experts (e.g., in the administration of welfare benefits). Previous RAND publications have looked at the application and limitations of predictive policing algorithms in civilian law enforcement in the United States. The employment of algorithms in criminal court procedures is described in ProPublica's recent investigation on machine prejudice. The use of COMPAS, a recidivism assessment method, in the criminal justice system for parole hearings is discussed in the study. The COMPAS system was demonstrated to provide results that were systematically skewed. This prejudice, along with the system's erroneous application for bail and sentence, resulted in major inequalities in criminal sentencing results in courts that used technology. Artificial intelligence is being more widely used in law enforcement, raising worries about fundamental citizen rights. The most apparent worry is the increased search and seizure powers accessible to law enforcement groups, as well as the resulting degradation of privacy. In reaction to the usage of traffic cameras, another aspect of this issue emerges. Although these devices are rather rudimentary in intelligence, there were early worries about possible 6th Amendment rights breaches associated with the use of evidence generated by nonhuman automated agents.

[21]Artificial Intelligence (AI) is a fast-developing field of technical advancement that is attracting the interest of worldwide competitors, business executives, defence experts, and legislators alike. On July 20, 2017, China unveiled a strategy outlining its plans to take the lead in AI by 2030, and less than two months later, Vladimir Putin openly revealed Russia's intention to pursue AI technology, saying, "Whoever becomes the leader in this sector will control the world. "Elon Musksent a letter to the United Nations (UN) signed by 114 international technology leaders warning that autonomous weapons powered by Artificial Intelligence will "empower armed battles to be fought on timescales faster than humans can comprehend," and pleading for the means to prevent an arms race and protect civilians from potential misuse. Meanwhile, the US military is already incorporating AI systems into warfare through Project Maven, a pioneering programme that uses AI algorithms to identify rebel targets in Iraq and Syria. These occurrences have prompted Congress to hold hearings in 2017 to examine the many issues related to cyber terrorism. Congress has a range of financial and regulatory powers at its disposal to influence the answers to these issues and the direction of AI technology in the future.

Artificial Intelligence in Education

[22]Thanks to artificial intelligence, we are able to predict the student performance with precision and accuracy. We can decide whether to enrol a student in an institution or a business firm. We can establish a program that can make the students shine in his or her particular area of interest.[23]Artificial intelligence can ensure that medical education reaches its pinnacle by helping to design the modules of studies more precisely on teaching the students how to clinically treat certain illnesses specifically. Thus, responding remarkably to the needs of the humanity. There are two commonly used functions in the field of AI namely Artificial Neural Network and Support

Vector Machines to help mentor medical students.These two processes contribute in the enhancement of existing AI network guaranteeing that the that the present Artificial Intelligence technology's flaws are resolved.

[24]The idea of STEAM [Science, Technology, Engineering, Art, Mathematics] in education has gone head-to-head with the present-day AI technology. This has enabled us to find solutions to many real-world problems we face right now. The treatment of natural language is multi-faceted and asymmetrical, where Artificial Intelligence can play its role to make it easier. However, many researchers refuted this notion and have proven that only teachable agents can contribute to reduce linguistic barriers.[25]The mechanism itself does not mentor the student, but the outcomes of the student from this process are astoundingly good. The mechanism will not progress to the next concept unless and otherwise, the student fully understands the concept. It will present only the application that the student is ready to analyse in a better manner. It aids the student in providing the correct response and appreciates the student for the correct response and gives him feedback so that he can improve.

Advantages of Artificial Intelligence

[26]AI is particularly effective in the creation and management of transportation systems because of its well-known benefits and efficacies. Real-time sensing, detection, reaction, and control are very important in intelligent transportation systems, and AI can be used efficiently in all of these applications. A distributed traffic sensor and control network is, indeed, the way of the future for real-time traffic management and control. Distributed sensor networks, which are made up of many levels of intelligent sensor networks, detect and respond to issues automatically, as well as operate the highway network as needed. The construction of the next generation traffic management system can be aided by an intelligent sensor network with AI technologies. We anticipate a larger deployment of AI solutions in several areas of transportation due to their numerous benefits. Artificial intelligence (AI) programs are used to mimic human intellect so one can remedy troubles and make choices. Constancy, reliability, and cost-effectiveness are all blessings of AI, which also addresses cryptic and pace in either solving a difficulty or creating a choice.

   i)   [27]Artificial intelligence has a number of benefits, one of which is that its judgements are backed up by evidence rather than feelings. Even despite our best attempts, it is a well-known reality that our sentiments always influence our decisions in a negative manner;
   ii)   Machinery with artificial intelligence, unlike living beings, do not require sleep, eliminating the fundamental drawback of human fatigue;
   iii) Knowledge can be disseminated more easily;
   iv)   When a computer mind has been taught in some way, it can be readily duplicated by other computers, thereby saving time that would have otherwise been spent teaching other humans.
   v)   [28]Can handle demanding and complicated tasks that humans may find difficult or impossible to do;
   vi)   Can most likely perform tasks quickly than a person;
   vii) To find things that haven't been discovered before. Outer space, to be precise;
   viii) There are fewer mistakes and flaws;
   ix)   The function is limitless.

[29]One of the advantages is that it has improved physician performance in hospital facilities. The scenario is beneficial to patients who are considered clients. Hospital workers can employ specifically created computer systems to identify patients who are most at danger. Such systems can accurately assess the individual physiologic difficulties that various patients discovered in the hospital may be experiencing and deliver accurate information about patient who requires immediate attention. Computer technologies can help in decision-making and save physicians time by allowing them to consult extensively on some of the health concerns that their patients may be facing. It's been used, for example, to measure the amount of medication interaction in patients to check if they have any antagonistic or synergistic effects on one another. Artificial intelligence has been utilised to assess the large quantity of molecular information relating to drug candidates in order to determine the general impacts that it would have on them during the drug formulation and clinical research processes. It would be able to ensure that they have the capacity to identify the broad implications of the individual pharmaceuticals they put on the market in this way.

Disadvantages of Artificial Intelligence
i)   [30]Human jobs are impacted;
ii)   Joblessness is on the rise;
iii)   Creativity is dependent on programmers;
iv)   Lacks the personal touch;
v)   Younger generations grow lazy, mandates a deal of time and resources;
vi)   Technological reliance is on the rise.
vii)   [31]Constructing, repairing, and repairing may be extremely expensive in terms of both money and time;
viii)   Robotic repair may be used to reduce the amount of time it takes for people to fix things, but it would cost more money and resources;
ix)   Robots replacing occupations might result in catastrophic jobless unless humans can fill the void with tasks AI can't perform or drastically shift the government to communism;
x)   If placed in the wrong hands, machines may quickly bring havoc;
xi)   With its technologies automating the majority of the job, AI is making people lazy. Humans have a tendency to become addicted to these innovations, which might be detrimental to future generations;
xii)   Human intervention is getting less as AI replaces the bulk of repetitive chores and other duties with robots, which may present a serious problem within the utilisation requirements. Every company is aiming to replace the least skilled employees with AI robots that can perform comparable tasks more efficiently.

[32]Before regulation and any subsequent judicial proceedings, it is necessary to identify instances in which AI technology will be particularly challenging in establishing appropriate judgement.Of course, certain circumstances are quite clear. A movie recommendation system should respect parental guidelines and not show NC-17-rated content to children. A self-driving car should not, for example, slam into a wall for no apparent reason. But, in many cases, conditions are significantly less apparent, especially when others are involved, in addition to the user. We undoubtedly have the potential to create algorithms that constantly favour altruistic, cooperative behaviour. But who wants to go behind the wheel of an automobile that might kill you in order to

save the lives of others? Indeed, as per Bonnefon et al., there aren't that many of us. They conclude that by delaying the introduction of safer technologies, regulations of hedonistic algorithms may inadvertently increase casualties.

[33]In an era of responsibility, we can't afford to rest on our laurels for very long. In the future, we need a vision that is exciting and ambitious. Any big demonstration of smart applications, fortunately for us, is fascinating. We need to accomplish one more thing. We must identify and act on challenges of national importance whenever popular approach projects that catch the public's imagination. Thankfully, there are a number of seemingly plausible challenges that are now intractable and need important new insights and fundamental improvements in several subfields of AI, with unambiguous definition of success or failure. Nature has evolved innate intelligence after billions of years of waiting! We can surely wait a hundred, if not a millennium, for a sentient intellect to emerge. If we are capable of addressing these issues faced by AI, we can make a significant improvement in the field of Artificial Intelligence. Thereby helping humanity in a better way.

Conclusion

Every day, artificial intelligence makes our lives easier. Many applications and services that assist us with daily tasks, such as interacting with friends, utilizing an email programmed, or using a ride-share service, are powered by AI. Artificial Intelligence technology is significant because it allows software to perform human capabilities such as thinking, reasoning, planning, communication, and perception more effectively, efficiently, and at a lower cost. Artificial Intelligence increases productivity in areas where it outperforms humans, allowing us to perform faster computations and solve more complicated issues. Companies and individuals are utilizing their abilities in a more effective manner as a result of the potential of Artificial Intelligence. However, we must remain vigilant in recognizing that Artificial Intelligence is actually meant to make our lives better. It may be regarded as a tool to help us rise above our environment.

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ARTIFICIAL INTELLIGENCE

CHEKURI LAVANYA
M.Tech. VLSI DESIGN
Email ID: Chekuri.lavanya2021@vitstudent.ac.in

What is Artificial Intelligence?

[1]Artificial Intelligence differ from those naturally intelligent as aircrafts with special properties ordinarily by non arti-crafts. Mode of creation of human intelligence and also biological and evolutionary.[2]Artificial Intelligence(AI) is the study of science and engineering with which manufacturing of intelligent machines and computer programs are undertaken. The idea of artificial intelligence is based on the very human intelligence, with the exception that AI doesn't restrict themselves with the biologically observable limitations.Most AI systems train on recorded information, and are fit for revealing examples, gaining from models and foreseeing future results for the reasons for direction. These expectations and arrangements are speculations dependent on enormous datasets that people would not have the option to investigate at comparative speed and scale.

History of Artificial Intelligence

[3]Artificial Intelligence was born in 1956. John McCarthy defined the term first and also it implemented in LISP language which means List Processing is using now-a-days also. The first international conference on Artificial intelligence in 1970 was held in Washington.[4]The history connection with neuro science, conceptual holism and non-rationalism. It is a historical and intellectual concept. The Artificial Intelligence associate with conceptual atomism, rationalism and formal logic. Artificial intelligence is both historically and philosophically misleading.[5]Artificial intelligence (AI) can be defined as "the capability of a machine to imitate intelligent human behaviour" or "an agent's ability to achieve goals in a wide range of environments. Artificial intelligence might be sent in the common creation of labour and products, possibly affecting financial development and income shares.It may also change the process by which we create new ideas and technologies, helping to solve complex problems and scaling creative effort.[6]Artificial Intelligence (AI), like deep learning algorithms and neural networks, are being intensely explored for novel healthcare applications in areas such as imaging and diagnoses, risk analysis, lifestyle management and monitoring, health information management, and virtual health assistance. It is being seriously investigated for medical care applications in regions like imaging, diagnoses, risk analysis, way of life the board and observing, health information management, and virtual health assistance.

AI in India

[6]There is a considerable assemblage of writing on ongoing advances in AI and the subsequent ramifications for occupations, abilities, and society in general; barely any examinations have analysed the particular effect of AI on India's arising economy. The Indian government is forcefully attempting to build human resources on a public scale, with a particular accentuation on its more youthful populace through the Skill India drive, while trying to draw in worldwide assembling to India by means of its Make in India program.For India to maximally profit from the AI unrest, it

should take on a conscious arrangement to drive AI development, variation, and multiplication in sectors past just buyer products and data innovation (IT) administrations.AI powered applications and services have become widely available in India.

Various Places Where AI is Used

[7]To increase the digital economy, energized by further developing schooling and globalization, the Indian customer is unknowingly the country's greatest recipient of late advances in AI. From using different applications controlled by computerized reasoning to utilizing a scope of online administrations, for example, Amazon Marketplace and Netflix that gain from consumer's web-based conduct to make clever item and administration suggestions, shoppers are promptly drawn in with the expansion of AI in India, whether or not they like it. Policymakers, in the meantime, linger behind, not taking advantage of AI for public safety, public administrations, or different needs.[5]Artificial intelligence (AI) can be defined as "the capability of a machine to imitate intelligent human behavior" or "an agent's ability to achieve goals in a wide range of environments. Artificial intelligence might be sent in the common creation of labour and products, possibly affecting financial development and income shares.It may also change the process by which we create new ideas and technologies, helping to solve complex problems and scaling creative effort.[6]Artificial Intelligence (AI), like deep learning algorithms and neural networks, are being intensely explored for novel healthcare applications in areas such as imaging and diagnoses, risk analysis, lifestyle management and monitoring, health information management, and virtual health assistance. It is being seriously investigated for medical care applications in regions like imaging, diagnoses, risk analysis, way of life the board and observing, health information management, and virtual health assistance.

AI in Healthcare Appliances

[7]They are many healthcare applications and also algorithms for diagnosis, screening and triage, decision support. There is more effective for Artificial Intelligence on more accurate diagnoses and efficient service delivery. By this large amount of excitement amongst patients, the public, politicians, and healthcare professionals.[8]Artificial Intelligence is a range of technologies for solving problems. In earlier days, AI systems used symbolic logic which is called "expert systems".In health care domain, these expert systems providing clinical knowledge translate expertise into symbolic language.[9]Artificial Intelligence is to enable intelligent communication networks. Especially for remote monitoring fields such as health care, military and prediction of seismic activity in volcanoes. Intelligent devices like electronic home appliances, gadgets to mobile phones or tablets.These techniques to create such intelligence and also exploit the benefits brought by this capability.[10]Artificial Intelligence in cardiac disease management is the leading cause of death. It also been exploited in the health care domain.Using artificial intelligence there is a research in different health care applications.[11] Artificial Intelligence is opposed to natural intelligence. Artificial Intelligence and IOT are combined to get more effective process combine together both internet and IOT. The efficient health care was introduced by IOT and artificial intelligence. IOT Internet of Things is a web-based object network that can communicate and share data. Edge computing is a modern technology in which data are processed from the edge.

AI in Manufacturing and Production

[12]Artificial Intelligence takes place an important role in our life.Especially, Robots takes vital role as now which means they are connected to human brain as artificial intelligence.to improve the manufacture and productivity sectors provides more challenges in the world economy.[13]Artificial Intelligence we can develop from different workshops for manufacturing. We can organize in scheduling and control, design and planning and manufacturing integration for Integrated software systems. Problem solving in production planning, different approaches to scheduling, robot control systems in manufacturing.[14]Manufacturing 4.0 is altering the manufacturing sector. The arrival of manufacturing 4.0 and AI and machine learning make replicate to manufacturing process.It has immersed revolution for manufacturing companies with different industries.IoT, AI, cyber-physical systems, Machine learning and cognitive computing.

AI in Security and Surveillance

[15]AI in the changing threat has genuine ramifications for data security, mirroring the more extensive effect of simulated intelligence, through bots and related frameworks. Natural Language understanding and different types of AI can prepare PC models to identify and channel purposeful publicity content. Advances in natural language processing (NLP) can leverage sentiment analysis to target specific ideological audiences.[16] Artificial Intelligence (AI) suggests this arising innovation will impact military force, key contest, and world governmental issues all the more extensively. After the underlying of wide hypothesis in the writing identified with artificial intelligence this article gives some genuinely necessary It left with unchecked the vulnerabilities and weaknesses made by the fast expansion and dispersion of artificial intelligence could turn into a significant expected wellspring of flimsiness and incredible force key contention.[17] Robotization has consistently prompted the annihilation of occupations. After the creation of the automated farm vehicle, for instance, agrarian work in the US started a long-lasting decay. Cultivating work today is performed by just 1% of the American population (3.2 million). In 1920, cultivating work included 30% of the population (32 million).Most specialists in the field accept that driving man-made intelligence organizations are fundamentally and in many cases exclusively serving commercial, non-defense customers. It is unreasonable to accept that national security community will be an essential source of income for a large portion of these organizations.

Artificial Intelligence in Education

[18]AIED is the best example as to how students can use present day technologies for their growth.It is a technology where the student can get help whenever and wherever required.The field of AIED is growing day by day because there can never be a end to a student's curiosity and also to the knowledge one can gain. [19] Artificial intelligence is of two words one is Artificial and second is intelligence, artificial means man- made and intelligence means the capacity of thinking, So we can define the artificial intelligence the branch of computer science. It is a branch of science which deals with modifying machines for finding solutions of complex problems in human-like fashion. Its has the ability of a computer or computer- controlled robot to complete the tasks mainly associated with intelligent beings. [20] In the present time, artificial intelligence technology has made significant examination forward leaps in the field of training and instructing.

This discourse acknowledgment innovation is generally utilized in all parts of our lives. In present day culture, machines can comprehend individuals' language, yet additionally give them full feedback. There are as yet numerous issues in the development of business English major. For instance, in reverse showing techniques and lacking proficient instructors make it hard for all around prepared understudies to address the issues of managers.

Advantages of Artificial Intelligence

[21]By utilizing AI human works can be lesson, by supplanting people groups by machines, individuals can do others works.

- Artificial intelligence can be deployed easily.
- Daily applications like Apples Siri, Windows Cortana, Googles OK Google are oftentimes used in our every day schedule whether it's for looking through an area, taking a selfie, settling on a location, answering to a mail and heaps of something else.
- Utilizing AI close by different advances we will settle on machines take choices quicker than an individual's and perform activities faster.
- The machines can be reprogrammed for work for long time without getting exhausted or getting tired.

[22]The development of artificial intelligence has changed the fundamental knowledge of educators. In customary business English instructing, instructors for the most part show understudies by speaking with them.In the utilization of artificial intelligence items, understudies can evaluate their learning circumstance, along these lines lessening the time weight of instructors to address their schoolwork, and educators have more opportunity to comprehend the understudies' learning circumstance, change showing strategies on schedule, and instruct as per their own capacities.[23]Artificial Intelligence has a wide scope of advantages that has expanded its ubiquity and applications in numerous business areas.Cell phones and PCs use AI applications, which is a need for some individuals since individuals need to convey and store their information in AI-controlled gadgets.[24]More straightforward spreading of information. When a counterfeit psyche is prepared for something, it tends to be effortlessly duplicated to the others lessening the time squandered in any case giving information to different people through preparing.In contrast to people, machines with man-made consciousness needn't bother with any rest, consequently defeating the inborn drawback of sluggishness in people.[25]A portion of the exceptionally progressed associations utilize computerized partners to connect with clients which saves the need for human resources. The computerized partners additionally used in numerous sites to supply things those clients need.We can chat with them about what we are trying to find. Some chatbots are designed in such how that it's become hard to work out that were chatting with a chatbot or a person's being.

Challenges or Disadvantages of AI

[26] Difficult to foster the machines, in fact that the hardware are likewise costly. Machines can perform only those tasks which they're designed or programmed to try to , anything out of that they have a tendency to crash or give irrelevant outputs which might be a serious backdrop.As AI is supplanting most of the dreary undertakings and different works with robots, human impedance is turning out to be less which might cause a critical issue inside the usage norms.[27]The

fundamental explanation is that when colleges figure ability preparing programs, the preparation of artificial intelligence mindfulness and capacity has not been truly consolidated into professional schooling, which has impacted the advancement of expert ability preparing objects. Artificial intelligence education is just a shallow structure, which isn't helpful for the improvement of Artificial intelligence education preparing thinking.[28]Artificial intelligence experiences many data difficulties that tend to affect its applications. Artificial intelligence likewise encounters security catches that are dangers to online clients. Security tangles occur in numerous ways like extortion, loss of information, defrauding, and hacking. [29]Powerlessness to clarify the rationale and thinking behind a specific decision,Current improvement is at a phase where the AI can't know when there is no answer for a specific issue.[30]There is little inquiry that machines are obviously better when it includes working productively yet they can't supplant the human association that makes the group. Machines can't foster a bond with people which is a significant trait when includes Team Management.it is making people sluggish with its applications robotizing the main part of the work. People will quite often encourage snared in to these innovations which might make a drag people in the future.

Conclusion

This article was expected to impact existing AI strategy thought in India, and welcome a cross-disciplinary conversation on the issue.The proposed structure endeavours to overcome any barrier between the two, and foster a common perspective of these issues. Critically, it exhibits that AI frameworks can't be considered as disconnected numerical issues, or as unbiased in nature or as just gainful due to their productivity. Rather, AI advancements are intricate social frameworks that can't, and ought not, be assessed distinctly based on proficiency and exactness. The speed of advancement is fast, the idea of improvement is obscure, and the impacts of improvement are significant and regularly irreversible.

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ARTIFICIAL INTELLIGENCE AND APPLICATIONS

MATHEW JOE
M.Tech. Integrated Computer Science
Email ID: mathew.joe2021@vitstudent.ac.in

What is Artificial Intelligence?

[1]After 60 years, Computerized reasoning (Artificial intelligence) arrived at industry and the awareness of the world. The noteworthy victories and new simulated intelligence techniques are currently entirely pertinent, to the point that they ought to be instructed even in an essential course. In around 30 new pages, I report mostly on profound learning, a reliable further advancement of neural organizations, which at long last empowers picture handling frameworks to perceive practically any item in pixel pictures. Among different advantages, this lead to the primary PC program that could beat one of the world's best Go players. [2]Self-driving vehicles, administration robots, and savvy homes—which are for the most part uses of simulated intelligence—will incredibly transform us. In any case, notwithstanding incredible beams of trust, there will be a clouded side. However we live in a period of quick mechanical advancement, we have since a long time ago surpassed the restrictions of development. We should in this way contemplate maintainability while carrying out each new development. In Chap. 1, I might want to give you some something worth mulling over with regards to this subject

History of AI

[3]Artificial knowledge (artificial intelligence) is a youthful logical field, which like different areas of data handling sciences, was brought into the world in the XXth century, with the appearance of the main PCs. In any case, significantly more long-standing worries have added to its last rise. They can be extensively expressed around two primary issues: the formalization of thinking and learning components and the plan of machines having independent abilities as far as calculation and activity. Over the long haul, such machines have been first imagined, prior to being planned and made genuine. The ever-evolving accomplishments have taken care of the creative mind of savants, yet additionally journalists, film producers, and different craftsmen. This is the motivation behind why in the couple of components of the incredible authentic epic that we sketch here, references to all areas of human imagination are involved.[4]The point of the investigation of Man-made reasoning is no longer to make a robot as smart as a human, but instead to utilize calculations, heuristics, and procedures dependent on the manners by which the human cerebrum tackles issues. Henceforth, frameworks have been planned like Thomas Evans' Similarity and Melanie Mitchell's Copycat Engineering, which were intended to have the option to tackle issues that include analogies. Mitchell's Copycat, for instance, can tackle issues, for example, "ABC is to CBA as DEF is to ???.

AI in India

[5]Artificial insight is an arising center space of strategy advancement in India. The country's local impact, blossoming computer based intelligence industry and driven legislative drives around simulated intelligence make it a significant purview to consider, paying little mind to where the peruser of this article lives. Indeed, even as existing approach processes mean to energize the fast

advancement of artificial intelligence for monetary development and social great, an overall pattern endures in India, and a few different locales: the impediments and dangers of information driven choices actually include as review contemplations for improvement and sending of man-made intelligence applications. This article contends that the specialized impediments of computer based intelligence frameworks ought to be dealt with at the hour of creating strategy, and the cultural and moral worries that emerge because of such constraints ought to be utilized to illuminate what strategy processes seek to accomplish. It proposes a structure for such thought to happen, by breaking down the three fundamental phases of bringing AI (the most well known subset of man-made intelligence procedures) to arrangement—the information, model and application stage. It is composed against the background of India's present artificial intelligence strategy scene, and applies the proposed structure to progressing sectoral challenges in India. So as to impact existing arrangement pondering in the country, it centers around potential dangers that emerge from information driven choices as a general rule, and in the Indian setting specifically.

[6]In late years, the Indian financial area has been fusing the computer based intelligence empowered innovations in their business tasks uncompromisingly. As indicated by PwC Blade Tech Patterns Report 2017, speculation on man-made intelligence and its partnered advancements would be contacted 5.5 billion USD, and it up from 4.1billion USD in the year 2015. While an enormous number of business just as modern banks worldwide have joined the artificial intelligence and its associated innovations for dealing with the client and administrative center related exercises, on account of India, execution of simulated intelligence and its united advances are not upto the degree of cutting edge nations (BFSI, 2019). Lately, heaps of banking and monetary organizations having restrict with Balance Specialists organizations and lead confirmation of ideas (POCs) and the equivalent has been executed in the everyday business tasks.

Various Area Where AI is Used

[7]We consider a PC to show man-made consciousness (man-made intelligence) when it plays out an assignment that would typically require smart activity by a human. A large part of the new fervor about man-made intelligence in the clinical writing has spun around the capacity of man-made intelligence models to perceive life systems and recognize pathology on clinical pictures, here and there at the degree of master doctors. Nonetheless, artificial intelligence can likewise be utilized to settle a wide scope of noninterpretive issues that are pertinent to radiologists and their patients. This audit sums up a portion of the more up to date non interpretive employments of simulated intelligence in radiology. [8]The current review, experiences on the job of man-made consciousness in web based business. Most recent couple of years can be committed to web based business period with its quick extension. Simultaneously the innovative advances led to various stages which can be valuable to refresh the patterns and catch the market needs. Consequently this review centers around the employments of Man-made reasoning in internet business.

[9]Falsely astute advances have been utilized in psychiatry for a long time. Probably the most punctual model is ELIZA, acomputer program distributed by Educator Joseph Weizenbaum of the Massachusetts Organization of Innovation in 1966.20 ELIZA comprised of a language analyzer and a content or a bunch of rules to make do around a specific subject; the content Specialist was utilized to recreate a Rogerian psychotherapist. [10]This paper presents a complete writing review on the utilizations of man-made consciousness methods in agribusiness. The area of farming countenances

many difficulties like infection and nuisance invasion, inappropriate soil treatment, insufficient waste and water system, and some more. These prompts serious yield misfortune alongside natural perils because of unnecessary utilization of synthetic compounds. A few explores have been directed to resolve these issues. The field of man-made brainpower with its thorough learning capacities have turned into a vital strategy for tackling diverse horticulture related issues. Frameworks are being created to help the rural specialists for better arrangements all through the world. This writing overview covers 100 significant commitments where counterfeit smart procedures were utilized to experience the difficulties identified with agribusiness. This paper tends to the use of fake insightful procedures in the major subdomain of farming so the perusers can catch the multidimensional improvement of agro-shrewd frameworks during most recent 34 years, from 1983 to 2017.

Growth of AI

[11]Artificial insight is progressing quickly as of late, when estimated both as far as the measure of assets gave to it and furthermore as far as its outputs.1The Financial analysts all throughout the planet assessed that simulated intelligence related consolidations and acquisitions were multiple times bigger in 2017 than in 2015.2 Expanded speculation has been driven by and furthermore added to fast expansions in the specialized abilities of man-made brainpower (man-made intelligence). For instance, as per the computer based intelligence Record, mistake rates for picture acknowledgment has dropped from 29% to under 3% somewhere in the range of 2010 and 2017, outperforming human execution levels.3 These fast progressions apply to simulated intelligence, yet additionally to advanced mechanics, sensors, and the association of all by means of digitization (otherwise called "Industry 4.0"). These headways have begun to show themselves in an assortment of utilizations, including man-made intelligence beating people at complex methodology games,4 the production of chatbots and remote helpers, for example, Alexa and Siri,5 and Amazon's new clerk less and cash-less basic food item stores.6. [12]Artificial Insight (simulated intelligence) is viewed as the fourth modern upheaval. With the utilization of huge information and computerized reasoning, all areas all through the world have been changed. Computerized reasoning is the replication of human or creature insight in figuring frameworks, determined to programme them to think like canny creatures and duplicate their exercises. Computational frameworks with modified insight might handle some genuine issues fundamentally more precisely and viably than deterministic and hardcoded computational frameworks.

AI in Healthcare Appliances

[13]Artificial knowledge (simulated intelligence) is as of late arising quickly in medical care. Simulated intelligence assists with estimating infections of patients for operation. Simulated intelligence application in medical services is enormous which specialists it as well as patients, drug businesses, wellbeing administrations, protection offices and clinical establishments are utilizing at whatever point they need. [14]Computerized reasoning and large information are increasingly more utilized in medication, either in avoidance, conclusion or treatment, and are plainly adjusting the manner in which medication is thought and rehearsed. A few creators contend that the utilization of man-made consciousness methods to break down enormous information would even establish a logical upheaval, in medication as much as in other logical disciplines. Besides, computerized reasoning methods, joined with versatile wellbeing innovations, could outfit a customized

medication, adjusted to the distinction of every patients from any region of the planet. In this paper we contend that this origination is to a great extent a legend: what wellbeing experts and patients need isn't more information, however information that are fundamentally evaluated, particularly to stay away from inclination.[15]Artificial knowledge (simulated intelligence) has been growing quickly as of late particularly in the field of medical care like biomedicine, including infection diagnostics, living help, biomedical data handling, and biomedical examination. Numerous new logical achievements and advancements are accessible to see the value in the enormous capability of computer based intelligence in biomedicine, and to furnish scientists in related fields with motivation.

AI in Manufacturing and Production

[16]In spite of the significance of man-made intelligence information driven Web of Things frameworks, ongoing progressed investigation, and digital actual creation networks in maintainable brilliant assembling, just restricted exploration have been directed on this point till now. Utilizing and repeating information from BCG, Capgemini, CompTIA, Deloitte, Shroud Establishment, The Financial expert Knowledge Unit, MHI, PAC, Siemens, SME, Programming AG, and we.CONECT, we performed investigations and settled on gauges with respect to large information driven dynamic cycles in digital actual framework based savvy plants or organizations. The consequences of a review dependent on information gathered from 4,800 respondents offer help for our exploration model. Enlightening insights of accumulated information from the finished overviews were determined when fitting.

[17]Smart frameworks and man-made brainpower are playing a steadily expanding job in our regular routines. This pattern doesn't extra industry and creation, involving the possibility to continuously supplant conventional administration assignments. Albeit the numbers for artificial intelligence applications underway are consistently developing, the separate distributions don't seem to spend a lot of thought on long haul suggestions. The two assignments are arranged in the domains of standard administrative capacities and are along these lines inclined to be refined via independent frameworks later on. [18]Artificial insight (man-made intelligence) and, specifically, AI (ML), are turning out to be all the more generally utilized in plant processes. The utilization of AI approaches in assembling process arranging and control, just as prescient upkeep.

AI in Security and Surveillance

[19]At least 56 of the 75 nations with computer based intelligence observation innovations have brilliant city stages with an immediate public security relationship. Facial is a biometric method that matches recorded or live film of people with photographs from a data set utilizing cameras, including video and still pictures. Not all facial acknowledgment frameworks use data set coordinating to recognize people. A few frameworks utilize facial acknowledgment swarm examining to survey total segment patterns or lead more extensive feeling examination. [20]On the one hand, a few artificial intelligence based strategies have been effectively embraced by the security business. Forswearing of administration attacks, criminology, interruption recognition frameworks, country security, basic foundation insurance, delicate information spills, access control and infection recognition are altogether instances of utilizations.

[21]Artificial Insight (artificial intelligence) is advancing at a quick speed, especially in modern development. The uncommon utilization of artificial intelligence in digital assaults gives off an impression of being somewhat terrifying. The prospect of an AI all alone and becoming complex enough to attack things is a stressing subject in the digital domain. Generally, these simulated intelligence empowered digital assaults are performed utilizing progressed malwares which joins progressed avoidance methods to sidestep security borders. Conventional digital protection strategies neglect to adapt to these assaults. To resolve these issues, strong traffic order framework utilizing Head Part Examination (PCA) and Fake Neural Organization (ANN) is proposed for giving outrageous reconnaissance.

Application of Artificial Intelligence in Education

[22]Till now, understudies seeking after advanced education are set amidst difficulties for learning and instructing. Human-artificial intelligence association is considered as a sort of key to the issues of absence of help of the handicapped individuals all throughout the planet which rouse individuals to exploit artificial intelligence in advanced education. This subsequently helps students and instructors to enjoy their examinations and exercises more. [23]As indicated by Chassignol et al, Computerized reasoning in schooling has been fused into organization, guidance or instructing, and learning. These regions, which Chassignol et al. recognize as the system for investigating and understanding man-made reasoning in training, will assembled the extent of this review and learning. [24]There are extremely profound risks related with the utilization of man-made consciousness overall and explicitly in the field of instruction that should be considered inside and out. The new ages are now centered around habit-forming beasts that are completely contained in a little hand-sized component: the wireless; which thus associated with the Web makes interpersonal organizations twitter, instagram, Facebook, snap visit and others accessible to the person who no longer has the opportunity to apply the limit of Socrates: Know yourself.

[25]AIED gathering and diary papers will affirm, AIED incorporates everything from simulated intelligence driven, bit by bit customized educational and exchange frameworks, through artificial intelligence upheld exploratory learning, the examination of understudy composing, canny specialists in game-based conditions, and understudy support chatbots, to simulated intelligence worked with understudy/coach coordinating with that places understudies in charge of their own adapting immovably. It additionally incorporates the connection of understudies coordinated with PCs, complete-school draws near, understudies utilizing cell phones outside the homeroom, and considerably more alongside. Likewise, AIED can likewise illuminate learning and instructive traditions. The field of AIED is both subordinate and inventive. From one viewpoint, it brings hypotheses and philosophies from related fields like artificial intelligence, intellectual science, and instruction, and so forth

Advantages of Artificial Intelligence

[26]The advantages of man-made consciousness are extraordinary, what this region can offer us, is to develop conclusively and continue on to the historical backdrop of fake robots. Following are the principle benefits of Computerized reasoning (artificial intelligence). Done job quicker than a human, Upsetting and complex work finished effectively, Troublesome work done in brief period, Different capacities can done at a time, Success ratio is high, Less mistakes in undertaking and

deformities additionally, More proficiency in brief time frame, Less space, less size, Computation of long haul and complex circumstances, and Find neglected things. for example space. [27]In an association wherein human insight is attached to a specific individual or a gathering of individuals, man-made intelligence applications can give permanency that keeps the information from being lost when the individual or the gathering individuals resign or are presently not accessible to the association. The existence of the information typified in a computer based intelligence system could be the length of the pertinence of the issues and choice situations stay unaltered. Man-made intelligence additionally empowers the improvement of a learning ability which can be used to additionally delay the life and pertinence of the application. Gaining from certifiable achievement and disappointment is an empowering component of computer based intelligence devices known as "support learning" and is beneficial in that it builds the dependability of the apparatuses with their expanded use in applications.

[28]One of the significant benefits of man-made consciousness is that its choices depend on realities rather than feelings. Indeed, even after our most extreme endeavors, it's undeniably true that human choices are constantly impacted in a negative manner by our feelings. In contrast to people, machines with computerized reasoning needn't bother with any rest, in this way beating the intrinsic detriment of sleepiness in people. Simpler spreading of information. When a fake brain is prepared for something, it tends to be effectively duplicated to the others decreasing the time squandered in any case giving information to different people through preparing. [29]The likely utilizations of man-made reasoning in style industry cover a wide extension from configuration emotionally supportive networks to form suggestion frameworks through tactile assessment, shrewd global positioning frameworks, material quality control, design estimating, decision making in production network the executives or informal organizations and design e-advertising. Accordingly, this book intends to outline the various conceivable outcomes and benefits of man-made brainpower for the style business in the enormous information time

Disadvantages of Artificial Intelligence

[30]One significant analysis of numerous man-made intelligence ideal models (e.g., neural organizations), which was recently suggested in the article by van Zuylen, is that they are frequently viewed as secret elements that only endeavor to plan a connection among yield and information factors dependent on a preparation informational index. This additionally promptly raises a few worries in regards to the capacity of the device to sum up to circumstances that were not very much addressed in the informational collection. One arrangement that has been proposed to address the discovery issue is the blend or mix of various computer based intelligence standards into a crossover arrangement (e.g., consolidating neural organizations and fluffy sets into neurofuzzy frameworks) or coupling computer based intelligence ideal models with more conventional arrangement strategies. One more impediment of artificial intelligence based hunt strategies, like hereditary calculations.

[31]Absence of imagination in reactions, powerlessness to clarify the rationale and thinking behind a specific choice, current improvement is at a phase where the computer based intelligence can't know when there is no answer for a specific issue, any breaking down can prompt the artificial intelligence creating incorrectly arrangements and since it can't clarify the thinking behind its reply, blind dependence on computer based intelligence can prompt issues, absence of good judgment in thinking can likewise lead to significant issues and it very well may be utilized to cause mass scale

annihilation whenever given in some unacceptable hands. [32]Its difficult to foster the machines in light of the fact that the hardware are likewise expensive. Can cost huge loads of money and time to make , modify, and fix. Mechanical fix can happen to downsize time and people needing to fix it, however that will cost additional cash and assets. Robots, with them supplanting occupations, can cause serious joblessness, except if people can fix the joblessness with occupations artificial intelligence can't do or seriously change the govt to socialism. Machines can undoubtedly cause annihilation, whenever put inside the erroneous hands. That is, at least a dread of the different people. Simulated intelligence is making people lethargic with its applications mechanizing the main part of the work. People will quite often ask snared in to these developments which might make a drag people in the future. [33]Presentation of Industry 4.0 idea and a comprehension of man-made intelligence use in this specific circumstance. Then, at that point, gives components of safety standards and recognition methods applied to functional innovation (OT) which shapes the primary assault surface of assembling frameworks. As some interruption recognition frameworks (IDS) as of now include some computer based intelligence based procedures, we centre around existing AI and information mining based strategies being used for interruption location. This article presents the significant qualities and shortcomings of the principle strategies being used.

Conclusion

From the above discussion we can see that Artificial Intelligent Technologies ease human's life and by coming future Artificial Intelligent Technologies can provide more competitive advantage. At the end, we" ve been during this research through the AI definitions, brief history, applications of AI publicly, applications of AI in military, ethics of AI, and therefore the three rules of robotics. This is not the top of AI, there's more to return from it, who knows what the AI can do for us within the future, maybe it'll be a whole society of robots.

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ARTIFICIAL INTELLIGENCE

THATHA RAJESH
MTech VLSI Design
Email ID: thatha.rajesh2021@vitstudent.ac.in

What is Artificial Intelligence?

[1]Artificial intelligence is the study of intelligent behaviour.it is the science where we build intelligent machines. The main aim is to programme these intelligent machines like computers to analyse and understand the human behaviour. Many people thought that intelligence of the human can be grasped by writing several programs and some other researchers thought that many fundamentals should be needed to achieve the desired task.Using the computer, we can execute or simulate any kind of the work we do. so computers are the right machines where the artificial intelligence can be developed.Some researchers developed other computing machines expecting that they will perform better than the computer in many other ways. Many billions of dollars spent on inventing the new machinesthat were faster than the computer simulating the programmes.But the computers must be very fast as much as the programme.[2]While you are going to know about artificial intelligence,questions like What is intelligence? How can u measure intelligent? Become pretty meaningful. Here the intelligent agent is the programme itself which analyse its environment. The behaviour of the human is analysed continuously that are in process and then formalized, the same is replicated in the machine.Human minds and modern digital computers are similar to each other like 'symbolic information processing systems. Both take the symbolic information as the input, manipulate it according to some set of rules and then they will solve the problems. Artificial intelligent researchers set some algorithms to identify the intelligent human behaviour so that they can reproduce the same behaviour automatically. This behaviour can be observed from the human behaviour in the medical diagnosis, chess,any game playing,language processing etc.

History of Artificial Intelligence?

[3]Alan Turing who belongs to Great Britain is the person who started working on the artificial intelligence beginning. He is the good computer programmer. He wants to build a computer machine which can do any work that can be done by the human computer. He wants this machine to do things in an organised manner continuously. In developing the AI machines, one must concentrate on previous developments done in that field and what are the new developments has to be made. We should see how much the development has done in the particular AI field.AI has been active field from the past fifty years.[4] John McCarthy is the person who used the word artificial intelligence first time.He demonstrated his understanding on how the machines can analyse the human intelligence in a conference. McCorduck and Gregory demonstrated how the recent advanced tools helps in analysing the brain of humans. AI contains some research programmes which do comparative analysis with the previous tasks done by the human and then to develop the new patterns of work. In 1950 itself many scientists and engineers thought that it will take very few years for them to develop artificial intelligence machines that will behave similar to humans in every aspect in if they start research from then itself. later in 1980s they felt that it is not that much easier to build AI machines as they thought earlier but after due to the advent of some recent technologies

related to the computing tools and robots. But the problem faced in this field is that even though many attempts were being made, all these are unconnected to this field.

Growth of Artificial Intelligence

[5]We can see change and growth in the economy of the country when there is advancement in technology. over the past 10 years, we have seen much improvement in the computer technology. Using of the AI in various fields and industries automatically makes industries to grow economically. Many entrepreneurs entering into the health care for investing in order to find the new solutions in the health care systems. In recent days most of the consumers receiving the AI based health solutions. The amount of the database required for analyzing using the AI is growing exponentially.[6]We can see growth of Artificial intelligence in internet of things.it is nothing but control of the sensors and other electronic appliances with the help of the artificial intelligence. we can see the growth in many other fields like medicine, industries and space technology.AI along with the machine learning helps us in automating the process and making the network very intelligent. Now a days in semiconductor industry also AI is widely used.All these technological advancements are deployed in the AI to achieve the good wireless networks. Use of AI in industries is considered as the fourth industrial revolution.AI with the help of the big data has brought major changes in the industrial sector across the globe.It plays an important role in identifying the problems seen in the industries.AI and big data changed the business world.

AI In India

[7] In India Artificial Intelligence is an emerging priority that has the potential to make an easier life and prioritize digital technology. The Union government in 2018 allocated digital India to transform into 'digitally empowered society and knowledge economy'. [8] This field has become extensive research since the term was introduced and led to intelligent applications for large-scale deployments. One major advancement in the Indian technology brings with the challenges provided. Artificial Intelligence (AI) is concerned with understanding the human nature and substantial economic growth. Several companies captured the opportunity.[9] There is one strategy on AI called "National Strategy on AI" announced by NITI Aayog that forces to identify the key policy enablers across sectors and to readopt new era. Some committees also submitted their report on identifying the issues on skilling and re-skilling, R&D and cyber security, safety, legal and ethical issues. There are some guiding principles behind the AI for India that mainly focuses on optimising social goods, rather than maximisation of top line growth. [10] Still there are some standard practices to be followed that are to be structured in order to preserve privacy. While AI is likely to bring substantial economic growth in India, it is being predicted that a number of jobs would be lost due to the automation. Therefore, it is necessary to put required policy and infrastructure in place. Intelligent automation has ability to automate complex physical world tasks that require adaptability and agility across industries, Labour and capital augmentation enabling humans to focus on parts of their role that add the most value, complementing human capabilities and improving capital efficiency. [11] This is rapidly transforming innovative business models creating tremendous uncertainty and impacts different people. The whole is to reshape and enhance arrival of Artificial Intelligence.

Various Places Where AI is Used

[12] In many applications they meet at the crossroads in an exciting new subfield that researchers call "real-time intelligent control". Most areas of current AI research could find many applications in future real – time systems.[13] There are various innovative fields in medical and health industry that led to predicting of particular risk factors and detect the proper cause. The predicted data is made in the form of descriptive statistics for acquiring the required information. [14] Cybersecurity is no doubt the most beneficial area from the introduction of Artificial Intelligence (AI). Although conventional security systems are slow and very inefficient, with the introduction of Artificial Intelligence technique will improve the overall security enhancements and provide more protection to cyber threats. Every area has its risks and concerns and AI using cybersecurity is also one of them. To gain more holistic approach towards cybersecurity in AI is required wherein AI is combined with human insight as both alone cannot provide 100% success rate. Thus, careful use of AI techniques will be required to eliminate risks and concerns pertaining to cybersecurity.

Artificial Intelligence in Health Care

[15] with the advent of artificial intelligence, many advancements seen in the medical field.AI brought great change in the diagnostic systems. In a famous eye hospital ophthalmologists and scientists doing research on retina of diabetic patients using artificial intelligence. during early days of using AI, systems depend on the knowledge of the medical experts. but in recent AI methods consists of several machine learning methods.[16] one of the important applications of AI in medical field is to identify what kind of treatment should be given to the patient based on the symptoms.one of the toughest forms of AI is deep learning. Deep learning and neural network models. The use of the deep learning in the medical field is to recognise the cancerous cells.AI is not one technology,it is the collection of some more technologies. many of these technologies have relevance with the medical field. some of the technologies may have highest importance in the health care field. Machine learning,deep learning, neural networks were widely used in the healthcare.Machine learning is the technology which use some previous statistical data and learn new models by using the data. In a survey conducted in the United States of America,it is revealed that 63% of the companies using the machine learning methods.one of the application of the machine learning in the medical field is precision medicine.in order to know the outcome of this precision medicine some training data set is required as we know most of these technologies depend of this data set. Another form of AI is neural networks. This has been developing from 1960's and it has been using in the health care from many years. It is used to identify whether a patient can get any disease in future based. Another form of artificial intelligence is deep learning or neural networks which is used to predict the outcomes. In these techniques there are many hidden features available which are hidden by the today fast processing computer graphics unit. Deep learning is widely used in the radiology which is used to scan the various parts of the body and identify the affected areas which are unable to see by the naked eye.

Artificial Intelligence in Health Care Appliances

[17]Artificial intelligence is widely used in analysing the chest radio graphs to identify tuberculosis. neural networks and deep learning technology is used in identifying the tuberculosis. The technology whichused here helps us in clustering the image and classify the areas where the effect

has occurred.[18]we can use of technology advancements in ai in the mental health care.one of the method is to design special apps to treat patients. another method is to design tools which improve the quality of life for patients. We can design a artificially intelligent virtual assistant which can treat the patients.[19]Discovering the drug involves several steps and processes to be followed. there are several stages in identifying the drug. This drug has to come after undergoing several chemical processes. Hit Identification by drug is also important. use of AI in this field makes the things easy. Due to the advancements of medical science and technology, it helps us in increasing the mortality rate of the people. Elderly people may need urgent medical requirements. we know that some of them neglected by their children.In order to solve their difficulties, google duplex artificial intelligence is the solution for the elderly care. we are making the elder people technology friendly.This provides cost effective solution to them.This may help us in the continuous remote monitoring of the health of the persons. We are building the smart homes where the sensors with artificial intelligence were kept in the home.This helps the elderly people to control the devices themselves.one of the example is the smart bed. This intelligent bed helps the people to prevent falling down from the bed. This technique uses the voice commands in controlling the devices.Internet of Things is used in order to detect the voice commands by the personal assistant. There is an emergency module which is attached to the patient's body, it helps the caretakers,relatives,friends to notify the health condition of the patients.

AI in Manufacturing and Production
[20]Manufacturing industries also face so many challenges in their production time. Due to the limitation in the resources aim of mass production is not going to meet.so we should need a new algorithm which should automize the process. The goal of rapid customization of the products can be achieved by using the AI.Over past few years, industries supported by Artificial Intelligence has become an emerging trend for industrial manufacturing and increasing the development of smart manufacturing. In recent times modern industries standard of AI has become the talk of the town as it is equipped with efficient attributes leading to Industrial Artificial Intelligence that is the prime for smart manufacturing. AI based tools brings exceptional changes in various aspects starting from manufacturing to the end user. Advanced AI techniques like deep neural networks have been gaining importance to support the entire production process starting from diagnosis to maintenance. It is believed that IAI is the future for the industrial manufacturing hubs.[21]in most of the developed countries smart manufacturing techniques are used for the reindustrialization. The main aim is to reduce the environmental pollution by not releasing the carbon gases and also to reduce the usage of resources. Smart manufacturing can be done by AI.[22]in the elective drives production, AI based methods have the great importance.ai based methods are going to help the production planner in choosing the least time taking process for the design of electric drive.

AI in Security and Surveillance
[23]we know that many robots were invented in the world. They are working based on the artificial intelligence. We can also use these robots for security purposes. We can design them in such a way that they can also do police work. With the help of the sensors we can warn if anything suspicious activity going on.[24]in future AI is going to play an important role in identifying the cyber cases.AI based designed system may automatically discover the cases and send a potential threat to the

opponents.it decreases the labour mass required in traditional human surveillance.it helps us in reducing the money spent on human labour.AI helps us in identifying the criminals who done various crimes.it helps us in strengthening the security of the country. There will be some situations where police were unable to trace the culprits, only the AI based technologies like CC TV's. This will reduce time in catching the culpritsand increase the probability in identifying the crimes.[25]we should know how to use technology otherwise it may lead to misuse. Ai plays a neutral behaviour. If it is used by the harmful persons,it may bring security and privacy problems to the people.AI plays an important role in the security in smart cities also.AI helps these cities to fight with the crucial threats. In the smart cities we can see large investments on human and on the other resources such as the social capital. Smart cities play an important role in increasing the countries economy, so protecting these cities is very much important. We can see the flow of drug will be very high in these cities, tracking this is very much important, because it will affect the life of many youth.AI has good role in the national and international security.it helps the countries in multiplying their military strength many times because AI is more suitable to the electricity,radios,radar and C4ISR systems.Afew U.S public authorities stated that AI will have extraordinary effect on the digital space as strategic advancement for guarded and hostile digital weapons.

AI in Education
[26]In education system institutions have been using the computers from more than 15 years. sometimes teaching was done through the online mode .in order to teach through the computer aided instruction was the first systems where such kind of teaching is done. This further developed into new method of teaching called intelligent tutoring system. [27]With the use of AI in education system, it enables them to reach the new teaching methods.one of them is intelligent tutoring systems where we can change the methods time to time.Artificial Intelligence impacts the productivity and growth in certain sectors like commerce, finance. But that is not the case with respect in Education sector although very few are used in classrooms and homes. But the demand still persists for AI to have a huge impact on education recently due to the pandemic. AI based software are constantly being used to provide digital content to students ranging from lectures to e books which has a huge advantage on them. These software's also engages students to learn by understands the concepts rather than rote learning. Education industry has a huge role in our society as it is the key area where all teaching and learning happens and society have a huge expectation on this field. The current scenario of classrooms with board teaching and static printed textbooks is not enough to cater to advanced society and there has to be a change to adapt to the digital future[28]In the medicine field computers used very widely. We can end the medical education by completing MD. it's a lifelong learning process where we have to keep our knowledge, skills and competence up to date

Advantages of AI
[29]Ai helps in achieving the speed in order to complete the particular task very quickly.it simulates the thinking of the human brain and try to complete the particular with high speed.it has applications in various fields like medicine,engineering,law,economics.[30]AI is used in detecting the cancers in the human body.one type of cancer is the colorectal cancer.in order to identify a disease in the large intestine and rectal diseases colonoscopy is used.[31] AI is used in social media like Facebook,

LinkedIn, Instagram where it is going to capture the human actions and show the respective results again and again. [32] United states of America stands first in using the artificial intelligence in order to made the things easy.in recent days China also catching up America in using the artificial intelligence.AI is widely used in their defence systems.[33]Ai is also widely used in the business, finance. In the stock exchange and stock markets we can use the AI in order to know which company having the profits and which company is getting the loses. AI has very good impact in trading and investing in the companies.Use of Artificial Intelligence is extraordinary thanks to the advances in the technology and the potential it has created to change the way things are done. Some of the Advantages of Artificial Intelligence is that they are capable to complete the task very quickly and efficiently ahead of humans. Very complex to complex problems which may eat several of the time can be easily completed with AI. Multi-tasking can be done using this AI at the stipulated time. With the use of AI success ratio always remains quite high due to easy completion. It takes very less errors and the defects are also very less as compared to the task done by humans. This AI takes very less space to work and more output can be extracted. Unexplored things can be explored using the algorithms of AI.AI has changed the quality of the images and videos from past where we used to get blurred and black and white photos.Now we are getting the digitalized clear and high-quality images using AI technology.

Challenges or Disadvantages of AI

[34]We know that ai is widely used in the military. we are achieving the speed, transparency. butwhen we have small deviation in the input, we may get different output that cause severe disaster.[35]Ai has very wide applications in the nuclear medicine. Using the various techniques like neural techniques, artificial intelligence AI has wide role in the medicine field. But we cannot take automatic decisions on patients. The decisions must take by the physicians by seeing the patients.[36]if any programming mismatch occurs it may lead to the mass destruction.it also may lead to loss of jobs of several people. Children in recent days are using the mobiles and becoming very lazy.[37]we know that ai decisions are based on the true facts, it will does not depend upon the emotions.by using ai there may be lack of creativity can occur in the humans, humans become lazy and cannot explain the logic behind the output came.[38]in the police department use of AI is much in detecting the crimes and catching the culprits. We can also see disadvantage in misusing the technology in many ways.one of the main disadvantage of the use of AI is that it cannot form the good connections between the humans in a team or in the group.it cannot understand the feelings between the humans which is the main aspect for the team bonding which helps in improving the team management skills.AI cannot think out of the box and do extra works otherthan the pre-programmed instructions given,if we try to do so,it might give some irrelevant bugs which crashes the system. The human brain functions in such a way for single shot learning whereas the AI is known for deep learning.

Conclusion

In this paper, a study on Artificial intelligence has been provided. In this paper an insight is given on the on the history of AI and how it is impacting on the mankind. Many developing countries like India encashing the new AI technology in order to achieve its goals and to compete with various other developed countries. Many industries have been using the AI technology to Globalize and

automate their industries.Health care sector has seen a very steep rise in the use AI technology due to the pandemicsituation. Education has seen switching from physical classes to online mode through various platforms AI has played a very big role in this transition. Défense sector has seen a leapfrog in adopting to this AI technology by manufacturing the different defence equipment with latest technology. Through this paper various advantages and disadvantages have been pointed out with respect to the AI technology. Finally, AI is the kind of technology which is the boon and also a bane to the society and it depends on us how we utilise it.

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ARTIFICIAL INTELLIGENCE-THE NEXT REVOLUTION

JANANI. N

M.Tech Integrated Computer Science and Engineering
Email ID: janani.n2021@vitstudent.ac.in

What is Artificial Intelligence?

[1]Artificial Intelligence is the branch of science, used in making intelligent machines that work like humans. It is associated with the same undertaking of the usage of computer systems to recognize human intelligence, however, AI does now no longer must confine itself to strategies that might be biologically observable.[2]Artificial intelligence, in other phrases, fluctuates from those that are naturally intelligent as artifacts that possess special homes typically possessed with the aid of non-artifacts. So those are things that have a positive property (intelligence) because of a certain manner (due to the fact they have been created, designed, or manufactured in this way).

History of AI

[3] George Boole was the first to explain a formal language for logical reasoning in 1847. The following milestone in artificial intelligence history became in 1936, while Alan M. Turing described the Turingmachine. Warren McCulloch and Walter Pitts created the version of artificial neurons in 1943, and it changed into in 1944 when J. Neumann and O. Morgenstern determined the theory of decision, which provided a complete and formal body for specifying the preferences of marketers. In 1949 Donald Hebb provided a fee converting rule for the connections of the artificial neurons that provide the threat of studying, and Marvin Minsky and Dean Edmonds created the first neural computer in 1951. Artificial intelligence (AI) was born in the summertime of 1956; when John McCarthy first defined the term. It turned into the first time the concern caught the attention of researchers, and it was discussed at a convention at Dartmouth. the next 12 months, the first preferred hassle solver became examined, and 1 year later, McCarty, regarded as the father of AI, introduced the LISP language for creating AI software. Lisp, which stands for list processing, is still used regularly these days. Herbert Simon in 1965 told that machines are capable of doing any work a man can do, within twenty years. However, years later scientists realized that creating an algorithm that may do whatever a human can do is almost impossible. These days, AI has a new synonym which means: developing smart agents to assist us to do our work quicker and easier (Russel & Norvig, 2005; McDaniel, 1994; Shirai & Tsujii, 1982; Mitchell, 1996; Schreiber, 1999). Perceptrons become a demonstration of the boundaries of easy neural networks published by Marvin Minsky and Seymour Papert in 1968. PROLOG, a new language for producing AI systems, became created by way of Alain Colmerauer in 1972.[4]Theconcept of AI was first introduced in 1956. Image processing is the main development in developed algorithms. The concept of AI was first delivered in 1956 by Prof. John McCarthy. The main precept was based totally on the following assertion: Computers may want to precisely mimic cognitive functions of people consisting of studying and problem fixing. Machine learning, a form of AI using computational algorithms that learn and improve with enjoy, is turning into popular. The AI principles, deep gaining knowledge, and

artificial neural networks have become the cornerstones of substantial achievements in image processing. These standards stimulate neural networks of the human brain and cluster the images.

AI in India

[5]Artificial intelligence (AI) is an emerging focus location of policy development in India. The United States's regional impact, burgeoning. Even as present policy processes intend to inspire the speedy improvement of AI for financial growth and social welfare, an overarching fashion persists in India, and numerous different jurisdictions: the limitations and dangers of data-driven selections nevertheless feature as retrospective concerns for improvement and deployment of AI programs. This newsletter argues that the technical limitations of AI systems ought to be reckoned with on the time of growing policy, and the societal and ethical concerns that get up due to such barriers should be used to inform what policy procedures aspire to reap. It proposes a framework for such deliberation to arise, by way of analyzing the three essential ranges of bringing system learning (the most popular subset of AI techniques) to deployment—the information, version, and application degree. With a view to steer existing coverage deliberation in the country, it specializes in potential dangers that arise from data-driven selections in widespread, and in the Indian context in particular.

[6]Although there is no countrywide AI coverage that has been released with the aid of the government as such, there is a "National Strategy on AI" which has been announced by way of the NITI Aayog (an apex suppose-tank of the government) in 2018. Previous to this strategy, there was a report submitted with the aid of the AI Task Force constituted by the Ministry of Commerce and Industry in January 2018. The Ministry of Electronics and statistics generation (MeitY) also constituted four professional committees in February 2018 so as to suggest approaches to sell AI and to expand a coverage framework for India. Those committees dealt with the following 4 areas: platforms and statistics for AI; leveraging AI for identifying national Missions in key sectors; mapping technological talents, key policy enablers required throughout sectors; skilling and re-skilling, R&D; and cyber security, protection, prison, and moral problems. those four committees submitted their very last reviews in July 2019. MeitY and NITI Aayog are presently operating at the development of a "national Programme and coverage on AI".

Various Places Where AI is Used

[7]AI ought to assist physicians via way of means of amalgamating huge quantities of facts and complementing their decision-making technique to become aware of analysis and endorse treatments. Physicians in flip want the potential to interpret the consequences and talk a piece of advice to the patient. In addition, AI ought to have an effect via way of means of assuaging the load from physicians for acting daily tasks. Speech popularity ought to assist with changing using keyboards to go into and retrieve information. Decision control can assist with sifting giant quantities of records and allow the medical doctor to make a knowledgeable and significant decision. Automation gear can assist with handling regulatory necessities consisting of Protecting Access to Medicare Act and allow physicians to check an appropriate standard earlier than creating a price decision. Finally, to assist with the extreme scarcity of fitness care professionals, digital dealers could, within the future, assist with a few components of affected person care and grow to depend on the supply of statistics for patients.

[8]With the advances in Information Technology (IT) criminals are the use of our online world to dedicate several cyber-crimes. Cyber infrastructures are exceptionally liable to intrusions and different threats. Physical gadgets and human intervention aren't enough for tracking and safety of those infrastructures; hence, there's a want for extra state-of-the-art cyber protection structures that want to be flexible, adaptable and robust, and capable of coming across an extensive kind of threats and make sensible real-time decisions. Numerous bio-stimulated computing strategies of Artificial Intelligence were more and more gambling a crucial position in cyber-crime detection and prevention. The motive of this is to take a look at it to provide advances made thus far within the subject of making use of AI strategies for fighting cyber-crimes, to illustrate how those strategies may be a powerful device for detection and prevention of cyber-attacks, in addition, to offer the scope for destiny work.

Growth of AI

[9] Artificial Intelligence with the help of big data has transformed all industries around the globe. Artificial intelligence refers back to the simulation of human or animal intelligence in computational structures in order that they're programmed to assume like sensible beings and mimic the moves of intelligent entities. Computational systems which have programmed intelligence can remedy special real-global problems some distance greater correctly and efficiently than computational systems which might be deterministic andhardcoded. Considering many issues in business and enterprise analytics that can't be solved by means of deterministic systems, AI performs a chief position in tackling issues in the business world of machine learning and deep learning which are subsets of the sector of AI. It is extensively used to clear up and optimize many problems in business which include advertising and marketing, credit score card fraud detection, algorithmic trading, customer support, portfolio management, product advice consistent with the wishes of customers, insurance underwriting. AI and big data have revolutionized the business international and huge records technology which is currently getting used to boost up business boom.[10]Recent advances in artificial intelligence have inspired fervent interest from each non-publicregion and government throughout the globe, as the possibility of mass-producer consumer product equipment with humanlike intelligence inches in the direction of fact. The huge step forward for artificial intelligence in the latest months turned into the victory of gadgets over humans within the ancient board game. Go.AlphaGo, an AI-based computer evolved through London-based Google DeepMind,1 challenged the world champion of the Chinese board game, Lee Sedol of South Korea, to a chain of five games wherein the system defeated the human four to one. At the same time as AlphaGo deservedly captured headlines throughout the globe, the actual breakthrough in artificial intelligence isn't this singular event however the spectacular advances artificial intelligence-based computer programs have made as a technology, to the factor that they can analyze and intelligently respond throughout a wide range of trouble domains. AI-based applications these days have already touched human beings' lives in methods which can be regularly not completely perceived or fathomed. Until now, this diffused proliferation of AI generation has been driven largely with the aid of the non-public sector and has been focused in general on patron items. The generation, but, is of such first-rate capacity and significance that its improvement and implementation can't be left solely to a few Silicon Valley businesses and their vendors.

AI in Health Care appliances

[11]There's excellent optimism that the application of artificial intelligence (AI) can offer substantial upgrades in all areas of healthcare from diagnostics to remedy. It's commonly believed that AI methods will facilitate and enhance human work and now not replace the work of physicians and different healthcare bodies of workers as such. AI is ready to help healthcare employees with a spread of tasks from administrative workflow to clinical documentation and patient outreach in addition to specialized help including in image analysis, medical device automation, and affected person monitoring.[12]It's far clean that health care has several desires that might benefit from solutions advanced with, or by using embedding, artificial intelligence. The contributions AI could make to clinical fitness care, a site that poses new and modern-day precise demanding situations to the applications of AI.Even as radiology imaging changed into the first in turning in digital data, digital pathology is a greater latest modern development. Similarly, for many years, hospitals have been digitizing their clinical patient records. For this reason, a big and ever-increasing body latest moderately annotated medical records have been collected: in part-based information in machine-readable formats, along with the ones from medical imaging, and partly unstructured data in natural language. As in other industrial sectors, it is anticipated that this big data movement may be leveraged to transform health care and force remarkable enhancements in the quality of affected person diagnostics, treatment, care, and medical outcome. Anticipated results range from identity of individuals at excessive threat for a disorder, to improved diagnosis and matching modern-day effective personalized remedy to the individual affected person, as well as out-of-hospital monitoring of therapy response. Although those possibilities and this capability are broadly mentioned, it is important to understand what can be delivered in practice with the current state-of-the-art AI technology and which programs require further advances in AI to emerge as viable.[13]AI acts as an "e-Doctor" for disease identification, managing, and diagnosis, AI is being used as a powerful device in biomedical research. AI can also help in accelerating the screening and indexing of educational literature in biomedical research and innovation activities, on an International scale. Moreover, biomedical researchers can efficiently accomplish the disturbing venture of summarizing the literature on a given subject matter of interest with the help of a semantic graph-based AI method. Moreover, AI can assist biomedical researchers to not only seek but also rank the literature of interest while the variety of research papers is beyond clarity. This permits researchers to formulate and take a look at to-the-factor scientific hypotheses, which are a very vital part of biomedical research.[14]Another tool that uses artificial Intelligence is biomarker testing. Biomarker testing involves the overall performance of a set of assessments to identify molecular signs and symptoms of health so that clinicians can offer the high-quality remedy to be had to the sufferers (Jack Jr et al.,2013). System gaining knowledge of aided biomarker discovery is on-fashion those years (Abeel T, et al.,2010). Machine learning algorithms test various impartial hypotheses based on the capabilities we educate the version. These algorithms may be labeled as category algorithms and some are primarily based on characteristic selection. A lot of these algorithms are implemented to gene expression statistics derived from RNA sequencing facts of human cells. The use of biomarkers in artificial intelligence has been instrumental in documenting the progression of diseases at unique levels. It is completed via the use of artificial intelligence algorithms that assist to give disorder fashions. These methods use biomarkers of ailment severity to characterize the natural ailment development. The disorder development is predicated closely on making observations on

patients and the use of cognitive styles to expect the development. Using artificial intelligence systems, healthcare facilities discover effective ways to record, shop, and method the facts obtained from patients. With regards to tracking ailment progression, patient facts accuracy is important, and when this manner is completely reliant on a person's, mistakes are sure to occur. After the correct processing of the records, the reaction is notably correct and dependable.

AI in Manufacturing and Production

[15]Modern manufacturing productions and logistic systems are supported through a wide range of powerful computing networks. Within those networks, oceans of data are constantly being generated by means of sensors, machines, systems, smart gadgets, and people. Together with rising computational capabilities, this massive information is being analyzed quicker, more broadly, and extra deeply than ever earlier. Those advances have redefined the price of artificial Intelligence (AI) technology and opened a new age called the smart factory. Enforcing superior big data (BD) analytic is huge for the successful incorporation of artificial intelligence in manufacturing. With the good-sized deployment of smart sensors and the Internet of Things (IoT) within the task store, there's an increasing need for handling manufacturing BD for predictive manufacturing.[16]The manufacturing industry is a cornerstone of the national economy, people's livelihood, and countrywide security. The deep fusion of manufacturing technology with information communication technology, intelligent technology, and product-related knowledge especially, is permitting a game-changing transformation in phrases of manufacturing models, manufacturing processes, and its ecosystems. The life cycle of producing consequently makes use of autonomous sensing, interconnection, collaboration, learning, analysis, cognition, selection-making, manipulation, and the execution of human, machine, material, and environmental statistics to enable the combination and optimization of numerous factors of a manufacturing business enterprise or group, which include three factors (humans/agencies, operational management, and system and technology) and five flows (records waft, logistics glide, capital go with the flow, information go with the flow and carrier glide). This facilitates production and affords an excessive performance, high fine, price-effective, and environment-pleasant provider for users, and consequently improves the marketplace competitiveness of the producing organization or organization.[17]The traditional production paradigm of present-day big batch production does not provide flexibility in satisfying the requirements of state-of-the-art man or woman customers. For this, artificial intelligence (AI) is permitting better value-added production through accelerating the mixing of producing and information communication technology, which includes computing, communication, and control. The traits of the latest customized smart manufacturing facility are; self-belief, operations optimization, dynamic reconfiguration, and sensible selection-making. The AI technology will allow manufacturing systems to understand the environment, adapt to external wishes, and extract the system information, along with commercial enterprise models, such as smart manufacturing, networked collaboration, and prolonged provider models. The experimental outcomes have validated that the AI-assisted CM gives the possibility to today's higher manufacturing flexibility and efficiency.

AI in Security and Surveillance

[18]The role of AI within the shifting threat landscape has severe implications for information security, reflecting the broader impact of AI, through bots and related structures within the age of

statistics. Much like the position of AI in cyber-attacks, AI provides mechanisms to narrowly tailor propaganda to a focused target market, in addition to five 5 growth its dissemination at scale – heightening its efficacy and attain. As a substitute, natural language information and different varieties of machine learning can train pc models to stumble on and filter out propaganda content material and its amplifiers. But too often the capacity to create and spread disinformation outpaces AI-driven equipment that comes across it.[19]The smart city emerged as a version with the fast boom of robust records and communication technology and the improvement of ubiquitous sensing technology. A smart city gives greater social centers, transport, and accessibility while promoting sustainability by means of using specific sensors to accumulate information from the environment. The records collected can then be used to control city infrastructures, such as visitors congestion, water supply, environmental monitoring, food services, and more. The smart city can track human beings' movements and supply intelligent travel, intelligent healthcare, entertainment, and other services. Latest advances in machine learning and artificial intelligence allow intelligent cities to successfully supply services via a discount in aid consumption. Cloud-based machine learning models allow useful resource-restricted machines to interconnect and optimize performance. The rising data collection and device designs are focused on reducing strength savings instead of dangers to privacy and safety. Therefore, the safety and privacy issues remain as wise city networks not only accumulate data from heterogeneous nodes that are the weakest hyperlink and prone to cyber-attack.[20]With the advancement of science and technology, the mixture of unmanned aerial vehicle (UAV) and camera surveillance systems (CSS) is presently a promising answer for realistic applications related to protection and surveillance operations. However, one of the most important dangers and demanding situations for the UAV-CSS is evaluation, method, and transmission data, especially, the constraints of computational capability, storage, and overloading the transmission bandwidth. With regard to traditional methods, nearly all the information gathered from UAVs is processed and transmitted that values huge energy. A certain amount of information is redundant and not vital to be processed or transmitted. There's an efficient algorithm to optimize the transmission and reception of data in UAV-CSS systems, primarily based on the systems of artificial intelligence (AI) for data processing. The algorithm creates a preliminary background frame and updates the complete background that is dispatched to the server. It splits the region of interest (moving objects) in the scene and then sends the simplest modifications. This supports the CSS to reduce considerably both information storage and data transmission. In addition, the complexity of the structures can be significantly reduced.

AI in Education
[21]ArtificialIntelligence in Education (AIEd) issues specifically approximately the improvement of "computer systems which carry out cognitive tasks, normally related to human minds, mainly gaining knowledge of and problem-solving.AI-greater virtual era has performed an important function in our each day life, with its super electricity of converting the manner we think, act, and interact. Ever seeing that its emergence, AI has advanced with prosperity and flourishment, mainly with the emergence of Artificial Neural Networks (ANN) and Deep Learning (DL) (Chan & Zary, 2019).[22] Especially in current years, with the development and incidence of interactive technology, their packages inside and outdoor of instructions are step by step gaining in popularity. Such technology purpose to conform to inexperienced persons' numerous wishes and situations, in

addition, to beautify competitiveness within the international schooling market. Students make use of capsules instead of copybooks, and instructors use diverse instructional gear and packages along with Google Classroom and Moodle. Also, a first-rate wide variety of Massive Open Online Course (MOOC) structures like Class Central, EdX, and Coursera are an increasing number of to be had for online mastering. The growing wide variety of energetic MOOC customers shows the extensive attractiveness and appreciation of virtual and distance mastering technology. Additionally, there are MOOCs that even offer inexperienced persons with possibility to reap legitimate ranges from outstanding universities and institutes.

Advantages of AI

[23]In an employer in which human intelligence is tied to a selected man or woman or a collection of human beings, AI packages can offer permanency that stops the information from being lost when the person or the organization contributors retire or are no longer to be had to the employer. The lifestyles of the understanding encapsulated in an AI framework might be so long as the relevance of the troubles and selection eventualities continue to be unchanged. AI also allows the improvement of a learning functionality which can be applied to further prolong the existence and relevance of the utility. gaining knowledge of actual-world achievement and failure is a permitting feature of AI gear known as "reinforcement gaining knowledge of" and is wonderful in that it increases the reliability of the tools with their multiplied use in programs (2). The large application of any tool simplest takes place while its reliability has been established, and AI has already been established to be quite dependable in many exceptional applications because of its potential to simulate human intelligence in a reasoning system. Like many automations, AI helps fee minimization as it allows a reduction in the need for personnel time. An agency can lessen huge workforce time through adopting suitable AI applications inside the choice-making manner, for this reason lowering operational expenses.[24]One of the most important advantages of artificial intelligence is that its choices are primarily based on facts as opposed to feelings. Even after our utmost efforts, it is a trendy fact that human decisions are usually affected in a negative manner by means of our emotions. In contrast to humans, machines with artificial intelligence do not want any sleep, as a result overcoming the inherent downside of tiredness in people. Less difficult spreading of knowledge. as soon as a synthetic mind is skilled for something, it could be very easily copied to the others reducing the time wasted in any other case passing on understanding to different people via training. Loss of creativity in responses. Incapability to explain the common sense and reasoning behind a certain decision. cutting-edge development is at a level where the AI cannot realize when there may be no technique to a particular hassle. Any malfunctioning can lead to the AI producing wrong solutions and because it cannot provide an explanation for the reasoning behind its solution, blind reliance on AI can result in troubles. Lack of not unusual sense in reasoning can also motive important issues. It is able to be used to motive mass-scale destruction if given within the incorrect palms.[25]The usage of Artificial intelligence will result in the manufacturing of machines and computer systems, that are tons extra superior to what we have today. Speech reputation systems will attain a great deal better degrees of overall performance and could be capable of talking with human beings, the usage of both text and voice, in unstructured English. There might be an outstanding destiny someday for expert device applications in all aspects of health care, in both scientific and administrative areas, in enhancing patient care, and in the allocation of economic, social, and different assets. However, with regards to

the query of synthetic Intelligence growing machines, which can be extra wise than human beings, no one appears to have the answer. Also, even though it's miles possible, the quantity of time it will take cannot be predicted. It's also anticipated to have human brain capabilities like gaining knowledge from enjoyment, cognition, and belief. Whether human cognizance may be included in these machines continues to be now not regarded. Robots within the future will be able to do all work and will be quicker and extra green as compared to humans in doing it. If one is sick, they could lease a robotic nurse so that it will provide them with medicines at the right intervals. Accordingly, it can be effectively stated that artificial intelligence continues to be in its embryonic degree and its destiny relies upon the best and simplest upon the scientists fixing the mystery of the human brain.[26]One of the withstanding goals of computer science is to teach computer systems to apprehend the language we talk. The closing era of computer language is the natural language. Artificial Intelligence scientists have succeeded in constructing natural language interfaces to a huge quantity the use of restricted vocabulary and syntax. Natural Language Processing lets in a pc to understand the primary linguistic standards inside a query or answer. Its purpose is to layout and constructs a computer that examines, apprehend and generate language that human use clearly. The different components of natural language processing are; speech synthesis, speech recognition, system translation, linguistic approaches, records retrieval, and information extraction.

Disadvantages of AI

[27]Some of the main negative aspects of Artificial Intelligence (AI) in our everyday lives are as follows. a while it can be misused leading to mass-scale destruction, Programme mismatch someday executed opposite to the command, Human jobs affected, Unemployment problem elevated, Creativity relies on the programmer, Lacks the human contact, younger technology turns into lazy, require quite a few time and money, and Technological dependency accelerated.[28]Its not a simple task to broaden the machines because the device is also high priced. It can price tons of cash and time to create, rebuild, and restore. Robot restoration can occur to scale back time and humans want to restore it, however, that'll price extra money and assets. Robots, with them replacing jobs, can cause severe unemployment, unless if humans can repair the unemployment with jobs AI can't do or seriously trade the govt to communism. Machines can easily reason destruction; if put in the wrong palms. this is, no less than a fear of the various human beings. AI is making people lazy with its packages automating the majority of the work. people generally tend to urge hooked into those inventions which may additionally reason a drag to destiny generations. There is little question that machines are a long way better when it includes running effectively but they cannot replace the human connection that creates the crew. Machines cannot broaden a bond with human beings which is an important characteristic while entails team control. Machines can carry out most effectively those responsibilities which they're designed or programmed to try to, something out of that they've a tendency to crash or provide irrelevant outputs which is probably a critical backdrop.[29]Even though the authorities and colleges connect remarkable importance to integrating artificial intelligence into business English training, most thoughts are carried out on the professional level. The primary purpose is that after universities formulate business schooling packages, the schooling of artificial intelligence focus and ability has not been honestly included invocational schooling, which has affected the development of expert talent training items. If the education goal of artificial intelligence isn't always blanketed inside the professional schooling plan, innovation and

entrepreneurship schooling might be difficult to proceed smoothly. A gift, a few faculties, and universities have no longer fully found out the significance of college students' innovation and entrepreneurship schooling, and, usually, simply preserve some lectures to cultivate college students' artificial intelligence competencies and focus, and infrequently include artificial intelligence schooling into the expert curriculum gadget. In most enterprise English professional schools, artificial intelligence education is to create a few courses associated with artificial intelligence on the basis of the unique business English courses. But, in standard, these courses have little to do with expert guides, they may be two independent publications, there may be no penetration and proper integration. Artificial intelligence training is only a superficial shape, which isn't always conducive to the improvement of artificial intelligence schooling thinking.[30]Aswith all useful advancements in the generation, AI's have negative aspects that have both already appeared or appear as extra customers interact with it. Siri for instance, as noted through deAgonia Siri has flaws and kinks that need to be worked out. She is going on to point out that "there is glaringly still paintings to be carried out; voice interaction and the era at the back of it are very a whole lot a work in development… greater annoyingly, Siri requires an active community connection to paintings" (2010). those appointed flaws may be very big hazards for a person at the go (with the belief that they'll now not constantly have a lively network or there may be history noise). bigger risks that possible verify on their own is how plenty lazier the general public turns into. human beings will not want to do their personal searches and such for tasks they want to be fulfilled. Finally, AI's inclusive of Siri will both update users in the work subject (if they already haven't) or turn out to be completely self-aware, no longer carry out tasks requested of them, and try to spoil all humanity.

Conclusion

From the above information, we can see that all these new improved advancements in today's technology both benefit us and also act as a threat to today's society. Artificial intelligence is said to be the most important upcoming revolution according to today's history. Hence, there is an urge to the society to learn and handle AI to survive the competitive world.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

SHRADDHA PATEL
M.Tech. Embedded System
Email ID: shraddha.patel2021@vitstudent.ac.in

What is Artificial Intelligence

[1] Ai is the most emerging and trending technology that is known to each and every individual .Basically It is that branch of science and technology in which includes complete study of human brain processes and how analytically computation takes place inside the mind ,in order to perform the task in a smarter way. What is the first approach that is decided by human brain? And finally transform in the machine with the help of the set of an algorithms in order to perform the task in efficient and quick way.It is that technology which is included in almost every fields like medicinal ,industries, Engineering, cyber ends etc .Over the past 30 years scientist had found co-relation between humans brains and the machines .Artificial Intelligence relates each and every field based on human intelligence. In Medical field Artificial Intelligence plays very important role in which the machines system automatically upgrades according to the user use.[2] Artificial Intelligence is the involves computer systems to perform the particular task. The application-based research which relate to perform complex task is called as Artificial Intelligence.Science of computer has a field called Artificial Intelligence(AI), which makes an attempt to enhance the intelligence of system.Artificial Intelligence can be defined as the science and engineering of making intelligent machines, especially used for computer programs at advanced level. Also we can relatively observe similar task that how computers can understand human intelligence, but the AI does not limit itself to the methods that are Biological observed.Embedded artificial intelligence (AI) is the application of machine and deep learning in software at the device level. Software can be programmed to provide both predictive and reactive intelligence, based on the data that is collected and analysed.It is the study of how to make computers work at the things at which humans are better. The strong point of AI is the execution of repetitive tasks with intelligence.

History of AI

[1]In the 1950, Our Experts predicted that 20 century the whole world will be transformed into the Digital Domain for this Artificial Intelligence plays an important role in this the digital technology. In this system shows indistinguishable behaviour with Human Intelligence in all aspects logically, analytically, emotionally ,cognitive, emotional and social intelligence via codes Software. Artificial Intelligent has been introduced since ancient era the only difference is that those days the people were not aware of this most trending technology .[14]The word Artificial Intelligence was officially coined about six years later, when in 1956 Marvin Minsky and John McCarthy (a computer scientist at Stanford) hosted the approximately eight-week-long .While it has been available for almost 30 years, instructors are still unsure how to use it for educational purposes on a larger scale, and how it may have a meaningful influence on teaching and learning in higher education. But nowadays these growth and demand of these technologies are increasing day by day .This technology allows a complete change in the future that results a World complete of Rules and Regulations .and the development are going and upgrading day by day.[2]Artificial intelligence is completely based on imagination which is even implemented .The study of electronics chips, computer applications, engineering and

technologies led to the evolvement of AI also comprises of solving application based Problems and also involves Language Understanding, Application based systems which is used to perform task.[15]Over a year ago, it's observed that AI has shown a satisfactory growth in the problems areas which is concentrating for solutions for complexity and scale, which is the main of operating management.[17]The effect on economic growth of AI had made us to understand the main importance of the labour style and its productivity in recent years. The analised differential equation of cell of cancer has been done. Which is done in presence of a Gaussian white noise. Various technologies such as Machine learning, Robotics, deep learning, speech recognition, natural language generation and biometric identification involve use of Artificial intelligence having application in healthcare sectors, business organisations, automotive industries and assembly & manufacturing industries. The goal of Artificial intelligence is to develop an intelligent machine which can think and take decisions like human beings and can solve too demanding practical real world problems.

Growth of AI

[4]The primary aim of the artificial intelligence was to develop the fully automated system that interact with the outside environments and perform useful task and also automatically upgrade itself based on the human choice that's why they also called as human intelligence that deals with human computers. Over a several year ago, it's observed that AI has shown a satisfactory growth in the problems areas which is concentrating for solutions for complexity and scale, which is the main of operating management. Day by day its upgrading itself from robots , applications based equipment's to vehicular systems that involves chip designing etc fig 1 .[3] AI completely based on human behaviour is day by day it is transformed and adopt the human lifestyles as per the requirement of the industries .there are several challenges need to be faced and hands-on developments and improved the quality of technologies the way we are far behind but we are updating day by day. In future everything seems to transformed in Digital world.[14]AI has traced relation between doctoral field in OB of Case Western Reserve University situated in Cleveland. Ohio and Cleveland clinic foundation are health care canters having a facilitated block's which are far apart. Based on analysis of history model from researchers such as Kuhn or Lakatos, provided sufficient information about AI. But there is argument over AI i.e., it has grown and maintained a one particular model over short period of time and accordingly it has conducted good research on it. But, this research work has made to emerge a few model but it is the same for research programmes well, because of this efforts AI is described.
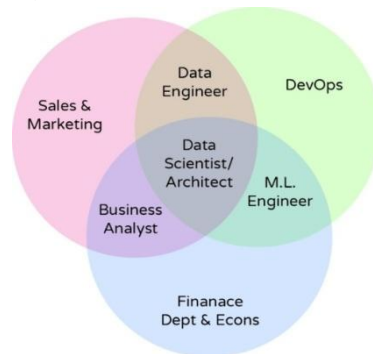
Fig 1:Contribution of AI in diverse field

Various Places Where AI is Used

[10]AI are used in almost used in each and every field .It play an key vital role in Health care, Logistics, Travel, E commerce Platform, Banking and financial services, Also used for manufacturing the various process in the Industries which involves several process in proper sequential manner. It helps in time management, provided with Robust and legitimate results. For the production purpose robots plays and important key role.[13] In factors the machine learning and AI are used for monitoring and updating the technology according to the user requirements. AI are used in agricultural fields, which leads to the development and updating the various equipment in order to grow crops in the proper efficient manner. Here time plays an key role for Humans. Also it performs Multitasking approach in order to finish the task with the provided time. The main purpose to introduce Artificial Brains for the storage (to keep a proper record of the data). It is used in various industries in order to manufacture the products according to the user requirement.The products that produced are highly efficient and Accurate. Complex tasks can be performed faster impossible by Human Brains, it requires some time. Artificial brains are far way better approach in order to finish the task which was assigned

AI in Healthcare Appliances

[7]AI plays an important key vital role in healthcare field. Used for monitoring the patient and should based on high level of technologies such that based on provided information it should make an excellent decision that should be benefitted for the patients as human intelligence can store fixed amount of data but based on these technologies it can enhance the storage capacities. Smart Brains Lead to perform the task in an efficient manner so that help of the human brains are not required. Artificial brain should be feed with all the valid and true data in order to take suitable decision to treat the patients[8]Capable and having potential in medical fields with the help of AI in Neural networks and fussy logic system in which the future will be predict by the extent of truthfulness (degree of correctness). The AI techniques introduced in this paper plays an important key role in inventions of important clinical appliances. [9]The important feature of this technologies is images processing so that it can visualize in order to better treatment as well as pathology slides for improved visualization. Also it is introduces Google assistant, ALEX, Siri. The intelligent of a bed has been increased because for the help of elders for the support of falling below bed from its position on the bed, and in such cases the AI has introduced the voice recognition system having assistant and responds in return to the person's command.

AI in Manufacturing and Production- Refer 3 Papers

[10]A factories of upcoming generations are supporting the changes in different varieties and also a batch of customised production department are the expected one. Hence AI made a manufacturing of integration and many more.In either industry or in the private institutes, they either utilized the AI which is a intelligent systems. But more over this the applications of AI have gain more importance in the production of cars.The main issues the industries and factories faced are speed, within the limited amount of time the maximum no. of products should be manufactured and delivered in the limited period of time that AI is required in order to demonstrate and prediction the design so that complex to complex task can be performed in the limited amount of time. Also detect the if there is any faults in the machine and resolve it quickly.[11] In either industry or in the private institutes,

they either utilized the AI which is a intelligent systems. But more over this the applications of AI have gain more importance in the production of cars.Distributive AI provide the efficient utilize time and should work in smart manner by choosing the appropriate solution to the problems. Involves the several devices work integrated manner and apply the logic. Multi task should be perform in such a way so that task should complete in limited time like supply chain management. [12]There are methods like cognitive computing along with it a deep learnings which are introduced to application manufacture of the automated inspections, maintenance and detection of fault and these are very much effective for reinforcement methods and handling of materials and scheduling of production.A factories of upcoming generations are supporting the changes in different varieties and also a batch of customised production department are the expected one. Hence AI made a manufacturing of integration and many more.

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It aims at the challenges faced for governing the patients by AI by some essential advancing innovative systems in health care and introducing such cases me avoid risk and helps discuss the justice along it.The increased area of applications in electronics and in industry for the monitoring of health with the help of pressure sensors that makes the science of technology advanced in modern society.

AI in Security and Surveillance

[13]AI plays a very important key role in providing the security in such a way so that only authorized users are only allowed to access the content in order to prevent the leakage of the data the term is referred as digital leakage.The security is most cared field of all over a time and it should be present in all the tool and applications of technical and this indicates the protecting data of each user and its respective information by avoiding the risk to faced.[3] Several govt agencies are trying to implement these in order to provide the secure communication in between the authorized users. Also several researches are going on in order to work with AI and IOT.[10] Several Bots have been developed in order to provide the secure delivery of the orders and also secure data transmission is possible from this technology. Accurate results are obtained for secure data transmissions. Data transmission takes place in sequential manner i.e. first in first out and in order to avoid the overlapping of the data and at each and every time authentication and encryption of the data is required in order to provide secure data transmissions. Technologies that are used in order to have secure data transmission are highly confidential and each and every timesystem check is required to that it is available for only authorized users.A segment of AI is deep learning has a copy of learning of the different knowledge of human being and also analysing multi media a most difficult part in the past decade.

Wireless communication seem to be the most efficient way of communication but still is more prone to data leakage ,there is a risk to data leakage during the transmission but it is the most efficient way of transmission of the information .In order to prevent the data leakage the concept of Artificial intelligent comes into the discussion as the main concept behind the Artificial intelligent is completely based on human intelligence and human intelligence includes the complete study and analysis of the data encryption and decryption , and in order to transmit the data successfully the complete study of artificial intelligence is required.A segment of AI is deep learning has a copy of learning of the different knowledge of human being and also analysing multi media a most difficult part in the past 20 years.The technology called wireless is very loose in a particular area and for an instance all network of mobiles has a data.

AI in Education

[1] The most interesting way to learn and gain knowledge is with Artificial Intelligence. The new technological revolution is Artificial Intelligence. AI has an impact on every aspects of science, technology, business, and society. two viewpoints are briefly discussed on AI and education: improvement of the education with AI,that enhance and improves the quality leaning , teachers also might get to learn and get to opportunity to work on the latest update technology , and its impact on e-learning other on how AI education must be improved to create the workforce required to face this new technological revolution.AI is such a field used in education, which concerns the development of it and to facilitate the learning, and also given solution for long term unanswered question such as how system can be this be enabled in educational purposes.[2]During the initial states there we online intelligent systems ,that includes various online platform to acquire knowledge and finally find its way to collab with embedded system technologies in order to build the machines that is used for various application such as updated version PC's, mobile phone's ,application specific systems, automatic monitoring system and many more yet to discover, humanoid robots and bots connected via Master and performs the tasks using the artificial brains (program codes) installed in it . Now the Professors and teachers are now transformed into complete online platforms by evaluating and assigning marks and gradesthrough the online platform and assigning the task with the help of online platforms **.**[4] AI has the potential to expand the capabilities of learning analytics and various feature have been introduced which we unable to find it physical classes few of them are we have a access to record the lectures and download the attendance so that time can time can be efficiently. AI provides an enhance way of teaching and learning ideas , the development of AI applications in higher education introduces significant ethical considerations and hazards.Artificial intelligence (AI) based upon machine and changes constantly according to the user requirement .

Advantages of AI

[12]As the National Security Implications are increasing, the requirement for the role of growing AI technology in Security purposes is also increasing as of prime importance. U.S defence department is also developing Applications based on AI for a wide range of Military Purpose. For the either the purpose of making decisions and solving problems AI is utilised and furthermore it's provide the permanency and cost effective. This technologies has find a way almost everywhere with endless pathway. Robots, bots based on AI involves the completion of task within shortest period of time, Multitask approach, and complex task can be performed in an efficient manner that provides

legitimate results. That leads to control and co-ordination of multiple bots in consensus artificial robots key benefits are, capable to finish a task faster than a person, traumatic and complex work can be carried out quick way, difficult work also may be carried out in a quick amount of time, several functions can be finished at the equal time, the fulfilment fee excessive ,and there are fewer faults and defect in task.One of biggest advantage of AI is it reduces errors significantly also increases accuracy and precision.[4]Software are used to trace human intellect in order to solve issues or make correct choices. Continuity, dependability, and cost effectiveness are all benefits of AI, which also addresses ambiguity and speed in solving problems and make correct selections. AI has been utilized in various modelling, prediction, decision assist, and control applications in fields as various as engineering, economics, linguistics, law, production, and medication, one of the maximum ability AI programs leads to utilization on the internet , inclusive of in search engines like google.AI based ML development techniques has good reflection on the specialist. And there is another field named Radiology, which relates the technology so subject to change.

[5]A cybercrime is reporting more with a advancement in IT. Its infrastructure is highly threatened and harmful. Since because of its infrastructure there is no human intervention is sufficient for maintaining it.It had made a significant contribution to Japan's long- time period economic growth and tackles a spread of social issues. AI are considered as the most important technology in recent years as a key to property ininternational industries specifically in Europe and US, in addition to developing ones like China and India. The Development of latest AI information Communication Technology(ICT) and robot technology has received the maximum attention (RT). Artificial Intelligence (AI) is a huge technological development. And also it get automatically updated according to the user requirement.

[1]For the purpose of diagnosing and detecting AI has contributed and also the results seems to be in a efficient way. One of the advantage of these AI-primality based platforms is that they can speed up the analysis and remedy of COVID-19. The most present day connected articles and clinical reviews had been reviewed with the intension of selecting network inputs and goals that would be useful resource in the development of a possible Artificial neural networks -primarily based answer for COVID-19 problems. Moreover, each platform has positive unique inputs, which includes distinct kinds of data, consisting of medical Information and scientific imaging, that could help to improve the performance of the described methodologies in actual global applications.[9]This technology of AI also used in field of Electronics as it enables the computation for completing the task in efficient way with the hep of importing the logical computations in the form of code on the chips.

Challenges or Dis-advantages of AI

[9]The mediator between user and machine in order to provide true information, AI is the only technology. AI Access to on-line information produced by billions of people and linked systems, to know-how relevant to every user ,is more and more based on semantic content material. AI is a costliest thing to create and rebuild and even for the repair also, but it's repair with the help of human only we can fit, but extra seeking time and resource.Sometimes the mismatch in programs can make it opposite of instruction or command. Also robot lacks in emotions we can't accommodate and also it fails to provide needs of a student by considering his or her performance. Even if we consider robot works efficiently but since it's a human made so it's replaceable with few

questions.As like a human the robot can't form a team and also can't make a bond as like human, which is so essential in management of a team.

A vocal assistant should correctly understand oral request with proper language. Interactions with machines and systems (at home, in shops and public equipment's), or maybe her interactions with different people, are carried out digitally and mediated via AI. [4] The fields of medication is more challenging in particular with AI and ML which includes the validation of the clinical decisions It requires Human Surveillance, although AI came long way in the medical field but it requires human surveillance is required. Most of the developing countries are lagging behind, leads to the societal issues. [6] Yet some more developmentsstill are required in AI so that it can be benefited for the Human and not completely replace the Humans. It will lead to lack of communication and Interactions among the youngsters diversly affect to youngsters. Which will lead to huge changes in the world as well as diversely affect the human behaviour.[9]AI lags creativity, the fundamental feature of human intelligence is creativity and the chances of errors are also increased like in some cases the problems are solved by human intelligence and not by AI. AI techniques can be used to develop the new ideas, strategies to tackle the issues. [10]Military Organization are often good at collection the data somewhat AI can be used to access the information and mark the correct choice Chances of risks are somewhat more, errors are less but its still there, manipulation of the Unmanned vehicles (Air, Ground, Underwater). However we cannot completely rely on AI but in some part it can be used to decrease the work load of the humans but it Human Intelligent cannot be replaced completely.

Conclusion

Future is completely dependant on the AI . Intelligence is represented for solving problems,logical operation which involves programming in a digital computer used in various field health care applications but yet some modifications and inventions are required for user's need. We can't imagine our future without the AI, In olden days we were lagging in terms of technologies and also communicating the people was very much difficult , Now days it is easy task , easily persons can communicate and send the data to the authorized users with the help of artificial intelligence According to recent study the scientists are working more in context with Health care applications. Future is completely based on the AI taking one step forward in order with digital world. So that communication between two countries are improved and time can managed and task cold be finished with the short duration of time.AI plays an key vital role in the world of robots as to perform task (multitasking) so that time can be managed and task performed by the machine are accurate and perfect according to requirement.Artificial Intelligence leads to the step by step Process in order to transmit the data in an efficient manner This technologies is used almost in every field in order to perform the complex task .
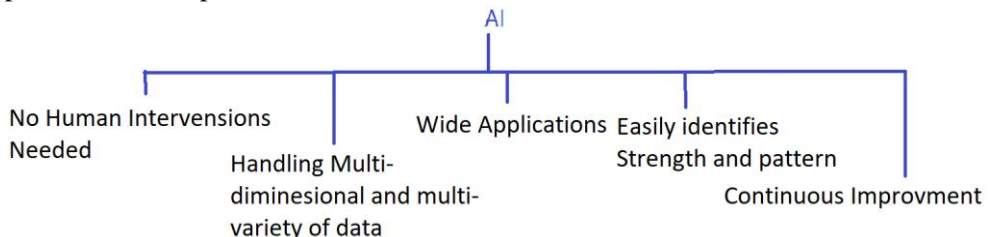
Figure 2 Applications of AI

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JOURNEY TOWARDS A SYNTHETIC CONSCIOUSNESS

ALBIN JOHNS
M.Tech Integrated Computer Science
Email ID: albin.johns2021@vitstudent.ac.in

What is an Artificial Intelligence?

[1]Artificial Intelligence (AI) is field of computer science which emphasizes on creation of smart machines, which behave, act, think and make rational decisions like human-beings. The word itself is composed of two parts, Artificial implying man-made and Intelligence implying making rational decisions based on observational and situational analysis. Thus, AI could be said as "Man-made Brain".[2]Nowadays, Artificial Intelligence is used in various machines, programs and computers that can independently observe, learn, and improvise for providing optimum results. This form of intelligence is already integrated into our day-to-day life such as music recommendations based on browser search history, targeted ads, and self-driving cars.

Past of Artificial Intelligence

[3]In his book Computers and Intelligence, Alan Turning introduced the concept of simulating human-like intelligence and rational thinking in 1950s. In this book he also stated a simple test dubbed the "Turing Test", to determine if computers are capable of behaving like humans. In the same decade, John McCarthy coined the term "Artificial Intelligence" to refer to the field of science studying the development and behaviour of intelligent machines. Artificial Intelligence had its humble beginnings as simple Boolean expressionsi.e., True-False conditions, and overtime it grew exponentially with development of more complex learning algorithms to resemble human mind to a greater extent.

[4]The idea of inanimate objects possessing mechanical thinking is found in various myths and folklore around the globe, but it has only recently become a reality. Since Turing's introduction of the concept of thinking machines in 1950, efforts have been constantly made to create a conceptual machine which is capable of arbitrary rational computations. Turing believed that with development in technology the future,artificiallyintelligent software would be completely indistinguishable from human intelligence, maybe even better. The Turing's test was an evaluation test to judge the intelligence level of the software, though it has faced many oppositions including Chinese Room Argument in 1980. In the recent years, major focus of AI research has been based on the suggestion of Russell and Norvig in early 2000s which states the concept of intelligent machines that can plan and perform series of actions independently.

India in the Field of Artificial Intelligence

[5] India is the second most populated country in the world. The Artificial Intelligence revolution sweeps through each and every sector and it is bound to make an impact in shaping society and daily life in in India. Artificial Intelligence will act as a catalyst for India's development by overcoming the hurdles of poor infrastructure and bureaucracy. Although there are risks in investment in AI, hence it is essential to weed out these problems in an early stage. AI has poses both challenges and opportunities for development of India. AI will help in bridging India's linguistic division and give

significant upheaval to India's medical standards and research. Hence it is necessary for robust and inclusive development of India as it enters the age of Artificial Intelligence.

[6] The financial budget of the year 2019-20 decided by the parliament of India includes the decision to set up the National Centre of Artificial Intelligence. This will have long-term and far-reaching benefits for both urban and rural areas. In June 2018 NITI, (National Institution for Transforming India) Aayog, also known as policy think-tank of India also came up a similar India. Hence it can be said India is very serious about this emerging technology and its future prospects. In the reports by NITI Aayog it plans to tackle the problem of Artificial Intelligence in three levels: (1)By identifying innovative application of AI in various sectors such as farming and health care, (2)Formulating a strategy to establish a strong AI ecosystem in India and (3) involve experts from various fields, institutes and stake holders who will act as consumers for AI applications.

General Uses of Artificial Intelligence

[7] Due to exponential development of big data and cloud computing, artificial intelligence plays a crucial role in today's education sector. The traditional way of teaching foreign language cannot take into consideration the unique characteristics of the learner. Using artificial intelligence for teaching various foreign languages brings both challenges and opportunities. Researchers are trying to analyse the integration artificial intelligence and foreign language teachings. By analysing and studying the behaviour of both learners and teachers in the computer-based environment, they plan to boost the development of artificial intelligence and improve the education quality.

[8] Artificial Intelligence is constantly used to follow and predict next big purchase. They target consumers and provide them with a more personalized experience to increase sales. The power of AI is based on the framework of big data, machine learning and powerful solutions. The use of Machine learning or deep learning model helps companies to understand and draw conclusions from big data collections. They predict consumer trends and track and analyse previous transactions to predict consumer behaviour. Seeing machines making such powerful solutions makes one realise that we are truly living in an era where machines think alike as humans.

[9]Artificial Intelligence has wide variety of applications in medical industry. Using various machine learning algorithms machine help the doctors in making clinical decisions. This enables doctor to make reliable decision and making the interpretations computerized it's also in a format that is easy to understand. The use of AI based diagnostic imaging also helps in the field of Gastroenterology (field of study of digestive system of human body) and hepatology (study of liver). The use of AI improves the quality of treatment of patients at a faster pace. Using machine learning and deep learning image recognition based on previously trained data, computers are assisting in diagnosis and prognosis i.e., treatment of various diseases.

[10] Crime rates are on a rise around the globe. In the modern ear, cybercrimes are on a rise as well. Improving cyber security has never been a main focus of AI, but in the recent years this notion has changed. Due to attackers using innovative methods researchers have to become innovative too. By using machine learning based software that constantly learns and adapts to different cyber-attacks, i.e., researchers plan to create a software that is a tough nut to crack. AI also can be implemented to improve the cryptographic codes, that are harder to decipher. Application of AI in cybersecurity poses its own problems as well, since hackers can come with new ways to fool the AI

and hack the system. So, researcher will have tough time finding the right balance between AI based cybersecurity and traditional ways of cybersecurity methods.

Growth of Artificial Intelligence

[11]Artificial Intelligence is a versatile piece of technology that is used to increase efficiency, quality and safety of every industry. It is already being used in various fields around the world such as health, manufacturing, security and etc. In the past few years investment in AI has skyrocketed, both developing and developed nations are assigning a significant part of their annual budget for study of AI. Not only the public sector but also the private sector is also contributing to AI research. Research on AI has turned into a competitive world both in private and public sectors.[12]Modern companies treat advancement in AI technology as means to measure a company's strength in this competitive world.AI contributes to a country's economy from both the public and private sector. Artificial Intelligence is used for efficient planning of country's economy, big companies use it to analyse sales, target potential field of customers etc.. The implementation of Artificial intelligence in finding optimal use cases of a country's budget helps to stabilize various sectors of economy and enable sustainable growth of a country.

Artificial Intelligence in Medical Sector

[13] Due to constant development in AI and Machine learning fields, treatments, medications, predictions, forecasting and tracing the contacts, development of vaccine have significantly reduced the backlash of ongoing COVID-19 pandemic. AI has led to rapid development of vaccines based on machine learning principles and reducing human contact to patients. Even if most the AI model are not widely spread to show any significant real-world impact, they are still up to the mark to reduce the impact of SARS-CoV-2 pandemic.[14]Artificial intelligence is used for cancer imaging. It enables pathologists to detect cancerous tissue growth in its early stages by studying various images. By detecting cancer in its early stages, chances of survival increase dramatically for the patients.Moreover, by using deep learning algorithms we can also classify different types of cancer. This enables doctors to administrate proper treatment as soon as it is detected.

[15] Artificial intelligence is also used for early diagnosis of diabetes. Even though it's not a fatal condition early detection can prevent further chronic conditions. By creating efficient machine learning models researchers can predict the possibility of diabetes and also for administrating corresponding therapy. It also suggests lifestyle changes to cope up with sudden emergence of diabetes. AI helps doctors by pointing towards possible medications and also helps patients by giving suggestions. It also enables monitoring of biological reactions of patient real time to respond fast and efficiently to change in blood glucose levels.

Artificial Intelligence in Industrial Sector

[16]Implementation of Artificial intelligence in field of manufacturing and production has led to emergence of a new kind of factory known as Industry 4.0 or a smart industry. Advance visual analysis software based on machine learning models are used for visual inspection and fault detection in various industries. This software uses the concept of reinforcement learning to constantly improve their performance and have highly flexible use cases. The system is improved by obtaining real-time functioning data and combining it with various shortcut methods already known by their human counterparts to build a highly efficient system. Use of IoT enables flexibility.

[17]Artificial intelligence is also used for efficient environmental cost controlling. The use of AI enables taking into consideration the environmental impact while purchasing raw material for the said company. Hence allowing the companies to make efficient use of their capital, while also reducing the environmental repercussions. This enables the company to make eco-friendly products while also increasing their profits.[18]It is well known fact that China is a supplier of cheap goods. One such field is the Chinese furniture production industry. It produces cheap goods but at cost of low accuracy and lack of innovations. To combat these issues, the industry used AI management system is used to improve the quality of goods by increasing precisions. The AI controlled management and production increases quality, reduces wastages and improves profits. AI has a bright future in the field of furniture manufacturing.

Artificial Intelligence in Security and Surveillance Sector

[19]Security is a main concern in each and every field in this modern field. Due to increasing crime rate AI has made its way to the security surveillance sector. Advancements in computer vision asub branch of Artificial Intelligence has led to improvements in security and protection of private properties. A security system is created by combining a non-lethal or lethal (based on situation) weapon with advanced convolutional neural network to detect the presence of an intruder to retaliate accordingly. Datasets for detection is derived from two types of sources. One which is open source and other is custom datasets, while the latter compromises precision of image over faster implementation time, the former gives more importance to precise identifications.

[20]According to a research AI can implemented to increase the surveillance of railway crossings. In India specifically jaywalking claims a lot of life. By implementing AI researchers hope to decrease the rate of railway crossing deaths. The proposed model will input various parameters such as vehicle or pedestrian presence by using computer vison and inform the appropriate authorities for swift actions. By using a combination of hardware-based GPU acceleration and software-based deep learning concepts, surveillance of railway crossing can be done in real time

[21] Financial fraud in the world of internet is a fast-growing issue with emergence of smartphones and online transactions. Financial fraud in the IoT platform refers to use of mobile transactions using smartphones through identity theft or credit cards to obtain money fraudulently. It is essential to detect financial frauds early on as it leads to serious financial loss. Therefore, by surveying and analysing financial fraud methods, machine learning models have learnt to predict such fraudulent transactions. Researchers have used a large database from 2016 to 2018 to get accurate predictions.

Artificial Intelligence in Education Sector

[22] Initially Artificial Intelligence took the form of computer-based software and technology, overtime developing into web-based intelligent education systems. Due to latest technological developments such as embedded computer systems and other technology, web based chatbots and robots are now able to perform duties and functions of instructors independently. Using these cutting-edge online platforms now instructors are able to carry out multiple administrative functions such as reviewing and grading student performance and assignments more efficiently and quickly, resulting in higher quality of teaching.

[23] In this competitive world many people face challenges when going to interviews such as introversion, insecurity and lack of hard skills or social skills. Training is essential in order to improve interview performances. Researchers have recently developed an innovative application combining virtual reality with artificial intelligence to simulate interviews. By combining the benefits of both the technology, they have created an interactive software for training individuals for interviews. The technology also considers the emotional intelligence and facial expressions of the person to return an accurate response.

[24] Artificial intelligence is also used for automation of marksheet evaluations and robotic teaching procedures. These various methods help both students and teachers and make their life easier. Nowadays, people use advanced natural language processing (NLP) based for creating sophisticated intelligent tutoring systems. It also increases the learning and understanding rate of students, by customising the course according to that particular student's characteristics. Use of AI can help students to develop various qualities such as ability to come with creative solutions and resolution of conflicting statements etc.

[25] The main goal of Artificial intelligence in education is to provide a personalised learning environment which supports the students based on their preferences and personal characteristics. In precision education, there is a need to provide prevention and intervention practices to learners by analysing there learning patterns and speed, enabling the software to function as an intelligent tutor by incorporating knowledge and critical analysis of learner behaviours.

Accomplishments of Artificial Intelligence

[26] Everything in this world has its own share of merits and demerits, similarly artificial intelligence has its own advantages and disadvantages. Such a synthetic intelligence can produce results faster. It can easily and swiftly complete stressful tasks. Being a machine, it can efficiently multitask with minimum margin of error. It can calculate long and complex calculation instantly for a task instantly to solve a problem.[27] One of the major advantages of such synthetic intelligence is that decisions are based on pure logic.Unlike human beings whose emotions sway his actions, machines are not bothered by emotions. Artificially intelligent machines also don't experience tiredness, which is a plus point against their human counterparts. Also, the transference of knowledge is also easier, when an Artificial intelligence learns something, it never forgets it and its easier to duplicate the said knowledge for various other purposes.

[28] Artificial intelligence is mainly used to create machines that are able do the jobs that human find stressful or are unable to do due to limitations of biology. For example, space exploration is one such field. Humans are unable to go to such places and analyse such places but due to advancement in robotics and artificial intelligence, new doors for explorations have been unlocked. Work done by AI has less errors and defects than those done by human labour, this possible due wide array of sensory inputs from various sensors are compiled to produce optimum results. Also, unlike human beings the same particular machine running the artificial intelligence could do the same work infinite times until the hardware gives out.

[29] Among all the other advantages, one of its major advantages is that Artificial intelligence can analyse a wide variety of data instantly. Enormous amounts of data that traditional humans would take years to go through and analyse could be instantly accomplished by the use of AI. Using AI enables researchers from deviating from traditional method of problem solving. AI can come up

with creative and unforeseen solutions for a problem, if given the necessary parameter to solve the particular question. But it can be an undesired outcome if the researcher makes a logical error while stating the necessary parameters.

[30] AI based automation systems have lots of benefits. One such example of this case is the use of Self-driving cars. Cars driven by AI have less chance of encountering an accident and need for constant surveillance is also removed since such self-driving cars follow pre-set protocols. It also ensures there is less traffic and transit are quick. Use of AI based automation systems grants human a lot of free time that could be invested for other productive activities. It will allow us humans to lead a healthy and peaceful lifestyle where hazardous work is carried out by machines.

Challenges Ahead for Artificial Intelligence

[31] The 1900s Pop-culture painted a dark picture of sentient machines even before its actual emergence. There is an ever-increasing amount speculation about the threats AI poses to general public. Though there is very little empirical study done on this subject. This has delayed its deployment into the public sector. Though AI based surgery methods are centre of current medical technology, its still not widespread and accessible. Moreover, people feel an unease handing over their body for operations by robots and AIs.[32] There is a general social dilemma among the public whether to trust the AI based machines or not. To be quite frank, even machines make mistakes once in a blue moon. Even a self-driving car powered by AI can encounter an accident due to technical problems, to overcome such problems, manufacturer provide manual control to the drivers. Even an AI can miss a crucial piece of data if not provided. Nothing is perfect in the world, but the chances of error is just less compared to being done by human.

[33] Since even AI based machines can make mistakes, during AI based analysis of a disease there is always a doctor involved he/she rechecks whether the analysis is correct or not. If he doesn't check the report and blindly believes in the report of the AI he can administer the wrong treatment to the patient, which can be lethal for the patient in some cases. Currently, AI is just a smart tool for humans to use. It is still a long way from a future where doctor or most jobs are replaced by robots. Even the suggestion of medication by AI goes through the doctor before it reaches your hand. In the end what we as human value the most is our life, if there is even a slight chance of wrong medications by AI, we will not even use the AI-based medical technology.

[34] The major issue with current generation of AI is the limited amount of training data. Regardless the optimisation in learning algorithm, the machine learning model doesn't have sufficient training data, it is a flawed piece of technology. The use of AI in military and security is still limited. It still has vulnerabilities and due to secrecy companies don't share their personal research with others to improve the overall quality of AI. The AI is still not generalized and doesn't have standard architectural design around the globe. Widescale deployment still has a long road ahead of it.

[35] An AI-centric world has its own risks. There is a high probability of displacing current workers. It is extremely bad situation as these workers don't know any other job as a means of survival. In India, specifically, if the owner alters the AI to include social status as parameter, it can cause wide spread problems. This is an extreme case of social discrimination in a democratic country like India. This case can also be extended to gender discrimination. If such targeted use of

AI is done it will increase the social gap between poor and rich and all that our ancestors have helped us to build will be gone. Hence the use of AI should be cautious.

Conclusion

Artificial Intelligence is at the centre of the technological era of the 21st century. It has spread its wings around all fields of research and studies. I presume it will the major focus of technological endeavours in this century. AI still has a long road ahead of it until it can perfect. As it develops it will lead to the emergence of machine that have emotions and are self-aware. Even now there exists AI that can develop personality based on the training datasets. Just like everything, it can be used to commit devious deeds. AI has opened a lot of new doors for us to explore, underwater exploration and space exploration are under full swing due to the advancement in AI and robotics. AI can produce faster results with less probability of error, this is an attractive prospect of Artificial Intelligence. I believe growth of AI could lead to further growth of humans as a species, the next stage of human evolution.

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ARTIFICIAL INTELLIGENCE

FATHIMA ANJILA P K
M.Tech Nanotechnology
Email ID: fathimaanjila.pk2021@vitstudent.ac.in

What is Artificial Intelligence?

[1]Ever since the industrial revolution, there happened a vast development in the field of technology. Many hard manual works had been replaced by technology, which helps humankind a lot. Artificial Intelligence (AI) is one of the technological innovations that happened, to replace the manual work that is done by human in various fields. [2] Artificial Intelligence is a branch of science and technologythat creates intelligent machines and computer programs to perform various tasks which requires human intelligence.[1] It is a system that mimic various functions which a human can do. AI uses external data like the big data in order to achieve excellent performance for the given tasks. Once, AI was just a concept that was seen in science fictions and debates which discuss about the effect of technology in modern world. But now, it has become a part of us in our day-to-day life. It has become the key function of many technical and various other sectors.Artificial Intelligence brings a significant impact on industries like manufacturing, healthcare, supply chains etc. The ability of AI to do things which the human can't, brings many applicationswhich results in the improvement in performance and productivity.

History of Artificial Intelligence

[3] The history of Artificial Intelligence begins with some fantasies created by philosophers and fiction writers. Philosophers brought up the concept of intelligent machines to make us understand the importance of being a human. French philosopher, Rene Descartes, used the metaphor "mechanical man" to describe the possibility of intelligent machines**.** Science fiction writers like Jules Verne (19th century), Isaac Asimov (20th century) also used this possibility to bring fantasy to their work about intelligent nonhuman. In 1907, the writer of 'Wizard of Oz'; L. Frank Baum; described about the mechanical man "Tik-Tok" as "*Extra-Responsive, Thought-Creating, Perfect-Talking Mechanical Man … Thinks, Speaks, Acts, and Does Everything but Live*". Many AI researchers found inspiration from these writers for their research. Chess is a field which required thought. During the 18th and 19th centuries, a chess playing machine called "*The Turk*" came in to picture and it was introduced as an intelligent machine. Many people believed that those machines worked automatically. This mechanism of chess was used for studying the early AI works.[4] In 1942, Isaac Asimov, an American fiction writer, wrote a short story called "*Runaround*" which is about a robot developed by engineers Gregory Powell and Mike Donavan. This story inspires many scientists who are works on the field of Artificial Intelligence, Robotics, Computer science. Around the same time, an English mathematician called Alan Turing, invented a machine for breaking codes, called "*The Bombe*" which is considered as the first working electro-mechanical computer. He developed this machine for British Government in order to decipher Enigma code which was used during WW2 by the German army. In 1950, Turing published an article "*Computing Machinery and Intelligence*" which describes about the creation and testing of intelligent machines which is called as the *Turing test*. Turing test is used to find the intelligence of a system: if a human

cant distinguishes between a machine and another human when he interacts with them; the machine is intelligent then. In 1956, Computer scientists of Stanford; Marvin Minsky and John McCarthy hosted the "*Dartmouth Summer Research Project on Artificial Intelligence (DSRPAI)*", which lasted around eight weeks. This program is considered as the beginning of AI spring. Designer of the first scientific computer IBM 701, Nathaniel Rochester (computer scientist) and founder of information theory, Claude Shannon(mathematician) were also the participants of the workshop. The main objective of this workshop was to gather researchers of various fields to create a research area on building machines which can simulate human intelligence. The *DSRPAI* was a success in the field of Artificial Intelligence. In 1963, Edward Feigenbaum and Julian Feldman wrote a book "*Computers and Thought*" which describes working of AI programs.Around 1973, the British Government ended supporting the AI research because of a statement given by the British mathematician James Lighthill. The U.S government also followed the British example; which results in the downfall of AI.In 2015, Google created *AlphaGo,* which uses Artificial neural network called the Deep Learning. "*Go*" is a game which is more complex than Chess and AlphaGo was able to beat the Go world Champion. Many applications that comes under AI works on the basis of Deep Learning and artificial neural networks.

Growth of AI

[4] The DSRPAI project became a huge turning point in the field of AI. The computer program *ELIZA*, which is a natural language processing tool that can have conversation with human; created by Joseph Weizenbaum is an example to this. ELIZA is the first program which is capable to pass the Turing test. Another example is the *General Problem Solver Program* created by Herbert Simon (Nobel prize winner), Cliff Shaw and Allen Newell (RAND corporation scientists). Because of these success stories, many fundings has been received to the AI research.[5] Ever since AI came in to picture, it has undergone many changes by time. AI has become an important part in different fields like cybersecurity, healthcare, IT, etc. AI along with machine learning helps people in many ways communication, navigation etc. AI and big data are also used in social media platform to delete offensive comments and to have advertisements. Digital assistants are another outcome of AI. There is Siri (Apple), Alexa (Amazon), Cortana (Microsoft) which can do tasks like checking schedules, searching on web and various other functions. Deep learning, which is a subset of AI is used for self-parking of vehicles. A technology company called Nvidia, uses AI, so that cars can have the ability to think, learn and see various ranges of driving. Companies like Audi, Benz, Toyota, Tesla, Volvo etc also uses AI technology. Google uses AI for the predictive search in which the search engine automatically guesses what the user is looking for.[6]Artificial Intelligence along with the big data brought a huge transformation in industries all around the world. Artificial Intelligence is the process of simulating human intelligence. The subsets of AI, deep learning and machine learning are widely used in many areas of business like marketing, customer service, product recommendation etc. As the technology is improving nowadays, it also gives impact on various sectors like medical diagnosis, security and many more. In order to accelerate their profit and growth, many businesses make use of these technologies. The invention of AI, IoT, Big data changes the way people do their business. In the modern world, there is no field which haven't explored AI. In almost all manufacturing and technological industries, the usage of AI can be seen. It is clear that a machine can be a match with human in various activities like emotion sensing,

automation activity. Artificial Intelligence is not only used for manual works, but also for works that requires creative thinking like journalists, lab technicians etc.[7] One of the applications of AI, Deep learning, introduces huge impact on artificial intelligence. Since 2012 there has been a very good improvement in image classification technique which is due to deep learning. Deep learning is the technique that trains artificial neural network which is on huge data sets into labelled data.

AI in India

[8] Artificial Intelligence (AI) plays a major role in the growth and development of India.It acts as a catalyst which can accelerate the development. With large workforce, economy, democracy; India provides vast opportunities in the field on AI. AI applications enhances the public as well as the private sectors. In almost every sectors such as the education, healthcare, security, law, transportation, etc; applications of AI is present.[9] Within the recent years, many start-up companies are emerged in India. Out of it about 170 are AI based start-ups. All these companies are working in the field of e-commerce, healthcare, finance etc. A start-up called Tuplejump provides a service to its clients in which, data can be visualize during decision making. Another company called AIndra develops devices which can be used for applications like face recognition, detecting cervical cancer etc. Edge Networks uses the application of AI which can match the profile of job to the matched candidate. Fluid AI developed an AI based gesture-controlled assistant which can give information about products to the customer as a human does. These can be used in shops. Flutura developed a solution that can collect and analyse the conditions of a machine and schedules the repairing date accordingly. They named this solution Cerebra. This helps to increase the lifespan of the machine. Heckyl helps the people who are into trading by collecting informations on various issues. A video analytics solution is developed by ShopR360 which can be used to analyse CCTV videos. Major companies like Infosys, TCS, etc also develops AI based applications according to their needs. TCS developed an AI based assistant that is able to do interaction with customers.

Various Places Where AI is Used

[9] Healthcare- AI is widely used in the field of healthcare these days. Many countries are still developing in this field. More than 100 companies which are startups, uses different applications of AI in healthcare. An application of AI called virtual nurse performs almost every tasks performed by human nurses. Some companies have developed systems that provides consultation. This is useful when doctors are not available. It treats patients depending upon the reported symptoms. It provides medical advice from a large database. In case of emergency, it also advises to consult doctor.

Education-AI has many applications in the field of education. It includes answering or asking questions, giving feedback etc. The intelligent tutoring systems also has a huge influence in the field of education.

Law-Recently, several law firms also started using AI related applications. It helps in research on finding different cases for the current case.

Finance-Banks uses chatbots for various applications like checking balance, account activation etc. People can interact in their mother tongue. This system helps customers who are not familiar with technology.

Transport-Many companies like Uber, Tesla, Google developed self driving cars.

Virtual Assistants-Recently, many virtual assistants are developed by companies Google, Apple, Amazon, Microsoft. Google created Google Assistant, Apple- Siri, Amazon-Alexa, Microsoft-Cortana. The user can interact with his natural language. The virtual assistants helps us to perform various tasks like schedule management, playing music, audio clips etc.

E- commerce-E commerce sites like Amazon keeps track of the items that are purchased by people and identifies the pattern of interest of the user.

[22] Heavy Industries-AI robots are used in industries to do jobs that are dangerous. They provides efficiency.

Artificial intelligence in Healthcare Appliances

[7] Medicine was considered as one of the applications of Artificial Intelligence. Researchers developed many decision support systems since the mid of 20th century. In 1970, rule based approaches were a huge success and was used to interpret ECGs, choosing the correct treatment, diagnose disease and even to assist physicians. Since the required the frequent addition of rulesand updates, this rule based systems are costly. Also, it was difficult to encode the different knowledges obtained from different experts. The first generation medical AI was completely depended on expert knowledge and robust rules. But the modern AI made changes in the learning methods by which it can have many interactions and identify pattern. Machine learning algorithm is categorized into two: supervised and unsupervised; depending on the type of task which they are assigned to solve. In supervised learning, it collects large number of cases which has the input and output that we desired. This input and output is analysed and produces an output for new cases. In unsupervised learning, in order to find the sub clusters of original data it looks for the different patterns in the unlabelled data. Machine learning method has helped AI in is development in such a way that, it does not have to specify rules for every task in order to find unrecognized patterns. Thus, machine learning has become the key framework in building AI machines.[10] In modern world health care sector, Artificial Intelligence, big data, algorithms, robotics are used for monitoring, detecting, measuring risks. Healthcare industry depends on data and analytics so that they can improve practices and therapies. The rate of medical information collected has been increased in recent years. Medical professionals, researchers, patients, produces huge amount of data like electronic health records (EHR), medical imaging etc from different devices, almost every day. Artificial Intelligence technology has the ability to gain information, process and provide defined output to the user. This function is obtained through machine learning algorithm, data storage and computation power. By daily monitoring, the behavioural patterns can be recognized and predictions can be made. Thus, AI can analyse prevention, treatment, patient outcome in various stages of his diagnosis, drug development etc. Nowadays, advanced hospitals are looking for AI solutions to increase precision. It also brings cost effectiveness. AI provides the choice for therapy by presenting various recommendations. The online patient education shows the journey of patient, early disease condition, health goals, therapy choices and outcomes and also the future goals. The advancement on big data helped to have health risk warning system on mobile apps and thereby we can know the early risks. Using the electronic health records, physicians can give medical advice by referring the previous data. Using AI based technologies in the area mental health also produces excellent results. A program called the Artificial emotional intelligence has been created to understand, simulate, calibrate human emotions. These tools are provided to patients to have companions to talk, to

control anxiety etc. Also, AI provides ways to find future occurrence of depression.[11] Recent years, the popularity of telemedicine and its applications has been considerably increased. They collect data from places like the wearable sensors. Some AI has the function of recognizing speech and responding orally or via text. After collecting the informations, recommendations about what to do are provided to the user or directly gives the information to doctor.

Artificial Intelligence in Manufacturing and Production

[12] AI tools and techniques has an important role in smart manufacturing. Artificial Intelligence has captured many of the industries of the modern world. Most of the devices that are manufactured today are having sensors that can capture datas. The manufacturers started to recognize big data analytics and the started using data to enhance their competition. This large data collected and analysed using the analytic capability of AI helps to improve the decision making and provide insight to the business. Companies needed a structure to implement AI in industrial field. Industrial AI are smart and resilient and they are fault tolerant and self-organising.[13] The introduction of automation has bought wide use of robots and sensors into the field of manufacturing. Sensors helps to gather large amount of datas that are available from the manufacturing process. The main objective of industries are to derive decision from big data and making robots which can make their own decisions. Strategies of artificial Intelligence are used in various aspects of manufacturing, from designing to assembly. The sensors provide real time datas which helps in the decision making of manufacturing process. Many strategies of AI can be introduced to the decision making and support of production. For example, Palmer et al created a reference ontology to support manufacturing decision making. Artificial Intelligence techniques can also be used for quality inspection and maintenance.[14] In applications which has high quality data in large amounts, AI works very efficiently. There are many manufacturing applications for the advantages of AI. Artificial Intelligence is used for collecting and monitoring datas of supply chain and manage them, predict their future demand, finding their inefficiency etc. The demand of a product depending on local weather is obtained using its machine learning. Manufacturing Robots has been since very long time. But these robots will be for performing just one task again and again. But the modern technology of Artificial Intelligence is trying to make robots to do activities similar to human activities. There are other researches going on for making robots automatically learn the human activities by imitating them. Artificial Intelligence helps in monitoring the equipment manufacturing using hundreds of fine sensors and they can notice even a small change. They can find the machine failure from the slightest change in machine noise. AI can also be used in simulation of a design. It simulates how the design performs in real world without building it physically.

Artificial Intelligence in Security and Surveillance

[15] Artificial Intelligence has bought many new scenarios into the modern world, which once was considered as a fantasies. It is even possible for the robots to perform the various tasks of a police. If the police have a high intelligent computer system, their job would be much easier. Artificial Intelligence has the ability to monitor and identify large datas and videos which are collected from many sensors and can warn the respective services if any suspicious activity takes place. Modern search programs that are used by the police has the ability to inspect databases of people. Police nowadays are already using AI to conduct various operations. Using AI, datas about crime situations

can be derive from large datas. This area of data mining has become a significant research topic today. Data analysis is widely used in the area of criminology. By this method, criminal characteristics can be found. Crime analysis requires investigating crimes and detecting them and link them to the criminals. This made criminology a suitable application of AI. Artificial Intelligence can be used to investigate as well as prevent crimes since it can analyse huge data. Cyber experts uses some algorithms to track the illegal activities taking place inside the cyber world. Burglary can also be detected using the AI technology. The details about the scene like the date and time of the offense, method, tools etc are collected. This might be similar cases which happened before, and by comparing them, AI can find some similarities between the two crimes. Face detection technology is also another application of AI.[16] By the introduction of intelligent machines and artificial intelligence, cyber security is one of the most benefited field. Still, development is taking place in this field for the introduction of new technologies. This system has the ability to handle and analyse huge amount of informations. Artificial neural networks (ANN) is another technique that is developed from the field of AI. ANN is a technique that can imitate shape and function of a human brain. In cyber security, ANN is used successfully to monitor network traffic. Intrusions can be detected even before the attack happens during the time of delivery. Inorder to prevent the future attacks, ANN can be used to learn past network attacks and activities. An elaborated and new form of ANN, called the Deep neural networks (DNN), which can protect as well as predict attacks, is used recently.[17] Artificial Intelligence is widely used in the field of home automation also. AI is the technology that develops automatic systems which can understand the environment, learn from it and make decisions. The goal of home automation is to remotely or centrally control the devices and appliances in the house. Ethernet or coaxial cables are used for this purpose. AI is a programming technique used to build computer systems to solve real world problems. There are many tools that can be used for making automation system. An AI based system called the KBS (knowledge-based system) contains large amount of knowledge. KBS is used for storing preferences of user and also to manage home appliances. Using AI in the places where security is major concern, will increase the responsiveness. Artificial Intelligence can be used in many applications like; video processing, audio processing, image processing for security threat analysis, analysis of certain cases, KBS for security system etc.

Artificial Intelligence in Education

[18] The use of AI has increased drastically in the field of education these days. Educational institutions use AI in different ways like automation of various tasks and process of administration, developing curriculum, learning process of students. The initial form of AI was computer and other technologies related to that. Later web-based intelligent systems come in to picture. With embedded computers and its technologies, the duties of instructors can be done, with or without their presence, using web-based chatbots and robots. This platform helps the instructors to perform various administrative functions like review and grading and also, they can give feedback of the works of students, more efficiently. The web based platforms, virtual reality, robotics and other 3-D technologies helps to provide students better quality education.[19] Among the various applications of AI, *Intelligent tutoring systems (ITS)* is one of the most common applications of artificial intelligence that is used in the field of education. ITS provides a well defined and structured, step by step tutorials of topics of different subjects according to the student's needs. Depending upon the

student's improvement, the difficulty level of the system gets automatically adjusted. System also provides necessary hints and guidance when needed.[20] *AIED (Artificial Intelligence in Education)* has become a primary research topic these days. AIED helps students by guiding and helping them in their studies and also it assists the teachers in decision making.

Advantages of Artificial Intelligence
- [21] AI is applied in wide range of areas like engineering, manufacturing, security and surveillance, medicine and variety of other applications which involves prediction, control and decision-making applications.
- AI provides permanency by preventing the datas from being lost.
- It is reliable because it can simulate the human intelligence into reasoning processes.
- Decision making is faster.
- Helps in problem solving.
- [22] AI does not consider emotions in decision making. It is purely on facts.
- AI doesn't need sleep unlike humans
- Knowledge can be spread easily
- [23] AI can do any complex works that a human finds difficult to do or cannot do.
- Tasks can be completed faster compared to a human
- Unexplored areas can be discovered.
- Minimum error
- Infinite function
- [24] Multiple functions can be performed at same time
- Provides high success ratio
- [25] It can be programmed to work for longer period

Dis-Advantages of Artificial Intelligence
- [21] AI is considered as a black box which maps the relationship between the input and output variables depending on a data set. Because of this, the tool cannot be used in general situations which are not represented in data set.
- AI does not guarantee optimal solution.
- AI based problem solving method often doesn't provide the true insight of problem and solution.
- [22] AI lacks in providing creative responses.
- Certain decisions are not able to explain logically
- AI sometimes fails to identify the absence of solutions for particular problems.
- Even small malfunctioning can result in wrong solution
- AI in wrong hands can create a huge destruction.
- [23] It replaces the human jobs
- Human touch is lacked
- [24] Can lead to increase in unemployment
- Creativity depends upon the programmer
- Requires lot of money and time

- [25] Development of machine is not easy because of expensive equipment
- Humans become lazy
- Machine can only perform task according to which they are programmed. They might crash or provide wrong output when asked to do anything else

Conclusion

Artificial Intelligence is a branch of science and technology that creates intelligent machines and computer programs to perform various tasks which requires human intelligence. AI made the life of people more productive by providing different types applications. The lifestyle of people has changed ever since the emergence of AI. AI is used in various fields such as education, law, healthcare, security etc. and it has its own advantages and disadvantages.There are lots of advantages in using AI which benefits the individual as well as the society. But the increase in the use of technology has its own disadvantages too. Our modern world is driven successfully by AI and its applications and it will also be one of the important factors in shaping future. Future AI will undoubtedly have much more features than the present one. It will work more similar to the human intelligence. AI might be able to takeover the position of a CEO.AI will bring new innovations in the field of healthcare, transportation, e-commerce and many more. The upcoming innovations will have a huge impact on people's life and the coming generations.

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ARTIFICIAL INTELLIGENCE AND ITS INCREASING IMPORTANCE

ASHLYN S POTHEN

M.Tech. Integrated Computer Science Engineering
Email ID: ashlyn.spothen2021@vitstudent.ac.in

What is Artificial Intelligence

[1] Artificial intelligence (AI) is the science and engineering of creating intelligent devices, particularly computer programmes. It's analogous to the task of utilising computers to study human intellect, but AI doesn't have to be limited to physiologically observable ways.[2] Artificial intelligence (AI) refers to the intelligence shown by robots or machines. It is a part of computer science. It is now becoming an important and useful field in computer science as it has enhanced human life in many ways.

History of Artificial Intelligence

[3]George Boole was the first to develop a formal language for logic reasoning in 1847. The next achievement in artificial intelligence history was in 1936, when Alan M. Turing described the Turing-machine. Warren McCulloch and Walter Pitts developed the model of artificial neurons in 1943, and it was in 1944 when J. Neumann and O. Morgenstern proposed the theory of decision, which provided a complete frame for specifying an agent's preferences. In the summer of 1956 Artificial intelligence (AI) was introduced, when John McCarthy first explained the term and thereafter the subject caught the attention of researchers, and it was discussed at a conference at Dartmouth. The first generic issue solver was tested the following year, and McCarty, often recognised as the father of AI, revealed the LISP programming language for constructing AI software a year later.

[4] Philosophy, fiction, and imagination can all be linked back to the origins of artificial intelligence. AI has been affected by early inventions in electronics, engineering, and a variety of other fields. Work in problem solving, which includes foundational work in learning, knowledge representation, and inference, as well as demonstration programmes in language comprehension, translation, theorem proving, associative memory, and knowledge-based systems, were among the early milestones.

Artificial Intelligence in India

[5] Artificial intelligence (AI) breakthroughs are a wake-up call for Indian policymakers, with every one of Prime Minister Narendra Modi's signature policies expected to be directly affected in the coming years. Given China's tremendous advancement in AI-based research, India must regard AI as a crucial component of its national security strategy. To prepare India's jobs and skills markets for an AI-based future and secure its strategic interests, it must encourage AI-based innovation and build AI-ready infrastructure. [6] Artificial Intelligence (AI) will very certainly change how we live and work. Its adoption is been referred to as the fourth industrial revolution due to its enormous potential. As with any big technological innovation, it brings both potential and difficulties. On the one hand, various apps have been developed or are in the works that have the potential to

dramatically improve people's quality of life. According to a research, by 2035, the yearly economic growth rate of 12 wealthy countries would have doubled. On the other side, there is a chance that employment will be lost. No country can escape the effects of technological advancements in the age of globalisation. However, by putting in place the required infrastructure and policies, the advantages may be maximised and losses can be reduced. India has failed to define an AI policy, despite the fact that numerous other countries have done so.

Various Areas or Fields Where Artificial Intelligence is Used

[7]A. Application of Artificial Intelligent Techniques in Power system stabilize Design

PSSs have been used to dampen electromechanical oscillations since the 1960s. The PSS is a secondary control system that is frequently used in conjunction with an excitation control system. The PSS's primary role is to send a signal to the excitation system, which causes electrical torques to be applied to the rotor in phase with speed differences, dampening power oscillations. They work as part of the generator's excitation system to generate a proportionate electrical torque known as damping torque.

B. Application of Artificial Intelligence Techniques in the Computer Games

One of the most common uses of computer technology is to play games. Computer games have progressed from simple text-based games to three-dimensional graphical games with intricate and huge environments. When all of the components, such as graphics rendering, audio playback, user input, and game artificial intelligence (AI), are combined, they deliver the promised enjoyment and create a worthwhile computer game. Artificial intelligence is the most vital component of any computer game, and it would be impossible to enjoy the game without it! If artificial intelligence is removed from computer games, the games would become so easy that no one will be able to play them.

[8]C. Weather Forecasting

Currently, neural networks are being utilised to forecast meteorological conditions. The neural network receives historical data, which it analyses for trends and forecasts future weather conditions.

D. Expert Systems Expert

Systems are machines that have been programmed to have complete knowledge in a given field. They're made to tackle challenges in certain niches. These systems handle these challenges by deducing answers from a logical sequence of yes-no questions using statistical analysis and data mining. There are three elements to an expert system. The expert system's knowledge base maintains all of the information, rules, data, and relationships it need to have complete competence in its field of interest. When given with a question, an inference engine searches the knowledge base for answers, analyses them, and responds with a solution or suggestion in the same manner that a human expert would. A conditional statement that connects the provided circumstances to the final result is known as a rule.

[9]E. Forecasting high crime risk transportation areas

In order to build new intelligent systems and devise new risk avoidance techniques in transportation management, the government has utilised information and communication technology. The ultimate objective is to increase transportation service quality while simultaneously ensuring public transportation safety. In order to anticipate high crime risk transportation locations,

a mix of spatial clustering approaches and artificial neural network models were utilised in this study. Spatial analysis was performed using geographic information systems to identify locations with a high concentration of criminal events.

[10]F. Medical fields

Artificial intelligence (AI) is an area of computer science that can analyse large amounts of medical data. In many clinical contexts, their ability to exploit important relationships within a data collection may be employed in diagnosis, treatment, and prediction of result.

Growth of Artificial Intelligence

[11] Artificial intelligence (AI) has advanced rapidly in recent years, both in terms of resources given to it and in terms of the results it produces. According to The Economist, AI-related mergers and acquisitions were 26 times larger in 2017 than they were in 2015. Increased investment has been fuelled by and contributed to significant advancements in artificial intelligence's technical capabilities (AI). [12]Artificial Intelligence (AI) is considered to be the fourth industrial revolution. With the use of big data and artificial intelligence, all sectors throughout the world have been altered. Artificial intelligence is the replication of human or animal intelligence in computing systems, with the goal of programming them to think like intelligent beings and copy their activities. Computational systems with programmed intelligence may tackle many real-world issues significantly more accurately and effectively than deterministic and hardcoded computational systems.

Artificial Intelligence in Healthcare Appliances

[13] Because of the rising complexity and volume of data in healthcare, artificial intelligence (AI) will be used more frequently. Payers and providers of care, as well as life sciences corporations, are already using AI in various forms. Diagnoses and treatment recommendations, patient engagement and adherence, and administrative duties are among the most common types of applications. We believe that AI will play significant role in future healthcare products. It is the key capability underpinning the development of precision medicine, which is universally acknowledged as a much-needed advancement in care. Although early attempts at diagnosis and therapy recommendations have been difficult, we believe AI will eventually master that domain as well.

[14]Artificial intelligence (AI) plans to copy human intellectual capacities. It is bringing a change in perspective to medical care, fueled by expanding accessibility of medical care information and fast advancement of examination methods. We review the current status of AI applications in medical services and talk about its future. Man-made intelligence can be applied to different kinds of medical care information (organized and unstructured). Famous AI procedures incorporate machine learning strategies for organized information, for example, the old style support vector machine and neural organization, and the advanced profound learning, just as normal language handling for unstructured information. The Significant medical regions that utilize AI instruments include cancer, nervous system science and cardiology. Thus AI applications are used in the three significant spaces of early detection, treatment, as well as result prediction and anticipation assessment. [15]Artificial intelligence (AI) has been developing rapidly in recent years especially in the field of healthcare like biomedicine, including disease diagnostics, living assistance, biomedical information processing, and biomedical research. Many new scientific accomplishments and technologies are available to

appreciate the tremendous potential of AI in biomedicine, and to provide researchers in related fields with inspiration.

Artificial Intelligence in Manufacturing and Production

[16]Adaptation and innovation are extremely vital to the producing enterprise. This development has cause sustainable manufacturing using new technologies. Smart production demands worldwide viewpoints on smart production application technology to enhance sustainability. In this regard, a number of AI-based techniques, such as machine learning, have already been established in the industry to achieve sustainable manufacturing, thanks to significant research efforts in the field of artificial intelligence (AI). As a result, the goal of this study was to conduct a thorough review of the scientific literature on the application of artificial intelligence and machine learning (ML) in industry. [17]Smart systems and artificial intelligence are playing an ever-increasing role in our daily lives. This tendency does not spare industry or production, implying the possibility for conventional managerial functions to be gradually replaced. Despite the fact that the number of AI applications in production continues to rise, the publications do not appear to give much attention to the long-term ramifications. Both jobs fall within the umbrella of typical management responsibilities, and are thus likely to be handled by autonomous systems in the future.[18]Artificial intelligence (AI) and, in particular, machine learning (ML), are becoming more widely used in factory processes. The use of machine learning approaches in manufacturing process planning and control, as well as predictive maintenance.

Artificial Intelligence in Security and Surveillance

[19]Artificial Intelligence (AI) is evolving at a rapid pace, particularly in industrial construction. The unusual use of AI in cyber-attacks appears to be rather frightening. The thought of a machine learning on its own and becoming sophisticated enough to assault things is a worrying topic in the cyber realm. Usually, these AI enabled cyber-attacks are performed using advanced malwares which incorporates advanced evasion techniques to evade security perimeters. Traditional cyber security methods fail to cope with these attacks. In order to deal with these problems, robust traffic classification system is proposed for providing extreme surveillance. [20]At least fifty-six of the seventy-five countries with AI surveillance technologies have smart city platforms with a direct public security relationship. Facial recognition is a biometric technique that matches recorded or live footage of humans with photos from a database using cameras, including video and still images. Not all facial recognition systems use database matching to identify individuals. Some systems use facial recognition crowd scanning to assess aggregate demographic trends or conduct broader sentiment analysis. [21]On the one hand, several AI-based techniques have been successfully embraced by the security industry. Denial of service assaults, forensics, intrusion detection systems, homeland security, critical infrastructure protection, sensitive data leaks, access control and virus detection are all examples of applications.

Application of Artificial Intelligence in Education

[22]Currently, in higher education, students are placed at the core of learning and teaching. Human-AI contact is seen as a kind of solution or partnership that can support the disabled people around the world. As a result, these technologies can encourage people to take advantage of AI in higher

education. It has the potential to encourage students and teachers to be more involved in the learning and teaching process. [23]According to Chassignol, Artificial intelligence in education has been applied into administration, teaching, and learning. The scope of the study will be defined by these domains which Chassignol designated as the framework for analyzing and interpreting artificial intelligence in education.

[24]Artificial intelligence's application in general and specifically in the sphere of education might lead to a significant danger which should be thoroughly studied. The new generations are already addicted to that small hand-sized element: the cell phone; which in turn connected to the Internet makes social networks such as twitter, instagram, Facebook, snap chat and others.

[25]As a brief survey of Artificial Intelligence in Education Society (AIED) conference and journal papers will confirm, it was understood that it includes everything from AI-driven, step-by-step personalized instructional systems, through AI-supported exploratory learning, the analysis of student writing, and student-support chatbots, to AI-facilitated student/tutor matching that puts students firmly in control of their own learning ability. It also includes students interacting with computers, whole-school approaches, students using mobile phones outside the classroom, and much more. In addition, AIED can also bring improvement to learning and educational practices. The field of AIED has its ups and downs as it can be considered as both innovative and derivative.

Advantages of Artificial Intelligence

[26] Artificial intelligence (AI) applications are used to mimic human intellect in order to solve problems and make decisions. Permanency, dependability, and cost-effectiveness are all advantages of AI, which also addresses ambiguity and speed in either solving an issue or making a choice. AI has been used in a range of modelling, prediction, decision support, and control applications in fields as diverse as engineering, economics, linguistics, law, manufacturing, and medicine. One of the most promising AI applications is its extensive use on the Internet, such as in search engines. AI applications can give permanence in an organisation when human intelligence is attached to a single person or a group of individuals, preventing information from being lost when the individual or group members leave or are no longer accessible to the business. The lifespan of information encoded in an AI framework may be as long as the issues and decision situations remain relevant.

AI also permits the construction of a learning capability, which may be used to extend the application's life and usefulness.AI technologies can help with speedier decision making by automating the decision making process, depending on the computational time in terms of algorithmic complexity and processing capacity. AI can provide solution to difficult issues in a short time by acquiring and filtering data, analysing it and making decisions.[27] Artificial intelligence has a number of benefits, one of which is that its judgements are based on facts rather than emotions. Even despite our best attempts, it is a well-known reality that our emotions always influence our decisions in a negative manner. Machines with artificial intelligence, unlike humans, do not require rest, eliminating the fundamental disadvantage of human fatigue. It facilitates the dissemination of information. Once an artificial mind has been educated for anything, it may readily be replicated by others, saving time that would otherwise be spent passing on information to other humans through training.

[28] Error Reduction: AI provides the possibility to attain more accuracy by reducing the number of human mistakes. When compared to human errors, cognitive technology errors are quite

infrequent. AI has been used in the healthcare business to improve clinical procedures. Normally, healthcare experts write prescriptions based on a series of questions and standard examinations. However, most healthcare providers are unable to attend to a high number of cases at the same time. There's a danger that this will lead to mistakes. Delegation of responsibilities to AI is intended to prevent medical errors caused by human mistake due to severe work pressure. Multi-tasking: Machine intelligence may be used to complete repetitive activities that are tedious in nature. Machines are capable of multitasking and can think quicker than humans. When compared to paper-based filing, AI allows you to store more information. AI can now do a variety of tasks, ranging from forklift drivers to product design and quality inspection. The industrial sector benefits from sophisticated technology because it lowers labour costs and reduces reliance on low-skilled labour. [29]Other Advantages of Artificial Intelligence include:

   a) Can perform stressful and complex work that humans may find difficult.
   b) Can complete task in a shorter span of time.
   c) To discover unexplored objects in outer space.
   d) Reduces mistakes and faults.

Disadvantages of Artificial Intelligence

[30] Many AI concepts have been criticised for being perceived as black boxes that just seek to draw a link between output and input variables using a training data set. This instantly creates uncertainty about the tool's capacity to generalise to circumstances that were not adequately represented in the data set. Another drawback of AI-based search methods like genetic algorithms and ant colony optimization is that they can never promise that they will find the "best" option. Also, unlike when utilising mathematical programming methods to solve a problem, it is sometimes difficult to acquire meaningful insight into the problem and the nature of the solution when employing AI-based search methods. This problem is exemplified by the difficulty to do sensitivity studies fast. Another drawback of using AI techniques to address a problem is that there is presently no information on how to choose the appropriate values for a method's tuning parameters for various AI approaches.

[31]AI has a lack of creativity in responses. It is unable to explain the logic and reasoning behind a certain decision. The AI is now at a point where it is unable to recognise when an issue has no solution. Any malfunctioning can cause the AI to produce incorrect answers, and because it cannot explain its thinking, naive dependence on AI can lead to difficulties. In addition, a lack of common sense in reasoning might lead to severe issues. If it falls into the wrong hands, it may be used to cause chaos on a large scale.

[32]There are chances that Artificial Intelligence might be misused which can lead to mass scale destruction.

- Programme mismatch sometime done opposite to the command.
- Many jobs were affected.
- Unemployment increased.
- Lacks the human touch and connection.
- The new generation youngsters are becoming lazy.
- The reliance on technology has grown.
- [33] It is difficult to design machines since the necessary equipment is costly.

- Creating, rebuilding, and repairing may be extremely expensive in terms of both money and time. Robotic repair may be possible to reduce the amount of time it takes for people to fix it, but it will cost more money and resources.

Conclusion

The objective of artificial intelligence is to build computers with intellect that is on par with or better than that of humans. AI applications and their benefits are growing in popularity in a variety of fields. With the emergence of competent models using AI approaches, it is certain that artificial intelligence will take all fields in the near future. The computing world has a lot to benefits from various AI techniques.

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ARTIFICIAL INTELLIGENCE

NAVEENKUMAR K H
M.Tech. VLSI Design
Email ID: naveenkumar.kh2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial intelligence is the science of creating machines which are intelligent comparable with human intelligence. This can be related to making the computer understand humans and do tasks with their own intelligence. But it doesn't limit itself with just biologically observable methods.Alan Turing was the first person to make the discussion on human level machine intelligence. However, developing AI with the intelligence level comparable to humans is proved to be difficult and is in a slow developmental phase. For the development of AI, we need to understand how human brain works in order to imitate its work.[2] Artificial Intelligence can be defined as the field of computer science where computer application programs are developed which have abilities to function with near human intelligence. It is the development of machines with intelligent behaviour. These machines will have their own reasoning, perception and communication by learning on their own, just like how humans do and make their own decisions.

History of AI

[3]A formal computer language to express logical reasoning was developed first by George Boole in 1847. The term artificial intelligence was first coined by John McCarthy in his summer research work in the year of 1956. That was when the term got the researchers and other scholars' attention. Then the term was discussed in a conference at Dartmouth, the following year the test of the general problem solver was done and a year later McCarthy introduced a software for creating AI called the LISP language. But as years passed scientists realised that developing a single computer algorithm which do functions as same as humas is quite impossible. Nowadays, AI is defined as creation of intelligent agents which can help humans to do specialized tasks more efficient and faster [4] Since 1950 it was predicted by the experts that only a few years of time will be taken to completely develop a general artificial intelligence system, which can exhibit behaviours that will resemble humans and cannot be differentiated.It was when John McCarthy termed artificial intelligence more research was made in the area.The field of AI saw continuous improvements nearly two decades after the Dartmouth conference. A famous computer program known as ELISA, which is a natural language processing tool capable of simulating a human conversation.

AI in India

[5] Artificial Intelligence has a substantial growth in shaping the development of India as its applications enter the society and day-to-day life. AI could act as a promising catalyst to accelerate progress through implementing mechanisms that can leap past the hurdles of traditional problems such as bureaucracy and bad infrastructures. India is a country with diverse cultures, economics and politics which can both benefit as well as risk from the AI technology. Interaction in the public services can be made AI powered and hence enhanced services could be provided to the public. AI also faces several challenges in India as there are problems of financial inequality andlinguistic diversity. Manufacturing and production facilities across India can be enhanced by the introduction

of AI supported robots in the production line. [6] Artificial intelligence is also playing an emerging role in the development of government policies in India. Rapid development of AI is encouraged by the already existing policies for the social welfare and economic growth. As India is moving towards digitalization, the government is prioritizing development of emerging technologies and thus policy for AI will be developed rapidly. India has the world largest project database of biometric identity. The country is at a point where data protection regulations are critical and explores on how AI technologies can help in this. AI has the power of making citizen's life easier and bring equality in the society.[7]A smart city in a country like India should havefully accessible fast and less polluting transport system that is also safe and affordable to the population.AI is a promising technology for the development of intelligent transport systems for the mitigation of problems such as inefficient transportation system with economic and social equality concerns.AI helps in the development of systems like intelligent traffic management, smart traveller information system and parking management system in smart cities across the country. Introduction of AI in transportation systems in India can reduce the road accident ratedrastically.[8]AI has a high potential of being treated as the fourth industrial revolution. In this era of globalization, no country can completely prevent itself from the impact of technological advancement. Most countries across the world have come up with their own regulations and policy to formulate a strategy to AI in way that it has maximum benefits while incurring minimum loss. India haven't yet devised a policy to regulate AI and is yet to do so. It is more likely that AI could significantly increase loss of job because of its ability to automate any repetitive jobs.[9] As adoption of AI is treated as an important part in the industry 4.0 transformation, there is a lot of challenges in different industries.AI contributes to various economic sectors in India such as agriculture, manufacturing and production as well as service sector of the nation such as finance, administration, national defence and transportation. The Indian government is planning to leverage the use of AI in public health, manufacturing, agribusiness and even banking and financial services.

Various Places Where AI is Used

[10] Artificial intelligence is the modern revolution in the technology sector in the field of industrial development, aviation and even gaming. AI can be used in places where decisions are to be made on logical basic and not on human emotions. Heavy industries have increased application for the use of AI powered robots that can do tasks in the industrial plants which could be potentially harmful for the humans to do. They have better efficiency and require no need for breaks in between works. This over comes the main drawback of human work which is tiredness over time. In recent times intelligent neutral networks are being used to predict weather forecasting based on the data provided to the system. AI acts as a knowledge base to develop expert systems that can be specifically trained to perform a specific task with expertise. Automation is one of the main outcomes of AI. AI systems are knowledge processing systems which helps in data mining by the use of special algorithms to find pattern and relationships between various data which are normally hidden in nature. Gaming is the most common application of the AI. These intelligent machines have the power to scan multiple points in a matter of seconds and decide the next move to be made.[11] Intelligent manufacturing is achieved through the integration of artificial intelligence technology with communication and manufacturing technology systems.Manufacturing technology systems are gaining advantage of the developments in internet with artificial intelligence. The product manufacturing life cycle process

involves system engineering technology, autonomous sensing, continuous learning, analysis and relevant decision-making, collaboration. This process steps are integrated as a single whole intelligent system which integrates and optimizes various aspects of the product manufacturing process. This in turn increases efficiency, cost and quality which improves the competitiveness of the company in the existing market. Smart manufacturing systems where human work and machine work are integrated features technologies such as digitalization, internet of things, virtualization of data, customization with flexibility and intelligence.[12] Artificial intelligence is used in machine learning which shows progress in the algorithms and the architectures. The dataset size has also grown which results in increase in the computational competency in a wide range of fields. These fields include autonomous driving, language translations, human like chatbots and even some complex boards games which are way more complex to human intelligence.With AI machine learning gets the ability to detect and identify patterns that are abstract with high accuracy then human counterparts.

AI in Healthcare Appliances

[13] Artificial intelligence surpasses humans in various health care fields thus enhancing human life. It allows us to detect and various diseases and provide the necessary treatment in a very early stage. Use of artificial intelligence in healthcare allows detection of major diseases in the area of neurology, cardiology and even cancer. It enables automatic spotting of problems in patients and provides the physicians with all the information needed for the treatment instantly. AI can detect patterns of hospital acquired illness outbreak and non-optimal care to patients.With three main regions of thinking: well developed computation, analysis of statistical data and the generation of resulting hypothesis, AI requires less thinking time to detect a particular problem in a patient. While human thinking would require hours of time to decide, AI can make a decision in seconds with the available data. Doctors can get advice from an AI system to evaluate the level of health of a patient and provide the patient with the necessary care and also monitor for any side effects from the medications. AI doesn't have the problem of stretched work hours, increased number of patients or task redundancy. [14] By the use of artificial intelligence the medication and diagnostic records of patients can be effectively managed. It helps doctors to schedule surgical procedures or reduce radiation dose for critical patients. AI has the ability to break the barriers caused by geographical constraints and can offer several options to facilitate health care to people who has no or less access to such facilities across the globe. AI health care systems can reduce mortality rate by analysing the diseases and prioritizing the cases accordingly. Natural language processing can understand human speech and thus enables physicians to have a wide database of medical records to serve the patients in a better way.So, the doctor doesn't need to spend much time in examining the information, the AI system by itself extracts the necessary data and provides the doctor. AI can be used in computers to watch human doctors and learn the process of treatment from them. [15] Artificial intelligence is helping in the planning of different treatment techniques. It also supports in the repetitive tasks involved in management and development of medications and drugs. It also organizes patients' routines and provide them with a plan for respective treatment. AI uses algorithms and mathematics along with data science of human body to evaluate a patient as prescribe suitable medications. Knowledge management is one of the mainuses of AI in healthcare systems. AI also has role in

other crucial health systems such as drug creation, mental health assessment, digital consultation, recognition of facial symptoms and robot assisted surgery.

AI in Manufacturing and Production

[16] Artificial intelligence enables a new intelligent manufacturing model in which various aspects of manufacturing like design, production, testing, integration, system and product technologies are integrated with the entire system along with the product development lifecycle. The traditional production techniques are overcome by AI with new generation smart factories that support small scall customized production. AI provides value added manufacturing through acceleration of integrating communication technologiesand computing.AI technologies will allow the manufacturing systems to be with self-perception, operation optimization and decision making through dynamic reconfiguration. By this way the system can adapt to the external needs.AI assisted production line shows higher production flexibility and increased efficiency.[17] Distributed artificial intelligence is used in process planning of batch assembly facility to utilize the available infrastructure effectively. The complete task of production control is broken down to several sub-tasks and these sub-tasks are completed by the systems basic intelligent elements. In the recent trend of manufacturing high density electronic products, the assembly line is equipped with automated systems to maintain consistency and high accuracy as needed by the specifications. Here knowledge-based systems and distributed artificial intelligence are the technologies that use artificial intelligence. These systems can face the uncertainties in the real-world work. [18] Artificial intelligence acts as the key driver in developing autonomous robots which will help the skilled operators from the tedious task of math and basic analysis. The intelligent augmentation is a concept around which artificial intelligence system will be built. AI powered robots will be proven to become more disruptive than any technology that we have seen so far. The organization which has understood the need for collaborative work of humans with AI tools will have the maximum efficiency and value. Sustainable development can be achieved through AI technology. The hopes are based on the AI system's capabilities such as speech recognition, computer vision and image recognition and classification.

AI in Security and Surveillance

[19] Security surveillance cameras have been extensively used in the new cities in places traffic areas, healthcare and security monitoring needs. Network cameras used in smart cities are the important factors of surveillance systems in any such urban city.They are used in smart cities across the world to monitor the environment and even connected through internet of things. With the introduction of AI in these network camera systems, they have enhanced edge computing and fog computing, which in turn enhances the performance of the camera systems. Artificial intelligence is used to develop new algorithm to improve the field of view coverage of different camera network. Through the obtained statistical analysis these algorithms are developed for surveillance systems. [20] Artificial intelligence is turning into reality with development of intellectual digital assistants when can possibly perform the functions of a basic police force. This can increase the presence of police force in urban cities with which monitoring can be increased. The human resources in the police activity are facing increasing burden with administrative and cabinet related activities, which leads to less police force in the public for protection. AI can ensure the monitoring of video and

various data collected from other sensors. By this way it can warn about any suspicious activities to the relevant authorities in place. [21] Use of artificial intelligence in cybersecurity is advantageous over conventional security systems which are slow and insufficient for the present requirements. AI techniques provide improved overall security performance and protection from the modern-day cyber threats. Security systems should be dynamically adjusted to environmental changes, threats and other malicious elements by implementing resilient and continuous protection to those systems. Various shortcomings of modern cybersecurity tools could be overcome by AI techniques as they exhibit flexible and adaptable system behaviour.

AI in Education

[22] The artificial intelligence is involved in developing techniques that will learn the human way of teaching and to develop systems that makes way for human learning. To study and explore various theories of learning process several computational models are used. These computational methods involve AI activities such as planning, control, representation as well as acquisition of knowledge, cognitive modelling and dialog management. This helps in exploring and evaluating alternate theories and methods about learning.AI teaching systems increased ability to infer student behaviour. It also shows increase in the ability to reason about the selection of topic and response generation. [23] The very first attempt to use computers for teaching is by deploying computer aided instruction or computer-based training. A significant improvement is seen in the student's performance and motivation by the use of intelligent tutoring systems powered by AI. Intelligent tutoring systems effectively increases students' performance and motivation to learn. This effectively reduces the time required by the students to complete the course material. The real working environment is simulated in these intelligent systems to provide necessary instructions. [24] Initially the aim of introducing AI in education is to analyse and model student's performance while doing the given school tasks. These models were later tested in computer programs to teach the students to perform these tasks by themselves. The role of computer in education is that an AI tool should lower the burden of the user by taking over lower order tasks and allow the user to concentrate more on the higher order task. Specific aspects of human reasoning and problem-solving abilities are modelled in the intelligent education system with the help of AI. During the execution of instructional assignment these process models are used and they do not always require a tutor to be handling it. But instead, it may sometimes require support by several partner roles.

Advantages of AI

[25]AI in education acts as a powerful tool to gain deeper understandings on the actual process of learning and the influence of the technology on the learner. AI is be used to track and collect student behavioural data like class attendance and submission of assignments. One of the main advantages of adaptive AI education system is large amount of data is collected by the system and later the data is computed dynamically to improve the domain model. This process helps in providing new ways of personalized and contextualized support which is more efficient.This refines our understanding of the process that are involved in teaching and learning. This AI education system has the potential to become the greatest contribution to learning by AI technology. [26]AI technology is a permanent and more reliable solution provider with less cost to any task compared to humans. AI has important role in internet by being a part of search engines. AI implemented in an organization as a part can

prevent loss of knowledge when a person leaves a group. AI can be useful in maintaining real time traffic control and helps in automatic detection and report of accidents. AI tools has a feature known as reinforcement learning in which the computer or the machine learns from the real-world success and failure. This is advantageous over traditional ways as this is more reliable. [27] Artificial intelligence mainly aims to understand and perform intelligent tasks like reasoning and learning new skills to adopt to the required situations and solve the problem. Expert systems are developed with AI capabilities to provide users with intelligence interface to access the database and get relevant information. Natural language processing takes advantage of the AI technology to understand and recognize human speech by a computer or machine.AI models are taught to recognize matching patternsbetween a stored stimulus or signal with a new stimulus. The robotics field has also benefited by incorporated AI for their control without direct human supervision.AI is used to establish expert systems in libraries which acts as a substitute to the reference librarian. The expert system helps the user with reference skills and direct them to the reference sources needed by them. [28] Fashion industry has some potential applications with the use of AI in fashion recommendation systems through sensory evaluation. AI can manage recommendation, tracking systems and helps in quality control of textiles and forecast of supply chain management. It helps in improving the social networks and fashion e-marketing. As the internet emerged as a prominent player in the world market, AI became a deciding factor for establishing effective competition among various organizations. Optimization of fashion market can be done by the development of tracking systems from raw materials to finished products that are data-based.[29] An organization working on the development of new product uses AI to serve as the basis for continuous learning and R&D progress by modelling practical experience of projects. This can act as the benchmark for the organization's management. The result is that the organization can quickly build a consistent structured body of knowledge and reasoning ability, easier to maintain with high scalability degree.

Challenges or Dis-advantages of AI

[30] The introduction of AI technology in the education system has created a deep impact in the classroom that has significantly changed the relationship between a teacher and a student.The complete dependence of AI for learning creates a gap in the student teacher relationship. The teacher becomes just a person who facilitates the learning process through the AI technology. The connectedness between teacher and students and even among students has decreased a lot because of the infusion of technology driven education system. [31] Large scale destruction or loss of property can occur if misused. The creativity in the work done by an AI system solely depends on the programmer who created the AI. This results in lack of human level creativity in a work by AI. No or little human touch in the work leads to increased unemployment and laziness in younger generations. To develop an AI system lot of money and time has to be invested. The same task for which an AI is being developed could possibly done by humans in a shorter time with much less cost. In general AI infusion in all fields will create a huge technological dependency for the end user. [32] Development of the machines are not cost efficient because of the expensive nature of the equipment needed. Lot of time and money is needed to repair a faulty robot and human intervention is required to fix it.As AI is can do any repetitive tasks many organizations are looking to replace employees who are less qualified with AI robots to do the similar work. The AI powered machines can only perform the predefined intended tasks and are not capable of handling exceptions. Even

though AI machines are far better than humans in doing tasks they lack to form bond with humans. This connection between humans actually forms a team, thus AI can't develop team management like human.[33] Current generation is already deeply into addictive digital technology through smart phones connected to internet. In this situation if AI is used in education system instead of a physical teacher it could lead to even more dangerous situations for the students. They could be increasingly disconnected from their family, neighbours and friends. AI robot replacing a teacher in a classroom will lack the leadership quality and cannot handle students as efficient as a human teacher can do. Students might not respond in the same way to an AI robot as they do to a physical teacher and may not like the environment of the class room. AI robots can't simulate critical thinking ability which a teacher will have in the classroom. Artificial intelligence education systems can't express emotions which is an important factor in learning. [34] Use of AI possess the challenge of providing transparency and trust to support end users in safety critical applications such as medicine or military. There exists the vulnerability in AI where the inputs or the model itself could be manipulated and compromised.

Artificial intelligence techniques are mostly based on machine learning which in turn requires a large set of data to create the necessary models. In critical fields such as military applications, large amount of test data may not be available which is a challenge in developing AI systems for those applications.

Conclusion

Thus, AI plays an important role in people's life and the developing industry. Almost all industries including education uses AI for improving themselves. Proper use of AI technology in various fields for the betterment of human life will definitely be advantageous.As AI has some disadvantages too, proper formation of policies should be in place before implementing any AI technology on a field to regulate it.It is getting developed day by day and is yet to achieve its full potential to be used by humankind.

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INTELLIGENCEDEMONSTRATED BY MACHINES

G. SRI VIGNESH

M .Tech Integrated computer science
Email ID: gellasri.vignesh2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] The science and engineering of creating intelligent devices, particularly intelligent computer programmes, is known as artificial intelligence. It's akin to utilising computers to investigate human intelligence, but AI isn't limited to physiologically observable ways. Intelligence is the part of one's capacity to achieve goals in the real world that is computed. People, many animals, and some machines all have varying degrees of intelligence.

[2] Artificial intelligence has seen a recent revival, which can be explained by researchers and practitioners striving to make their algorithms more transparent. Much of this research focuses on explicitly explaining judgments or methods to a human observer, and it is not contentious to claim that thinking about how people explain things to one other can be a great beginning point for synthetic intelligence interpretation. However, it is safe to state that the majority of artisanal intelligence research relies solely on scholars' intuition for what constitutes a competent interpretation.

History of Artificial Intelligence

[3] Artificial intelligence's origins can be traced back to philosophy, fiction, and imagination in this brief history. AI has been impacted by early inventions in electronics, engineering, and many other fields. Ai do problem solving as well as foundational work in learning, knowledge representation, and inference,which includes demonstration programmes in language comprehension, translation, theorem proving, associative memory, and knowledge-based systems,became one of the landmark.

[4] As a technology concept, artificial intelligence (AI) is having a substantial impact across a wide range of industries and sectors. This is partly due to advances in machine and, in particular, deep learning methodologies, which have been powered by enhanced processing capabilities and have resulted in complex approaches to applying AI to numerous settings. These AI solutions promise to boost productivity, cut costs, and decipher the ever-increasing amounts of data accessible to deliver meaningful insights. Medicine is part of this paradigm change, with AI enabling clinical help, decision support, improved management, and faster scientific discovery.

AI in India

[5] A sixth of the world's population is entrusted to India's future. As the Artificial Intelligence (AI) revolution washes through civilizations and into everyday life, it will undoubtedly play a significant role in defining India's development and progress. AI has promise for India as a catalyst for advancement, giving methods to overcome traditional roadblocks such as poor infrastructure and bureaucracy. Simultaneously, an investment in AI is accompanied by dangers that have long-term societal implications: it is critical that these risks be assessed at this early stage. We examine the prospects and difficulties for AI in India in this article. We discuss opportunities that are both cross-cutting (bridging India's linguistic divides, mining public data) and sector-specific (healthcare).

We've compiled a list of issues that stem from current socioeconomic conditions (such as equations of caste and gender). Following that, we extract actual initiatives and protections that we feel are required for India's development to be strong and inclusive as it enters the AI era.

[6] Using scientometric analysis techniques, the current study examines India's artificial intelligence research output. During that time span, a total of 6,529 papers in the subject of artificial intelligence were published in India. Since 2004, the research output has increased significantly, and the discipline has produced a substantial number of articles in the last two years. Each manuscript has an average of three authors. The most popular keyword was "Artificial Intelligence," followed by "Algorithms." International collaboration was used in the publication of 12.64 percent of the papers. Anna University was deemed to be the most productive in terms of research. The IITs were discovered to have had a significant impact in India's artificial intelligence development.

Various Places Where Artificial Intelligence is Used

[7] A. Language comprehension: The ability to comprehend and respond to natural language. To convert a spoken language into a written form, as well as to translate from one natural language to another.

1. Language Skills
2. Computational Linguistics (Semantic Information Processing)
3. Responding To questions
4. Information Retrieval
5. Conversion into another language

B. Acquisition and accommodative devices: The flexibility to adjust behaviour depending on prior experience, as well as to build standard principles about the world depends on this experience.

1. Formation of Ideas

C. Problem solving: The ability to formulate a problem in a logical manner, plan for its resolution, and recognise when and how fresh information is required.

3.1 Inference (Theorem Proving by Resolution, Plausible Inference, and Inductive Inference)

3.2 Problem-Solving Interaction

3.3 Program Writing by Automate

D. Image recognition: The able to analyse a given scene by linking it to an internal model that embodies the perceiving organism's "world knowledge." This analysis yields a structured collection of relationships between the scene's elements.

4.1 Recognizing Patterns

4.2 Analysis of the Situation

[8] Ai technology (AI) is just an endeavour to understand the sensory and reasoning elements. At this time, AI is primarily a set of advanced programming skills. Many of these strategies are based on the idea that the way humans and machines acquire, organise, access, and modify knowledge provides the foundation for "intelligent" decision-making. AI approaches can be used to a wide range of geographical challenges, including the modelling of individual and aggregate decision-making, the development of expert systems.

[9] Artificial intelligence (AI) has been employed in a variety of medical sectors for a variety of goals since its inception in the mid- to late-1900s. Before moving on to some of the more current uses of machine learning in medicine, this overview will go over some of the early work in AI in

medical, which will be divided into four categories: (1) its application in determining the likelihood of illness start and estimating treatment success; (2) its application in preventing or reducing complications; (3) its function in ongoing patient care; and (4) its application in ongoing pathology and treatment efficacy research.

[10] Artificial intelligence (Al) and geography are brought with each other in a comprehensive setting that incorporates fundamental issues of concept, epistemology, as well as the empirical evidence. Al's little-known logico-mathematical basis is investigated, and it is revealed to have significant consequences for modelling in general, Our grasp of science in general, as well as prediction and the interpretation of theoretical structures.

Growth in Artificial Intelligence

[11] Webcams can be used for a wide range of purposes in newly built cities, including intelligent mobility, healthcare, surveillance, and enforcement. "New Cairo," Egypt's new administrative capital, is one of the world's most well-known new cities. The "Green River," which runs through Egypt's new administrative capital, exemplifies the country's green lifestyle. In modern Egypt, this study proposes a new Machine Intelligence (AI) methodology for adjusting the direction of Pan–Tilt–Zoom (PTZ)security cameras.

[12] The fourth industrial revolution is thought to be Artificial Intelligence (AI). With the use of big data and artificial intelligence, all sectors throughout the world have been altered. Artificial intelligence is the replication of human or animal intelligence in computing systems, with the goal of programming them to think like intelligent beings and copy their activities. Computational systems with programmed intelligence may tackle many real-world issues significantly more accurately and effectively than deterministic and hardcoded computational systems.

AI in Healthcare Appliances

[13] Machine learning is influencing practice of medicine (AI). AI applications are moving into domains that were previously regarded to be only the domain of human expertise, as a result of recent advancements in digitised data collection, machine learning, and computer infrastructure. Recent AI developments and their tissue engineering, as well as the obstacles that medical AI systems will confront in the future. The economic, legal, and social consequences of AI in healthcare are also discussed.

[14]If Ai algorithms to be used in telemedicine, it must first be 'trained' using evidence gathered by clinical operations such as screening, diagnosis, and therapy assignment, so that they may learn similar groups of subjects, relationships between subject traits, and desired results. Such case reports might come in the form of demographics, medical notes, electronic records from medical equipment, diagnostic tests, medical laboratory tests, and photographs, among other things.

[15]Artificial intelligence (AI) will become more widely used in healthcare as the sector becomes more complex and data becomes more abundant. Payers and providers of care, as well as life sciences corporations, are already utilising various types of AI. Some of the most popular types of applications are diagnostic and therapeutic recommendations, patient engagement and adherence, and administrative chores. Because AI can execute many healthcare jobs as well as or greater than people in so many situations, organizational factors may postpone extensive automation of

healthcare professional vocations for some time. Artificial intelligence's implementation in healthcare raises ethical concerns.

Artificial Intelligence in Manufacturing and Production

[16] Researchers start examining the explosive growth of software platforms in the new era of 'Internet plus AI,' Based on evidence regarding the applications of artificial intelligence (AI) technology in the manufacturing business around the world, this would result in a significant shift in the manufacturing company's models, means, and ecosystem functions, including in the creation of artificial intelligence. As a result, we offer new patterns, combining the greatest aspects of AI technology with information communications, manufacturing, and supporting production technologies, techniques, and forms of smart manufacturing, intelligent manufacturing system architecture, and smart manufacturing ability to command.

[17] For process planning, this study provides a Decentralized Artificial Intelligence (DAI) methodology to make the most out of the facilities in a sequential processing PWB manufacturing factory. The DAI technique breaks down the responsibility of production planning and control into smaller chunks. The DAI system's core elements, known as 'intelligent agents,' then carry out the sub-tasks. The DAI system's intelligent agents can solve the problem by working together to find a solution. Initially, the DAI system presents all of the intelligent agents' viable options.

[18] AM is a rapidly rising and evolving manufacturing discipline, much like AI is in informational applications. Both are scalable since they are tied to logistical and self-referential/copying notions. The osmotic computational technique, which is used in AM osmotic mass manufacturing, is used in AI-related Cyber-Physical Systems (CPS). AI-AM, as it has self-propagated, is an emergent field that can be logically or systematically united. The study looks into recent breakthroughs in the subject of AM process flow, as well as how it relates to AI applications.

Artificial Intelligence in Security and Surveillance

[19] In newly constructed cities, webcams can be widely used for a variety of functions, which would include adaptive transportation, healthcare, management, and enforcement. "New Cairo," Egypt's new administrative capital, is one of the world's most well-known new communities. Egypt's new administrative capital is mostly known for its green lifestyle, which is exemplified by the "Green River." This study introduces an Artificial Intelligence (AI) methodology for changing the course of Pan–Tilt–Zoom (PTZ) devices in the new Egypt.somehow to put it differently, the recently developed methodology is used to maximize the penetration of a network of PTZ cameras' field of view (FOV).

[20] Webcams are utilised for a variety of purposes in recently developed communities, including high - tech traffic, health - care, inspecting, and resolving safety issues, to mention the few. "New Cairo," Egypt's new operating capital, is one of the most well-known new communities. The "Green River" is a major feature of Egypt's future administrative capital.

[21] Smart cities strive to effectively manage expanding urbanisation, energy consumption, maintain a green environment, boost citizens' economic and living standards, The ability of people to provide and adapt recent information communication technologies will be enhanced (ICT). ICT plays a critical role in policy creation, decision-making, implementation, and ultimately productive services in the smart cities idea.

Artificial Intelligence in Education

[22] Artificial Intelligence (AI) is a rapidly growing technical field that has the potential to change every aspect of human social interactions. In the field of education, AI has begun to develop novel teaching and learning solutions that are currently being tested in a variety of settings. AI necessitates advanced infrastructures and a robust innovator environment, but what about the pressing needs of developing countries? Will people be forced to wait for AI's "luxury"? Should AI be a top goal for bridging the digital and social divide as soon as possible? This urgent discussion should be conducted with a clear picture of what is occurring and what may be done in this regard.

[23] In e-learning platforms, adjustable instructional system has been developed to accommodate the fact that each learner's active learning is individual. This learning method consolidates the ability to understand and detect a person's unique learning needs with the specialist skills needed to employ suitable learning teaching methods and improve the learning process to the point where responsive e-learning facilities and learning resources customised for learning approaches are available. As a consequence, comprehensive individual assessments and modern techniques should be developed based on an examination of their personality factors, degree of education, and individual characteristics traits and skills. After then, the data acquired can be used and utilized to build a flexible educational environment. Once you've got these learner models, you can use them in two ways. The second is to give the government adaptive self-learning capabilities think it depends on teacher and student actions so that suitable pedagogies may be generated and e-learning configurations can be automatically adjusted to fit the pedagogies.

[24] The goal of this study was to see how Artificial Intelligence (AI) might affect schooling. The study's search was restricted to the use of AI in administering and its consequences, instruction, and learning, based on a narrative and framework for analysing AI discovered through preliminary investigation. A qualitative research approach was adopted, which effectively assisted the accomplishment of the study objective by leveraging the utilisation of literature review as a research design and approach. Artificial intelligence is a branch of study that has resulted in computers, machines, and other artefacts with human-like intelligence. According to the findings, AI has been widely accepted and employed in education, notably by educational institutions, in various forms. AI began with computers and computer-related technologies, progressing to web-based and online intelligent education systems, and finally, the use of embedded computer systems in conjunction with other technologies, humanoid robots, and web-based chatbots to perform instructor duties and functions independently or in collaboration with instructors.

[25] Artificial intelligence (AI), which was merely a fantasy a few years ago, has now become a reality, infiltrating every facet of our life, including education. It's still a young field, but as time goes on, we'll see how AI develops and discover its latent potential. This chapter discusses existing AI discoveries and future perspectives in many domains, including natural language processing (NLP), machine learning, and deep learning, against this backdrop. Social network analysis (SNA) is utilised as a reference for interpreting key concepts in AI research from an educational standpoint for this goal.

[26] For many years, computers have been used in the field of education, frequently with dismal results. Recent and ongoing artificial intelligence (AI) research, on the other hand, is having a favourable impact on educational applications. We cover the creation of learning environments that support student-initiated learning in addition to CAI (computer-assisted instruction) technologies.

Advantages of Artificial Intelligence

[27] In libraries, computers provide the ideal platform for experimenting with and applying Artificial Intelligence technologies. Intellectual tasks, like as computer-based game playing and theorem proving, are more successful for AI than perceptual tasks. These computer programmes are sometimes designed to mimic human behaviour, but they are also designed for technology purposes such as computer-aided training (CAI). In many circumstances, the primary purpose is to discover any strategy that performs the task more quickly and effectively.

[28] GPS was first released in 2001 for personal vehicle navigation devices, and it has since become an integral part of the transportation infrastructure. Sensors are now standard in automobiles. In the United States, an average car is expected to include seventy sensors, including gyroscopes, accelerometers, and ambient light sensors, among others. Automobiles built 2000 sensors to improve vehicle quality and service. Facebook, Twitter, and Snapchat, for example, have billions of user accounts that must be kept and handled in a very efficient manner.

[29] Artificial intelligence (AI) is a field of study that looks into human intelligence, behaviour patterns, and rules. It is based on artificial intelligence information processing theory, hence it is critical to create a computing system that mimics human behaviour. Artificial intelligence technology's major goal is to achieve intelligent machine operation through the computer system's clever mimicry of human beings. Theoretical research and engineering research are two degrees of artificial intelligence research.

[30]The goal of this study is to determine how artificial intelligence affects and benefits the automotive sector. This study employs the descriptive research method, in which information is gathered from known facts. The findings in this study show what significant automated vehicle innovation would be in the development of ai in the automobile sector, and also how the benefits and drawbacks of this innovation are most often used. The findings of the study were achieved as a result of the increased human requirements in the era of technology industry 4.0, Some companies have developed self-driving automobile technology as a result of this.

Disadvantages of Artificial Intelligence

[31]consultation program causes major problems for AI involve Choices of information representations, medical interpretation approaches, and therapy planning processes are all components of the method. The requirement to explain choices and modify the base of knowledge in view of fresh study results places a high value on a representation's modularity and simplicity of explanation of its logical operations. The relative advantages and disadvantages of alternative techniques for measuring the uncertainty of inferences presents complex analogical reasoning concerns, and also many particular logistical issues of system design, in both testing and therapy considerations. The layout of several artificial intelligence systems has revealed that comprehensive performance in the appearance of many uncertainty relationships could be accomplished by extracting from of the professional an understanding segmentation which also provides a valuable system of predetermined partnerships to intermix the extra room of assumptions.

[32] The problem with AI-based search methods like genetic algorithms and ant colony optimization is that they can never guarantee that they will find the "best" result. Also, unlike when utilising mathematical programming methods to solve a problem,when employing AI-based search

methods, it can be challenging to gain significant insight into the problem and the nature of the answer. This problem is exemplified by the inability to do sensitivity studies fast. The counterargument to the inability to ensure optimality is that for difficult optimization problems that defy standard optimization and mathematical solutions, there is no way to guarantee optimality.Furthermore, there is substantial empirical evidence that AI-based search algorithms produce "excellent" solutions in the vast majority of cases. In order to obtain insight into the problem, the model may need to be repeated numerous times to examine the sensitivity of the solution to the various assumptions and parameters of the problem.

[33]Machine Learning (AI) is a simulation innovation that has matured into a field of its own. It is used to simulate human abilities including as speaking, listening, learning, and planning by utilising various algorithms to analyse data and provide results based on the information provided by the user. When it comes to data processing and decision-making, Artificial Intelligence has been applied in a variety of industries. Artificial Intelligence software development delivers efficiency and acceleration on various types of operations, allowing businesses to boost productivity.Artificial Intelligence software development delivers efficiency and acceleration on various types of workflows, allowing businesses to boost profits while reducing waste and costs associated with low productivity.Artificial Intelligence already drives a variety of applications, including Web search, cybersecurity, and machine translation, to name a few. Artificial Intelligence is now available to everyone, and it is a win-win situation for humanity. Artificial Intelligence has many beneficial characteristics because it creates significant outcomes in people's daily lives and enterprises today; robots and virtual assistants are two of the most prevalent Artificial Intelligence technologies employed by the industry. Natural Language Processing (NLP) and Speech Recognition Platform (SRP) are used to power Artificial Intelligence, although it is not restricted to these two.

Conclusion

I conclude that, the artificial intelligence has several uses and also challenges. With the help of the ai we can achieve many things. The ai helps in education, industries, healthcare, security and surveillance. These are useful in our daily life and gives us a greater future. It acts as intelligent behaviour.The ai systems are created to reduce the use of human intelligence that is required in any task. The ai helps us to improve our work in offices. We ai in our daily life such as rideshare apps, 3d photography, smart assistants, spam filters, media recommendations etc. finally, ai is a machine which can learn and think.

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ARTIFICIAL INTELLIGENCE

M DENNIS SAMUEL

M.Tech. Embedded System

Email ID: dennissamuel.m2021@vitstudent.ac.in

What is artificial Intelligence?

[1]Artificial intelligence or AI for short is a branch of science that deals with intellect machines and smart algorithms. AI uses computer machine as a medium to understand human activities and intelligence, but it doesn't state that AI by itself is limited to just biological reasoning and observation, artificial intelligence is an algorithmic approach to solve very difficult computational problems in a unique way which involve different degrees of intelligence that exist in around us. We might wonder if there is any concrete definition for artificial intelligence, yet up to this date there is no any particular definition for artificial intelligence. [2]Computer science is a vast subject which is divided into various branches, amongst all these branches artificial intelligence is the most distinct topic which not only deals with computer but also with the hardware to. Therefore we can define AI as a blend of both hardware and software, in the past decade a lot research and resources has be poured into artificial intelligence in order to develop it as whole application based computer system and industry fit. AI main goal is to explore the vastness of human behaviour and execute some functions related to it, so that relevant theories are for the future generation to develop product based on the data available, it also helps the labour extensive industries by automating of the manually operates machinery.

History of AI

[3]The concept of AI is said to have emerged during the 19th century to be specific between the years 1940 to 1942, where a fiction comic writer from America named Isaac Asimov published a story named RUN AROUND. The story revolves around a robot invented by an engineers named Gregory Powell and Mike Donavan where the plot revolves around the three basic laws of robotics namely 1. A robot can't injure or hurt any living things 2. The robot must obey the rules for which it was designed for without conflicting the rule 1 3. A robot must not conflict the first two rules but also protect its own existence at all time. With a similar vision an English mathematician named Alan Turning invented the first electro-mechanical computer named the Bombe its dimensions were very big approximately 7 by 6 by 2 large and it almost weighed a ton, the main purpose of Bombe was to decode the enigma algorithm which was used by the Germans during the second world war. It was Marvin Minsky along John McCarthy a computer scientist at Stanford coined the term artificial intelligence. [4]The term artificial intelligence was coined by a computer science professor at Stanford prior to this artificial intelligence were defined by many other mathematicians and professors in their own ways they are as follows.

1847- George Boole were one among the first to describe logical reasoning in a formal language.

1936- Alan M invented the term turning which was a huge milestone for artificial intelligence.

1943- Creation of artificial neuron's by warren McCulloch and Walter Pitts.

1949- It was during this year when Donald Hebb presented some rules for connecting artificial neurons.

1951- The first neural computer was invented by Marvin Minsky and Dean Edmonds.

1952- It during this year that John McCarthy coined and defined the term artificial intelligence.

AI in India

[29]Out of the total world population India is considered to have the highest population density among this 34.33% lie within the age group of (15-24) years which provides an ideal condition for AI to be implemented, if it were to be fully or partially implemented then it would shape the whole society and also the infrastructure development would increase dramatically. AI in India has a great scope and it could be a catalyst for advanced development in various fields like agriculture, education, transportation, healthcare and various other fields, over the recent years India has seen artificial intelligence spread it wings into many industries, apart from this investments made in artificial intelligence brings a risk factor along with it which in turn has long term problems on the society, as some of them are still avoid about fully automated systems. [30] For example we all aware that half of the world population are prone to diabetes, the diagnosis is or the screening procedure is very long and asymptotic so in order to tackle this problem AI was introduced into the this system with help of augmented reality it found that large medical complication were easy to cure and some diseases that took long time for diagnosis but with the help of AI we were able to diagnose the diseases at much earlier stage and save the patient life, if this technology were to be implemented in India it would drastically reduce the number of diabetes patient by diagnosing in the early stages and to avoid further complications in the future.

Applications of Artificial Intelligence In Various Domain

AI has spread its wings into various domain's some of them are listed and briefly explained with respect to an example, there is also a detailed explanation of some application as you traverse the document.

- [31]AI in health care: Health care industry around the world are in need of new technologies like artificial intelligence, internet of things in order to increase their effectiveness and also their efficiency one such example is covid tracking using AI based approach, this type of approach will keep track of all those patient who were infected, cured and deceased due to it, another way of implementation is to recognise the people at risk and send them a text message just to remind them of the protocols to be followed.
- [32]AI in Sports: Performance and tolerance are the domain's where an athlete must concentrate on and the coaches responsible for this disciple of training find it very difficult to maintain a steady record of the all the players in order to solve this AI was is being introduced all the laborious works can be reduced by simple pattern recognition algorithm where the AI studies the a certain pattern or behaviour of the athlete where the information is fed through some sensors placed on the athlete based on machine learning abilities along with artificial intelligence the AI makes decisions and suggest the best training regime to extract at most performance from the player.
- [33] AI in Automobile: We all are familiar that automobile are built revolving around an engine but in the future automobiles are whole based on artificial intelligence such as auto

piloted cars such the tesla which was recently introduced, it is considered to be the most advanced car of its time it employs machine learning algorithm to effectively navigate through the traffic, it is made possible with the huge number of sensors that are on board the car, these sensors constantly receive data from the outside world which very much needed to make the precise decisions while navigating the most remarkable feature of AI in automobile is the response time and the safety feature which is really good i.e. if a sudden accident has occurred in the high way it immediately slows down the car in matter of seconds and bring the car to a total holt at a safe place.

Growth of AI

[5]After John McCarthy had coined the term artificial intelligence many other scholars all over the world started their research in this domain and it was during this era at Dartmouth conference the most famous Eliza algorithm was introduced by its creator Joseph Weizenbaum from MIT it which was able to simulate human conversation this was a huge boost in the field of AI. During the same time three people namely Herbert Simon, Cliff Shaw and Allen Newell were able to invent an algorithm which was able to solve simple problems like tower of Hanoi. The above were the most prominent discoveries apart from many other inventions but as we all know a there are two sides to a coin there were also some downfalls in the field of artificial intelligence. One of the major drawback of AI were, some advanced systems could not distinguish a stick from a pencil where for these types of task it was mandatory for the system to identify and interpret external matter/data properly.[6]In the past decade AI has been reintroduced in the form of deep learning, AI in the recent past has bought out new era or simply to say an industrial revolution and the prominent fields like health care and automobile industry are adapting AI into their system, some their revolution invention with of the help of AI are self-driving cars intelligent interactive system on board system, gesture detection and many more in case of health care filed it helps in detecting a particular illness well and before the person is severely ill there by giving a second chance in life.

AI in Healthcare Appliances

[7]In the recent years health care industry is under a huge phase shift due to the introduction of the AI by gradually changing traditional methods used for medical drug preparation, AI has also spread its wing into uncharted areas which was initially considered to be handled by human experts alone. The best case is the covid pandemic scenario where the race to a find a suitable vaccine was made possible with help of advanced algorithm within a year which was considered impossible back in the 19th century, by this evident that AI has a huge role in field of healthcare.[8]Machine learning is a part of artificial intelligence which has revolutionised traditional drug making it also forecasts the treatment protocols for each individual patient based on various attributes. Neural networks is an branch of artificial intelligence but an advanced version of machine learning which is being implemented in the health care industry were it helps in predicting or forecasting weather a patient is prone to a particular diseases well in advance, it is also helpful in finding out cancerous cells before even the mutation starts. [9] AI technique's used in health care areas are cancer, neurology and cardiology, they help in detecting, treating and predict the outcome with the help of prognosis evaluation. In the future it di predicted that AI doctors will be replacing human doctors if not at most

AI bots will assist the doctors with making precise decision w.r.t treatment and also in any other functional where assistance is required.

AI in Manufacturing and Production

[10]Artificial intelligence has also spread its wings into manufacturing and production industry, AI along with internet plays has rapidly changed the way how the manufacturing and production industry function with help of algorithm's are able to manufacture products that are both eco-friendly and efficient, china has poured all of its resources to convert all manufacturing and production industries into AI integrated. [11]Due to the rise of modern manufacturing systems lot of information is being generated by many on-board sensors, smart equipment and machines all together generate huge amount of data, the analysis of these is made possible with the help of artificial intelligence and the process of analysing this data is known as big data analysis. These advanced technologies which has revolutionised the industry and this new age is known as industry 4.0, apart from all intelligent decision making system is necessary in manufacturing industry. Advanced machine learning techniques and deep learning techniques have found their ways into the manufacturing system where visual inspections are not done by human any more but by machine with high precision and accuracy thus eliminating the factor of human error this hugely boost the sales of a particular firm. [12]Best example for industry 4.0 is the automated retrieval system in this system primarily monitors the movements of objects within the supply chain, since the system is automated accuracy is high along with this timely information is also available so that if any fault occurs it can be easily isolated and verified.

AI in Security and Surveillance

[13]It is said that human are quite efficient in scanning and processing large quantity of low visual level objects and sending a schematic visualization to the brain, but in the recent past due to the introduction of artificial intelligence has made it possible for computer to distinguish objects and interpret them according this done with help of AI and big data analysis. In the recent years huge more of surveillance have been deployed all over the public places due to security reasons and also due to the rising crime rate over the past year surveillance was extensively reliant on human as one has to detect ones behaviour and determine whether person under surveillance is suspect or just a bystander, the efficiency is very low as there are to a many screens to keep track of this can be overcome with help of artificial intelligence where all data are fed into the system in the form of algorithms if there is any suspect the computer observers his or hers movement and behaviour and raises and alarm so that the officials are all notified. [14]This type of implementations has brought crime rates have declined rapidly in a i.e. in San Francisco department of police were not able to control violence within city as most of the violence ended up in gunfire's as many had lost their life this because the police were not precise in locating the location of gunfire and how many rounds were shot, in order to combat this shot-putter sensors were used this in turn reduced the crime rate drastically.[15]AI has found its roots into military application's where unmanned drones which are used for high risk missions for surveillance where human intervention is not required as the co-ordinates of particular location to be under surveillance is loaded onto the on board system from there on artificial intelligence takes over, in the future it may help in simulating tactical warfare so that the infantry is well prepared, best example of AI in being implemented in warfare is the use of

unmanned aerial vehicles where there is an on-board system which takes care of the entire aerial vehicles the only role of the human user is to just feed the data onto the system and the rest will be taken care by the artificial intelligent system on-board and also the AI enabled weapon system is quite advanced where decision making system is quite similar to UAV where it also eliminates human intervention, in the worst case if the AI augmented weapons are unable to make their own decisions, the infantries that employ AI will always have an upper hand in the battle field.

AI in Education

[16]AI has gained prominence in the past few years and it is transitioning from research phase to implementation phase and it being implemented in various and one such field is the education system, we can assure that AI is the future for educational system it going to replace the outdated education system with a new and improved version where each individual student can have his or her own interactive study, AI would replace the specific knowledge type of learning into cultivate type where the students are allowed to imagine numerous logic rather than sticking to traditional methods. [17] Here's a list of all the countries who have integrated AI into education system they are China, Uruguay, Brazil, South Africa and Kenya in these countries experimental solutions for each problem and introduction of educational management information system (EMIS) helped a particular sector manage huge educational system which in turn increases the learning curve. [18] Automated systems or robots are going to be the future of education system with high AI literacy meaning AI will be fully integrated into the system. Although AI has its perks it also has some drawbacks as well if AI were to be fully integrated into educational system then most of the professors will lose their job and skills of teaching a human beings will be lost forever.

Advantages of Artificial System

Since the introduction of artificial intelligence technology it has a lot of advantages they are:

- [19] AI uses empirical methods for searching algorithm, planning and testing machine learning algorithm with real time scenarios.
- They are able to run right round the clock without any form of fatigue.
- [20] All decisions are based on facts and data alone, and not on any sort of emotions.
- Machines which incorporate artificial intelligence need not sleep and can carry out specific processes continuously without reduction in processing speed, when compared with human who are prone to tiredness.
- [21] When we implement a technology with artificial intelligence the system as whole produces less errors during computation.
- The task are completed are a faster rate.
- [22] With the help of artificial intelligence in health industry doctors are able treat and cure complicated health issues.
- [23] Artificial intelligence has a wide range of application e.g. face recognition algorithm, ok Google and Siri for apple.
- Decrease in work load.

Dis-Advantages of Artificial System

- [24] Machines which use artificial intelligence are quite expensive to build.
- There still exists a human stigma that the machine can cause destruction when under the use of bad people.
- [25] In case of professional educational domain artificial intelligence cannot be fully integrated into the system because in the case of professional training when real scenarios are enacted where decisions has to be made based on both emotional and facts but in case AI decisions are made only made based on facts.
- [26] It could cause wide spread unemployment, which increases the poverty rate.
- There would be an absences of human touch and emotional decision making which is very much needed in a social society.
- [27] Artificial intelligence system are always prone to cyber-attacks and their always a high risk involving when you are fully automating a full system.
- [28] When unclear and ambiguous statements which requires decisions based on moral ethics humans are superior to artificial intelligence.

Conclusion

This paper provides the reader with comprehensive understanding of artificial intelligence definition, brief history of artificial intelligence i.e. by whom and how the term artificial intelligence was coined, how much has artificial intelligence influenced the Indian industrial market and what scope it has for the future generation. The paper also provides information of various places where artificial intelligence is being implemented throughout the world, then the paper traverses through various real life applications of artificial intelligence such as health care industry, manufacturing and production, security and surveillance, educational sector. The paper also consists of advantages and disadvantages of artificial intelligence which is based on the real life applications.

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ARTIFICIAL INTELLIGENCE - THE FORWARD THINKING SOFTWARE FOR FUTURE

SHAIK SONALISHA

M.Tech. Integrated Computer Science
Email ID: shaik.sonalisha2021@vitstudent.ac.in

What is Artificial Intelligence ?

[1] In the field of artificial intelligence, the nature of the subject is hard to explain. This problem has two parts, if we were so far in control of understanding the concept of intelligence, then we can obtain an appropriate grip of the nature of artificial intelligence.[2] Artificial intelligence is the science and engineering of manufacturing inventive machines, mainly computer programs. It is a task linked to understanding human intelligence by using computers,but artificial intelligence doesn't have to enclose itself to the techniques that are biologically visible.Mechanisms are involved in intelligence, and research in this field has uncovered methods to have machines do some of them while ignoring others. When just well understood methods are required to accomplish a project, computer programmes can deliver quite spectacular results. These kinds of programmes should be regarded as fairly competent.

History of Artificial Intelligence

[3] In this short history, the origin of AI is discovered in philosophy,fiction and imagination. Initially innovation in electronics,engineering,and various disciplines have affected artificial intelligence. Artificial intelligence involves work in problem solving which involves primary work in learning, understanding, translation, theorem proving, associative storage, knowledge based systems.[4] The source of artificial intelligence can certainly be found back to the 1940s, especially in 1942, the american science fiction writer Issac Asimov released his brief story Runaround. The scheme of Runaround, a story about a robot invented by the engineers Gregory Powell and Mike Donavan

Artificial Intelligence in India

[5] Artificial Intelligence (AI) is a coming-to-be-important chief place area in the development of policy in India. The country's geographical impact promising AI production and determined administrative first moves over AI prospered as a major authority to take into account as, without thought or attention of where the reader of this unit lives. While currently in existence the processes of policy make up one's mind to support the quick evolution of AI for goods/money making production and grouping goods, the overall general direction keeps on in India and respective authorities.

[6] The artificial intelligence innovation in daily life washes across civilization and wipes through communities, its role in moulding India's evolution and growth is bound to be considerable.Artificial Intelligence grasps assurance as a motivation to expedite growth although giving techniques to overcome conventional roadblocks for instance a lack of infrastructure.

Diverse Areas Where Artificial Intelligence is Used

[7] Artificial intelligence techniques for photovoltaic applications:

Artificial intelligence methods are converting conveniently as others appeal to standard methods or a part of integrated systems. They are becoming famous by solving complex practical problems in many areas. They can acquire from some cases, that means that they have the ability to manage corrupt and defective data,are capable to handle nonlinear problems and they can execute prediction and generalization once instructed

[8] Artificial Intelligence in Online and telephone customer service:

Artificial Intelligence is used in automated trading assistants, which can be seen as characters on websites. It may be an advantage for businesses to reduce their labour and training expenditures. A crucial fundamental technology to such systems is common language processing.Pypestream makes use of automated customer service for its mobile implementation planned to streamline communication with customers.

[9] Artificial Intelligence in various medical fields with emphasis on Radiology:

Artificial Intelligence has crucially influenced many medical specialties with high significance on Radiology. Associated novel diagnostic techniques set off a fast emerging hot topic, and it is necessary to give awareness into quantitative analysis of developing literature.

Artificial Intelligence in Financial Services and Creative Sector:

[10] In future Artificial Intelligence can assist workflow automation. Fake and Fraud detection along with credit scoring are other important fields of application.In asset management Robo consultants and robo advisors are rapidly used. High frequency trading is another fascinating field of application.

Expansion of Artificial Intelligence

[11] Artificial Intelligence may become ingrained in the creation of everyday products and services, impacting industrial prosperity and wealth distribution. Thus AI can change the process by inventing new ideas and different technologies, by solving complicated problems and rising creative effort.

[12] The commercial effect of AI is considered utilizing a spontaneous growth model with two innovative features. First, the task given from labor economics needs to be assembled and combined into a growth model. Second, the standard representative household assumption needs to be refused, such that aggregate command limitation could be implemented.

Artificial Intelligence in Medical Equipment

[13] The ultimate visible use of Artificial Intelligence in Healthcare is Data Management. Assembling it, collecting it, controlling it and pursuing its ancestry. It is the main step in transfiguring the available healthcare systems. Google's Artificial intelligence research arm,google neural mental health, debuted its study just a few weeks ago. used to extract the information of medical data a better way to provide especially righteous and rapid health services. Therefore, the vital step in healthcare is composing and interrogating data, data management is the most widely applied application of artificial intelligence and digital automation.

[14] Machine learning and Artificial Intelligence undergo enrichment services in many industries. Current applications are in the healthcare sector. The initial area in the healthcare sector to be computerized is healthcare record maintenance. Usually called an electronic health record, it

has certain functions in modern technologies for improvement and captured maintenance of healthcare data. [15] The massive study of possible use of Artificial Intelligence in medicine and healthcare is the Apple Heart study. The aspiration of this study is to approach the validity of arrhythmia detection in global populations by the automatic examination of the human pulse providing sensors equipped within the watch.the arrangement of testing is excessively elementary-it is enough for the participant to wear an apple anticipating the tolerable amount of your time.

Artificial Intelligence in Manufacturing and Production

[16] In the past few years, intelligentization, backed by Artificial Intelligence (AI) technologies, has developed into an important direction for industrial manufacturing, intensifying the improvement of smart manufacturing.Conventional Artificial Intelligence (AI) has already been enhanced with additional essence in today's industries, resulting in commercial artificial Intelligence (AI), which has become the technological heart of smart production.

[17] The customary manufacturing model of huge batch production would not provide adjustability against rewarding the demands of individual customers. Management capability and comparatively tiny customised manufacturing modes are expected to be supported by new creative intelligence factories. For this, Artificial Intelligence (AI) is implementing higher upgraded manufacturing by stabilizing the combination of manufacturing and information communication technologies, counting, aggregating, communication and control.[18] Encompassing Machine learning and Artificial Intelligence to obtain the benefit of manufacturing data can accompany systematic and knowledgeable automation. Here, in this area, we administer an extensive analysis based upon revolutionary computing and social network algorithms as regards building semiconductor manufacturing smart.

Artificial Intelligence in Security and Surveillance

[19] Basically, the main aim of Artificial Intelligence is to assemble intelligent machines by brutalizing or reflecting behaviour that implements an entity to operate judiciously and with anticipation in its environment. Artificial Intelligence is not the one determined technology. Rather than that, it is more authentic to think of Artificial Intelligence (AI) as a combined system that assimilates information acquisition objectives, logical reasoning and self-correction capacities.

[20] Deep Learning is the division of Artificial Intelligence which is tangled with reflecting the learning access that human beings should handle to grab a few different types of knowledge. Analyzing videos is a part of deep learning which is one of the most elemental problems of computers perception and multimedia content analysis. As the videos accommodate a lot of information with huge difficulties and differences, this career is very demanding.

[21] Current Security and surveillance systems have been one of the major aspects behind the modern tendency of privacy failure. State of the art Artificial Intelligence (AI) have approved security systems to extend far more quickly without developing privacy. We analyze data converts from surveillance system distribution sites to the cloud as the chief reason due to a loss of privacy.

Artificial Intelligence in Education

[22] Nowadays in the field of education computers have demonstrated working for many years with discouraging results. Moreover, according to the current trend Artificial Intelligence has a conclusive influence on education.Artificial Intelligence has many applications such as ICAI

systems that instruct or drill many subjects, the evolution of teaching domains which are planned to simplify the process of tutoring the students. Furthermore Artificial Intelligence has so far taken part in a crucial aspect in the growth of the systems and to conquer the contemporary problems more exploration is necessary. [23] Artificial Intelligence is a flourishing scientific territory which is accomplished by developing each and every feature of social cooperation. Artificial Intelligence in education has been introduced to set about instructing and tutoring explanations which are now experiencing verification in various situations. Artificial Intelligence needs modern infrastructure. Artificial intelligence enlarged farther on the consequence of modernizing in industries.

[24] The researchers who turned out to be examining the usage of Artificial Intelligence (AI) inspired by the significance of education in the development of the society, have put forward infinite applications. The education field is proceeding over a standard shift over Artificial Intelligence that can release intuition regarding appreciation of how students comprehend, and how to customise the learning experience among students. Infact, Artificial Intelligence is applicable in challenges that are related to education, fixed in both the inefficiency of teaching in the most frequent way and the complication of the system.

[25] However only uncontrolled thoughts in sleep a while earlier, Artificial Intelligence (AI) has turned into a material fact, being instantly composing our fixed regular order of acting and getting into every point of view of our living and including education. Even now Artificial Intelligence is it's inception, however as time goes forward development, we can observe how artificial intelligence emerges and have a look for its possible unused quality.In case of this position, this book division looks at contemporary knowledge and more views of artificial intelligence in different situations. Grouping network observations (SNA) is used for this purpose to escortfor the sense given common to a group in artificial intelligence making observation from an about education view.

Advantages of Artificial Intelligence

[26] Artificial Intelligence (AI) administration is used to replicate the intelligence of humans for investigative or decision making. The advantages of Artificial intelligence are immortality, dependability and effect of cost at the same time inscribing unpredictability and high speed in problem solving or making a conclusion. Artificial Intelligence seemed to be enforced in different domains. The applications of Artificial intelligence is amongst the top up-and-coming that seemed to be a brutal need in the internet. Despite the fact that the success of artificial intelligence is remarkable, both ability and effectiveness are restricted.

[27] Artificial Intelligence based on diagnosis and fault detection:

Artificial Intelligence demonstrated dynamic space in distinguishing and analyzing defects of dwelling power systems.Artificial intelligence defect identification and diagnostic approaches are divided into two main categories.The first one is data driven-based. The data driven-based has exhibited capable scope in acquiring different arrangements from the learning set.However it has issues in responsibility and sturdiness. The second one is knowledge driven-based. The knowledge driven-based has conveyed capable space in acquiring the distinct reasoning of authority. However they depend on authorities deeply. Artificial intelligence should provide benefits to both strategies in the future.

[28] Artificial intelligence (AI) can accommodate speed change in the vital environment to furnish various different work demands. On these terms collaborate with MED and AI technologies, aggregating and the assets of storage are being arranged to issue concurrent clarification during the same time contributing with adequate and inventive services. The combining of the two MED and AI will have a bright future for coming generations.

[29] Artificial Intelligence and electrical automated control technologies are inventing and evolving in tandem with the advancement of science and technology. Artificial Intelligence technology is increasingly being used in electrical automation control, providing a firm basis and huge backing for the advancement of industrial automation systems. Artificial Intelligence is discussed in this study, along with its many research efforts such as intelligent systems, deep learning, information processing, and learning techniques. Finally the implications of artificial intelligence are examined from a variety of angles. Possibly this document will be of no use.

[30] Artificial Intelligence methods have been created to provide clear advantages in a variety of fields,especially healthcare. The reproduction of human mental activities is a typical aspect of Artificial intelligence. AI is bringing a change in thinking to healthcare, propelled by rising provision of health clinical information and quick advancement of reporting tools , according to the healthcare industry. Although its potential, personnel in the health-care industry have conflicting opinions about the use of AI technology

Disadvantages and Challenges of Artificial Intelligence

[31] Artificial intelligence has many disadvantages such as errors in programs, it can be exploited for large scale demolition. AI is always connected with the creativity of the programmer,it also lacks the pleasant way of treating jobs that are being affected. Artificial Intelligence needs a huge amount of money and it consumes a lot of time. As AI increases everyone will be depending upon technologies, whereas the upcoming generations will become lazies.

[32] By analyzing various creativity and designs of artificial intelligence, it obviously has a bright future but as it increases it may also accomplish all the exposure of our society.Moreover people become competent in purchasing goods and materials by the usage of networks all over the world. AI technologies are giving many good times to arranging vast yield of change avoiding the upcoming crisis and disadvantages regarding the expansion of huge wealth.

[33] The disadvantage of Artificial intelligence is bugs. We cannot neglect the fact that if we place enough burden on artificial intelligence, any motor will fail. Even a modest flaw can create a large crisis. Furthermore there is a panic that robots will substitute human beings. Besides, any machine can't anticipate performing sooner so that it will be a huge mess. For Artificial Intelligence, a person needs to think high and it may cause high pressure as it leads to mental health problems. A machine can do what a programmer insists to do, it can't think by itself.

[34] Artificial Intelligence in cancer diagnosis and prognosis:

In past years, artificial intelligence (AI) has achieved extensive use in future clinical research, with cancer prediction accuracy growing exponentially. This article outlines the benefits of AI in cancer evaluation of patients based on a study of the research. We look at how AI may help with cancer prediction and diagnosis, focusing on its exceptional efficiency, which is even greater than that of economic measures medicine applications. We also explain how these tactics contribute to the advancement of the disciplines.

[35] Wearable technologies and Artificial Intelligence (AI) are the two critical domains for achieving the objective of designing the best personalised cancer treatment for patient characteristics. The combination of these two domains allows for more accurate patient data collection and enhanced mobile sensing creation for evaluating the user's wellness, performance and environment.

Conclusion

Artificial intelligence holds a great prospect for following generations. Surprisingly, it has various fields such as medicine engineering ,law,robotics,business etc. As far as we know, Artificial Intelligence became very demanding as it implemented various and different kinds of techniques. Artificial Intelligence has advantages and disadvantages too. As AI is increasing, there will be more robots and machines which leads to the development of the country as well as it leads ro unemployment. We might have a significant effect on our daily lives. Artificial intelligence , as we have seen, has both beneficial and harmful aspects. At the end of this investigation, we have gone over AI definitions, a quick summary, public intelligent systems, military AI technologies, AI ethics, and the fundamental robotics laws. This may not be the end of AI; there is yet more to come.Who wonders what AI may be able to achieve for us in the future; perhaps an entire civilization of robots will emerge.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

RUJUTA KHERDEKAR
M.Tech. Embedded Systems
Email ID: rujuta.kherdekar2021@vitstudent.ac.in

What is AI?

[1] Alan Turing (1950) was one of the contributors in establishing the foundation of modern computers and AI. The idea behind the "Turing test" was derived from the fact that in cognition related functions, the intelligent operations of a computer are responsible and capable of achieving human level performances. [2]Artificial intelligence is about understanding and generating intelligent machines and software that can rationalize,memorize, gather knowledge, communicate, modify and recognize objects. It makes calculations so that it can understand the logic and take action accordingly. The significant difference between psychology and AI is that, AI is more inclined towards performing tasks related to computation and then reaching a conclusion by perceiving or reasoning and taking action according to those perceptions, which leads to smarter and more useful machines.

History of AI

[3] Going through the history of artificial intelligence (AI), we observe that there are connections between neural structures and AI. Many top-notch AI scientists can also be seen as brain scientists. The inspiration for developing an artificial neural network was based on the study of neural connections in the human brain that were done using microscopes. [4]In 1956, Professor J. McCarthy at Stanford University, Professor M. L. Minsky at the Massachusetts Institute of Technology, and Professors H. Simon and A. Newell at Carnegie Mellon University (The Turing Award had been awarded to all four of them), as well as C. E. Shannon (also known as "the father of information theory") at Bell Labs, N. Rochester at IBM,and other professors and intellectuals, were the first ones to establish the concept of "artificial intelligence" at Dartmouth College in the US.

AI in India

[5] A sixth of the world's population is entrusted to India's future. As the Artificial Intelligence (AI) revolution washes through civilizations and into everyday life, it will undoubtedly play a significant role in defining India's development and progress. AI has promise for India as a catalyst for advancement, giving methods to overcome traditional roadblocks such as poor infrastructure and bureaucracy. Simultaneously, an investment in AI is accompanied by dangers that have long-term societal implications: it is critical that these risks be assessed at this early stage. [6]According to data collected, unemployment rates in the US will be 47%, 35% in the UK, 49% in Japan, 40% in Australia, and 54% in the EU during the next 10-20 years. No country can dodge the impact of technological developments in this globalized world. By putting in place the required infrastructure and policies, the advantages may be increased and losses can be reduced. India has failed to decide on its AI strategy, regardless of the fact that several other nations have already done so.

[7] This post was written with the goal of influencing current AI policy debates in India and provoking a cross-disciplinary dialogue on the subject. It looked at India's current policy landscape

and claimed that the constraints of data-driven decision-making should be a primary issue in AI policy creation rather than a secondary one. Given the numerous efforts currently underway in the sector, it concentrated on spotlighting aspects of the discussion that had previously received just a cursory examination. [8] Ai - driven aids in the resolution of health issues in India, but it is limited by the lack of widely accessible medical information and the inability of human traits to address specific elements. Although AI applications are designed to replace manual input, they are just unable to justify and convey knowledge. Intelligent machines will evolve to the point where they'll be able to do a greater series of jobs without the need for human interference. While inspiring and driving creativity in the field, AI is created and applied in a straightforward and public-interest-friendly manner.

[9] In Simplest terms, the future of AI-driven services in India looks bright, with hundreds of Intelligence start-ups already in place and several Indian IT companies and higher education institutions opening AI labs in varied fields like agribusiness, schooling, medical services, infrastructural facilities, intelligent buildings, and public transit. The National Organization on Artificial Intelligence can grow into an encouraging body that can cohere, nourish, and facilitate effective collaboration between the authorities, educational establishments, software companies, and sponsors on AI progress and use for economic development and encompassing overall growth.

Various Place Where AI is Used in India

[10] Predicting the amount of rubbish that a city will generate is a crucial element in constructing an effective garbage management system. The effective planning of disposal sites, recycling units, development, and operation of garbage collecting infrastructure will result from determining the volume of waste ahead of time. In a large metropolis like New Delhi, it's critical to prepare ahead of time so that garbage can be properly managed and environmental and health risks can be avoided. Artificial intelligence-based strategies for anticipating waste volume that can be used successfully. Six models, including ANN, ANFIS, GA-ANN, GA-ANFIS, DWT-ANN, and DWT-ANFIS, were effectively evaluated in MSW forecasting. When models are ranked according to their accuracy, GA-ANN is determined to be the most accurate.

[11] The idea of automated machine learning techniques is now being employed in every industry and domain, such as the stock market, educational institutions, and the medical field, to name a few. In order to leverage the vast volume of data, machine learning technologies are essential. The data collection in this paper contains a large quantity of information, and adequate analysis and prediction are required to keep track of the growing number of COVID instances. This COVID-19 forecast will be able to track cases, particularly in India, and may aid researchers in developing vaccines in the future. Scientists and researchers from all around the world are investigating numerous drugs to cure COVID, but it is already being studied in various labs. This work introduces and offers a way of Machine learning and artificial intelligence to analyze data and find the optimal method for disease prediction. Tables, figures, and explanations are provided as needed.

AI in Healthcare Appliances

[12] In the field of healthcare, we can find artificial intelligence being implemented for data management purposes. Initially, for restructuring the available healthcare systems, the procedure to

be followed is: collecting and keeping the data, integrating it, and then tracking down its origin. [13] The technology that allows AI systems to recognize faces in digital photos is now being used to acquire the same level of competence in recognizing physical traits in particular medical situations. [14] Artificial health technology is an emerging discipline that combines constitutional government and smart transportation with the insights of skilled medical practitioners to generate resources for healthcare advancement. Under the realm of AI, machines can do what makes people appear intelligent by analyzing the beliefs and notions on which a human intellectual works.

AI in Manufacturing and Production

[15] In the case of the process industry, it is mandatory to strongly combine industrial AI with the Industrial Internet. For this, one needs to have knowledge in this domain so as to build AI algorithms and AI systems, which will also broaden and boost their capabilities in this field. [16] Following the introduction of artificial intelligence, there has been a shift in product design. A thorough brief defined by the engineers and designers is one of the ways that input can be passed into an AI algorithm. [17]The formation of new-generation intelligent manufacturing, which goes through each and every joint in the full life cycle of design, production, product, and service, is the result of a thorough convolution of new-generation artificial intelligence (AI) technology and advanced manufacturing technology.

AI in Security and Surveillance

[18] Artificial Intelligence using the global and world economy combined with its adaptability in data management and processing power is converging into the digital world, which is a very important asset in surveillance and security against human entanglement. [19] AI doesn't have the capability to reason and predict, and only copying human actions, it cannot achieve the perceptive skills which are required for judging based on instincts for the dynamics of a company's advancement and for getting the measure of theeconomic situation even if there is a way of learning and predicting. Hence, AI won't be able to acquire the level at which a manager in any company works. So, integrating AI for estimating the company's financial security can possibly be risky, since it will lead to partial estimations of the company's activities and will affect more in the case of financial security. [20]Recently, Cyber security is taking a lot of interest in Artificial Intelligence which helps them to solve their problems. In the current scenario, Artificial Intelligence using Machine Learning is in practice for cyber security for malware detection, which is very difficult to segregate complying to linear traditional security solutions.

AI in Education

[21] Open Learner Modelling (OLM), a branch of Intelligent Tutoring Systems (ITS) research, focuses on the interpretability of the underlying AI representations. OLMs are tools for 'opening' up AI models of learners' cognition and feelings, with the aim of supporting humans in teaching and learning process. Over thirty years of research in ITS (also known as AI in Education) has contributed to major work that explains how AI may be used in Education to get positive returns and, through the OLM research, what are the crucial elements to make it legible and straightforward for the gain of knowledge.

[22] Methods such as neural networks are employed in Applied AI, or machine learning,' to train computers to do tasks without human interaction. We look at a recent attempt by data scientists

to include AI features into a few online learning environments, such as Khan Academy and the ASSISTments intelligent tutoring system. We present a detailed evaluation of the scholarly work done by numerous data scientists surrounding the use of 'deep learning' to predict aspects of educational achievement, based on Science and Technology Studies (STS). This method emphasizes the connections between diverse (difficult) units of analysis: faulty data, partially incomprehensible data, and so on.[23]By investigating the emergence of AI in education, we aim to contributemethodologically and theoretically to this growing research with a relatively innovative approach in sociology. Creating a knowledge graph. Based on this, along with Burdius theory, we will critically examine the logic and incentives of the field, examine how various actors position AI and EdTech, and identify the key concepts that these companies jointly promote. And propose incentives.

Advantages of AI

[24] Then again, for an assessment of the viability, the proficiency, and the convenience of a framework that applies AI procedures in certifiable situations, experimental exploration is totally fundamental. Particularly client displaying methods which depend on human-PC communication require observational assessments. In any case, as we will show in this paper, particular sorts of mistakes will stay unseen. Without a doubt, check, formal rightness, and tests are significant strategies for programming, notwithstanding, we contend that experimental assessmentconsidered a significant supplementcan further develop AI methods extensively. Additionally, the observational methodology is a significant approach to both legitimize the endeavors spent, and to give proof to the handiness of a methodology.

[25] The recent technological and architectural advances in 5G networks have paid off as deployment has begun around the world. The most important performance-enhancing factors of access to core networks are softwareization, cloudification and virtualization of the most important network functions. With the rapid development, there are risks, threats and weaknesses in the system for those who want to take advantage of it. Therefore, ensuring foolproof end-to-end security (E2E) becomes a major concern. Artificial intelligence (AI) and machine learning (ML) can play a critical role in designing, modeling, and automating efficient security protocols against a wide variety of threats. AI and ML have already proven themselves in various areas for classification, identification and automation with higher accuracy.

[26]Artificial Intelligence (AI) is expected to strengthen Pathology's role in the Personalized Medicine scenario: AI-based devices are expected to standardize the evaluation of tissue biomarkers as well as discover novel information that would otherwise be overlooked by human review and use it to make specific predictions.[27]AI is a technology that is extremely beneficial to humans. Human labor can be avoided by utilizing this technology. Healthcare, education, electronics, software development, pharmaceuticals, games, engineering, communication, and development are all areas where artificial intelligence can be applied. Artificial intelligence is based on science and technology in fields such as information technology, biology, phycology, mathematics, and others. Artificial intelligence's key benefit is that the task will be more accurate and time will be saved.

[28] Using AI ensures the highest level of precision and virtually eliminates the possibility of error. Applications for artificial intelligence can be found in space exploration. For space exploration, a number of robots can be deployed. They aren't terrified of the extraterrestrial

environment, and they can be built in such a way that the atmospheres of other planets have no effect on their physical state or functionality .— Artificial intelligence-enabled robots could be used to study the earth's depths and the depths of the world's oceans in order to extract the fuel and resources that humans require. Artificial intelligence is well-exemplified by smartphones. With apps like Siri, which acts as a personal assistant, maps and GPS, which show the user the shortest routes to their destination, and apps that forecast the user's activities and provide recommendations. As a result, we can observe how AI makes life easier. When performing repetitive and time-consuming jobs, artificial intelligence can be quite useful. AI can perform jobs that are hazardous to human health and life, like rescuing people and extinguishing fires. Depressed people may benefit from robotic pets. Even people who are allergic to animals can receive them.

Challenges or Disadvantages of AI

[29] Extreme applications of artificial intelligence and robots pose risks and concerns that must be considered in all areas of its application, particularly in education. Students and teachers say that using robots and artificial intelligence instruments can promote a separation with emotions, and that a robot is not imitable since it lacks feelings. The indiscriminate application of robotics and artificial intelligence in education has been discovered to have additional threats and drawbacks. Teachers are concerned not only that their jobs will be taken away, but also that a robot will be unable to closely monitor the individual progress of each kid in their classrooms. Because a robot lacks emotions, it will never be able to supply what each pupil requires, taking into account their individual limitations and potential. Human teachers make individual efforts for each of their students in order to attain success in learning processes that a robot could never achieve.

[30] Artificial intelligence's goal and actuality in human resource (HR) management are far apart. When using data mining technology for HR tasks, dilemmas include the difficulty of HR phenomena, leads to limited outcomes outlined by small samples, responsibility questions connected with impartiality and other moral and legal restrictions, and potentially negative employee reactions to business choices made using data-based algorithms. It then suggests solutions to these issues composed of three connected principles: causal argumentation, unpredictability and exploration, and employee engagement.[31]Most present AI systems have internal and external flaws that prevent them from being fully used in therapeutic settings. As a result, AI might be regarded as a component of a company attempting to break into the health-care sector.

[32] Human supervision is still required, necessitating the development of hybrid AI that operates by including humans into the workflow. As the EU tightens privacy regulations, AI privacy concerns must be addressed in novel ways. There is a new information flow that must be governed, yet there are still no global AI laws in place (Knight, 2019). When you consider that the number of Internet of Things (IoT) connected devices is expected to double from 30 billion in 2020 to 60 billion by 2024 (Statista, 2018), a new set of difficulties emerges that should be addressed collaboratively. The issues of ethics and long-term social consequences must be addressed. Professional culture conflict (Edmondson, 2017) is still a problem, and as the Fourth Industrial Revolution accelerates, representatives from the social sciences and information technology on all levels should begin balancing the goals and needs of humanity as a whole.

[33] Your team's technical problems aren't going to be solved by AI. It is expected that over time, AI-enabled teamwork tools may become more precise and successful as they learn to target

analysis and coaching more productively. The AI technique employed could be important to gather data and stimulate debates concerning testing equipment in its current state. On the other side, the numerous non-AI alternatives available for team evaluations are as effective. Leadership and team learning are essential to develop an organizational culture in the company that supports teamwork and simultaneously developing. Using simple, attempted ways to improve team effectiveness is a more useful tactic.

Conclusion

Artificial intelligence or AI, is the technology that is still evolving in many different ways, and in many different kinds of fields. Here we have thrown a light on how it was based on the introduction of Artificial Neural Networks, which were something that was derived from Human Intelligence. This was all claimed by the researchers and the scientists not too long back, and we are already witnessing its immense growth in various aspects and applications like, agriculture, education, manufacturing and production, security, transportation, Healthcare Department, and many more to come up ahead in our lives. Then we had a brief insight on some of these various applications. Though AI has grown a lot, considering its growth in a country like India, we see that, really it is important to also pay attention to handling its development and maintaining proper integrity while having its influence in our daily lives. For that, we need appropriate AI policies and security handling regarding the same.

After looking over different aspects and discussing some of the prevalent applications, we also need to look over the need to avoid its complete influence on human development, and should be made to grow in only those areas in which it is very necessary. Also, we understand that AI still has some challenges yet ahead to overcome. It is important to always remember that, if we have more and more resources available to us just like AI, it will make our lives easier day by day. Relying on it completely is not productive, as it can never surpass human intelligence in many aspects and should not be treated as an absolute necessity, to preserve the sole purpose of existence of human intelligence and to avoid the degradation of mankind.

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ARTIFITIAL INTELLIGENCE: DELIVERED REAL WORLD INTELLIGENCE

HIMAJA .V
M.Tech Integrated Computer Science
Email ID: himaja.v2021@vitstudent.ac.in

Introduction

[1] Artificial intelligence (AI) is an important technology in our social life and economic activities in our daily life. It helps us in sustainable growth and development of various economic development such as Japan's economic development and solves various social problems. In our past decades artifitial intelligence(AI) has been grasping attention from various fields indifferent countries for growth and development in developed countries such as Europe and the United States and developing in countries such as China and India. New artificial intelligence on robot technology a.k.a (RT) and information communication technology a.k.a (ICT) has been seeking a lot of attention.[2]Artificial intelligence, sometimes known as AI, has been evolving in a variety of sectors for decades, including clinical diagnosis, autonomous driving, and voice translation. Because of the increase in data volume in our modern world, there has been a lot of discussion about the electronic computing hand tools in AI in terms of computation speed and power consumption.

History of AI

[3] The history of expertise studies picturize AI from a joint cognitive systems viewpoint. Expertise is currently picturized as a skilled gathering to novelty and complexity. AI restricted to machine learning systems which couldn't cope up with variability and didn't match human requirement expectations which resulted in brittle systems. To effectively collaborate with human experts and reach their expectations AI requires many skills such as collaborative skills which was able collaborate and to explain itself. On introducing AI it also lead to development of new skills that human experts need to develop to deal with AI.[4] In the mid-1950s the researchers in the United States introduced new formal theories for problem solving and intelligence with another powerful new tool for controling the electronic digital computer which was just the beginning of the development of AI. Several branches of western mathematical science emerged from most basic approaches which included computer science, data science and artificial intelligence (AI). This thesis of history offers an account of the origins and politics of AI in the mid-twentieth century United States which focused on inbuilting the systems of social and societal control.

Artifitial Intelligence in India

[5] The primary objective of this research is to assess the susceptibility of gully erosion by combining artificial intelligence and machine learning technologies. The multilayer perceptron neural network master limited partnership (MLP) was employed as the classification base, and the functional classifiers were hybrid standard machine learning methods such as Scooping and Scholars have demonstrated. The study area was chosen to include the areas of the Chhotonagpur plateau and the Hinglo river basin, an important tributaries of the Ajay River.

[6] artificial intelligence integrated with customour relationship management and this system has revolutionaries organizations with a huge volumes of customized data which helps in responding powerfully to manage the opportunities and challenges that upspring from this organizations which help in developing competence to digitalize setting .

Various fields (AI) is used

[7] With the advancement of machine learning technology and graphical processing units in the twenty-first century, big data wringer leveraging artificial intelligence (AI) technology is now used in a variety of sectors, including medicine. Its application in medicine allows for a more objective wringer of biological events, which are intrinsically ramified and complex and necessitate shielding determination of the data received from analyses. When scientific talks in such a wonk subject contain just limited facts, it becomes difficult to grasp a well-constructed image of a phenomenon.

[8] AI technology is undoubtedly a new blazing star in the oil and gas business, drawing the attention of academics who have dedicated their time to it. This work has accomplished a literature analysis of a huge number of artificial intelligence (AI) based work reported in addition to learning more about the uses of artificial intelligence in oilfield minutiae for a hint of the future direction of this explosive technology in the oil and gas industry.[9] Clinical diagnosis, voice translation, and voluntary driving are all being transformed by artificial intelligence (AI). However, in terms of both computing speed and power consumption, the rapidly expanding volume of data in modern civilization creates limitless problems for the electronic computer gear deployed in AI.[10] Artificial intelligence and, in specifically machine learning methods have gained popularity in the tribological community owing to its ability to anticipate tribologically essential qualities such as the frictional factor or the thickness of the oil mucosa. This viewpoint tries to highlight some of the recent breakthroughs made in tribological research by employing strained intelligence, notably strained neutral networks. The presentation and discussion of successful specimen studies using these methodologies in a tribological setting plainly reveals their merit in predicting certain tribological qualities righteously and economically..

Growdth of AI

[11] Artificial intelligence (AI) can be characterized as a machine's ability to mimic exceptional human strategies (or) an informant's ability to achieve goals in a variety of situations. These concepts instantly raise vital socioeconomic questions. For example, if AI permits an ever-increasing number of traditionally human-labor-intensive tasks to be automated, Artificial intelligence could be used in regular production of goods and services which enhances the economic growth and income equality. AI could also refers to the procedure of producing innovative products and services that assist in the solution of complex problems and the development of intellectual content

[12] Artificial Intelligence (AI) advancements can help to accelerate economic development as well as the transition process. If the rise of AI is due to an increase in commodities or AI industry productivity, it may be favourable for short-term household utility. However, if companies employ AI to replace humans with computers, this has short-term negative consequences.

AI in Healthcare Appliances

[13] The advancement of AI will boost economic growth, but it may also alter economies' transition paths. Households will profit in the short term if AI improves the productivity of products and services. However, if AI is used to replace human labour, households will lose out in the near term since they will be unemployed. It provides framework of value creation for AI in health care applications and presents a method for developing business models for AI health care businesses. [14] With the deployment of new technology and more customer gadgets for doctors and patients, the healthcare sector and medical services have been extremely dynamic. Doctors utilise internet-connected gadgets and data analysis tools to let patients to collect their own health data, which helps them maintain control of their physical and mental activities. This data can be analyzed using artificial intelligence and insurance is offered. Artificial intelligence technology has become much more efficient as computer power has grown, allowing it to provide and make more optimal decisions for progress and expansion. [15] Modern healthcare and medicine rely on the implementation of more rigorous practises, such as surveillance and benchmarking against predefined quality indicators. Streamlined microbiological inventions and streamlined surveillance of healthcare-associated infections (HAIs), which we put forward arguments in favour of the increasing use of intelligent information and liaison technologies for infection towage and surveillance. With MOMO, a modern microbiology analytics software, and MONI, a fully streamlined detection and monitoring system for healthcare-associated infections, we achieved much higher analytics and surveillance precision.

AI in Manufacturing and Production

[16] To find applications for manufacturing systems, advanced computing methods such as cognitive computing and deep learning are being used. These methods aid in the maintenance and fault detection of automated visual inspection. Reinforcement learning methods are being actively applied to material handling systems and production scheduling. Industries that want to turn real-time data into actionable decisions are looking for ways to integrate these advanced computer systems. AI methods are combined with traditional operational research approaches, Internet of Things (IoT) concepts and technologies, and cyber-physical systems.

[17] In the manufacturing industry, machine learning techniques have been impactful in the context of industry 4.0. Industry 4.0 is a paradigm that supports the use of smart sensors and machines to recruit and develop smart factories. Smart factories collect data pertaining to production and ML techniques enable the generation of actionable intelligence by processing this data collected data to increase manufacturing efficiency without significantly changing the required resources.

[18] An increase in the level of automation necessitates greater information spritzing from the consumer order to the sensor and actuator layer of manufacturing machinery. Following the presentation of information infrastructure models such as the hierarchical production tenancy system and the Y-model, the production of diamond system for the production preparation environment is derived, which includes manufacturing diamond rule checking and path optimization workable to the PCB turnout process. The linkage between the diamond rule checking and the path optimising process, in particular, is based on the hierarchical two-phase cross-linked unit insemination method.

AI in Security and Surveillance

[19] By 2050 the security and development has rose to 90%.Technology is the only way to deal with the expected increase in pollution. The Smart City is always focused on the seamless integration of Information and Communication Technology with the most cutting edge technological breakthroughs, such as like well-connected houses and equipments. Smart cities improve citizens quality of life by offering effiecient infrastructure and increase security. Surveillance is a repetitive and tedious task that, when carried out for an extended period of time, degrades the performance of human guards.

[20] Because of it's increase in the control of epidemics such as COVID-19, edge computation via the 5G wireless connectivity network can be managed effectively. The use of a hierarchical edge computing system provides numerous benefits, including low latency, scalability, and the protection of application and training model data, allowing COVID-19 to be evaluated by a dependable local edge server. Furthermore, many deep learning (DL) algorithms suffer from two critical flaws: First, training necessitates a large COVID-19 dataset comprised of various aspects, which will present difficulties for local governments. Second, in order to be acknowledged, the findings of deep learning necessitate ethical considerations and other contributions for surveillance.

[21] Obtaining surveillance videos is required for public and industrial security. Overwhelming progress has been made in computer vision fields to automate surveillance systems in terms of human activity recognition, such as behaviour analysis and violence detection. However, it is difficult to detect and analyse violent scenes intelligently in order to fulfill the concept of Industrial Internet of Things (IIoT)-based surveillance buoyed by limited resources to reduce computational power. To address this challenge, an AI-enabled IIoT-based framework with VD-Network (VD-Net) is proposed. The input video frames are first fed into a light-weight deep neural network

Artifitial Intelligence in Education

[22] The study of the applications of AI technology in the manufacturing industry in recent years reveals that the rapid development and maturity of core technologies and breakthroughs in basic theory have triggered a major revolution in the internal and external models, means, and ecosystems as well as in the development of AI.[23] Recently, Artificial Intelligence has analyzed images and signals to the point where it performs at human level. This has been made possible through the efficiency of machine learning methods, especially deep learning using convolutional neural networks development for future generations

[24] The development and implementation of Artificial Intelligence (AI) techniques for use in pathology services has increased significantly in recent years. This trend is extensively anticipated to continue and reshape pathology in the coming years. Computational pathology is regularly used in the place of conventional methods, and this trend is expected to continue which results in a paradigm shift in pathology services that will increase the profitability and skillful of addressing the needs of this age of targeted therapy.

[25] Machine learning, or simply ML, is a sort of artificial intelligence that use algorithms to revolutionise the twenty-first century. It's employed in a variety of sectors, including autonomous automobiles and chatbots that translate languages. It can also accomplish complex jobs far better than humans can, such as chess.

[26] In the smart cities concept, information and communication technology, or ICT, plays a critical role in policy creation, decision-making, implementation, and, ultimately, productive services. This review's primary goal is to investigate the role of AI, machine learning, and deep reinforcement learning (DRL) in the progression of pervasive computing.

Advantages of AI

[27] Artificial intelligence is a significant advancement in the current Internet's rapid development. Humans have been continuously discovering and exploring Internet information technology in the twenty-first century. All kinds of Internet-based application forms are starting to appear in our lives. The rapid advancement of technology necessitates a high rate of online product upgrades. Some old concepts and thinking approaches have been technologically innovated in this way. After the profound development of artificial intelligence technology and the attainment of cross-industry application practise, the development method of artificial intelligence plus education is an important innovation. There will be robots for future education process.

[28] The advantages of computerised psychotherapy are compared against traditional psychiatric treatment's limited availability and cost, as well as patients' willingness to give personal information or engage in socially inappropriate behaviour to a computer rather than a human psychotherapist. The best choices for electronic therapy are short cognitive and behavioural therapies. Methods for intelligent computer-assisted training are discussed, as well as how they might be applied to psychotherapy programmes. Artificial intelligence (AI) technology can adapt to fast changing dynamic situations in order to meet numerous task requirements for resource allocation, computation, and decision-making.

[29] The benefits of computerised psychotherapy are weighed against the restricted availability and cost of traditional psychiatric treatment, as well as patients' willingness to divulge personal information or engage in socially unacceptable conduct to a computer rather than a human psychotherapist. Brief cognitive and behavioural therapies are seen to be the best candidates for electronic therapy. Methods now employed for intelligent computer-assisted training are described and how they could be applied to psychotherapy programmes.

[30] A new product development project necessitates a high level of expertise as well as a series of sophisticated cooperation procedures. As a result, businesses can construct a new product development process or model based on project experience, which can not only serve as a foundation for R&D companies' ongoing learning and improvement, but also as a standard for managing new product development operations. Construction Ontology-based NPD Process Recommendation Smart System consistent knowledge base architecture is the focus of this research. ONPS helps a firm or department swiftly create and manage a body of knowledge while also creating a graphical user interface for the present.

[31] Firms, particularly fashion companies, are confronted with a new interaction between consumers, suppliers, and rivals as the big data era unfolds. Fashion companies must also manage a variety of data with numerous and complicated linkages and dependencies, as well as human factor uncertainties. It is critical for businesses to master these data flows in order to make better decisions. Artificial intelligence techniques are very effective in such scenarios. Artificial intelligence's potential uses in the fashion industry range from design support systems to fashion suggestion systems via sensory evaluation and intelligent tracking systems

Challenges of AI

[32] The public sector's early adoption of artificial intelligence is being seen in a variety of ways. However, while there is growing speculation about both its risks and benefits, empirical evidence to back it up is lacking. The purpose of this research is to identify the barriers to AI adoption in the public sector as perceived by key stakeholders. We use the theoretical lens of framing to map how three groups of people perceive the challenges of AI adoption in the public sector in the case of IBM Watson adoption in public healthcare in China. [33] Many people believe that artificial intelligence (AI) will change healthcare, from clinical applications in fields like imaging and diagnostics to hospital workflow efficiency and the usage of health apps to analyse an individual's symptoms. Economic forecasters have forecasted that the AI health business would grow at a breakneck pace in the future years; one study estimates that the market will rise more than tenfold between 2014 and 2021. With this rise comes a slew of new issues, thus it's critical that AI is utilised ethically and legally in the healthcare system. This chapter will outline the ethical and legal issues that AI in healthcare raises, as well as possible solutions. [34] Artificial intelligence (AI) tools and systems are widely used, and their importance in a wide range of social and economic areas must be considered in the context of a second wave of digital transformation. AI reflects the transformative power and disruptive potential of a new generation of technologies ushering in a new stage of our societies' and economy' digital evolution. The speed and accumulation of technical advancements bring unexpected difficulties to the law of the twenty-first century. An application of these developing technologies, such as AI and sophisticated robots, Internet-of-Things, that is methodical, extensive, and judiciously coupled (IoT). [35] Researchers and practitioners have paid close attention to AI advances, which have opened up a wide range of beneficial potential for AI use in the public sector. In light of this, a comprehensive understanding of the spectrum and effect of AI-based applications, as well as the issues they provide, is becoming increasingly important. Previous research, on the other hand, has primarily looked at AI applications and issues in isolation and in fragments. Due to the lack of a complete overview of AI-based applications and difficulties for the public sector, our conceptual approach evaluates and gathers key insights from scientific literature to present an integrated picture of AI applications and related challenges for the public sector.

Conclusion

Through the above context we came across artifitial intelligence (AI) introduction and various aspects of artifitial intelligence .We analized the history of artifitial intelligence which played a major role in gathering skillfull work with novelity and complexity .We learnt about usage and development of artifitial intelligence in economic and daily life. Artifitial intelligence plays a major role in future development and has been effectively growing from past decades .AI has played a key role in economic development in developed countries like Japan and developing countries like China and India.AI is used in machine learning ,graphical processing ,robot technology(RT) ,information communication technology (ICT). Due to the increase in effective machine learning human-labor-intensive tasks have become automated AI could be used in regular production of goods and services which enhances the economic growth and income equality.AI in healthcare sector has boosted economic growth due to AI in healthcare business and advanced diagonosis methods have improved due to AI .Due to the development of advanced gadgets the patients are able to communicate online and check their physical condition .Smart security and suviellence has

developed for advanced household equipments .Including growth, development and advantages of AI there were many challenges faced by AI.

Challenges like adoption of AI in public sector,healthcare sector and AI tools and system etc..Therefore from the above context we can conclude that AI has increases the understanding nature in humans and helped in providing applications in wide range and also revealed complexity of human reasoning providing new areas and rich challenges in the future.

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ARTIFICIAL INTELLIGENCE: THE CHANGING WORLD

SOMPALLI SAKETH
M.Tech VLSI Design
Email ID: sompalli.saketh2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial Intelligence is that field of computer science which is dedicated to solving real time problems which are associated with human intelligence like pattern recognition and problem solving.AI is that theory and development of machine systems ready to perform tasks commonly requiring human intelligence like speech recognition, changing from one language to another, decision-making and visual perception.[2] Artificial intelligence is an activity of making machines much more intelligent and on the other hand intelligence is that quality which works in accordance with environment.

History of AI

[3] The early stages of Artificial Intelligence dates back to the 1940s more specifically to 1942 when one of the acclaimed American science fiction writer Isaac Asimov published Runaround which was a short story. Runaround is a story about a robot developed by the several engineers and it evolves around the Three Laws of Robotics: (1) a robot may not injure a human being or, allow a human being to come to harm through inaction; (2) a robot must always obey the orders given by human beings and adhere to it except in critical cases which would conflict with the First Law; and (3) a robot should protect its own existence until unless it does not conflict with the First or Second Laws. Asimov's work in the field of robotics, AI, and computer science inspired generations of scientists— among others.One of the reasons for the initial lack of progress within the field of AI is the fact that reality was far behind the expectations in the specific approach towards early systems such as ELIZA and also the General Problem Solver which tried to duplicate human intelligence. Specifically, they were knowledge Systems, i.e., collections of rules that assume that human intelligence are often formalized and reconstructed in a top-down approach as a nesting of "if-then" statements.

[4] The early analysis in AI aimed to tackle issues regarding intelligence, like playing Chess. Despite early excitement in the 1960s, the 1970s saw a badphase for AI following the publication of a negative review of AI with in the Lighthill report (1973). The Eighties saw a new phase of AI, with a new investment in Japan which aimed to develop parallel machines supported on logic and that was preceded by a response from the United Kingdom with its Alvey programme and good amount of investment in a variety of Al related projects by the European Strategic Programme of Research and Development in Information Technology (ESPRIT). Quiet amount of AI related applications in the 80s were towards static development.Recent trend analysis focused more on machine learning, with research geared towards improving decision tree learning algorithms, case-based reasoning (CBR), genetic algorithms (GAs), neural networks (NN) and artificial immune systems.

Growth of AI

[5] Artificial Intelligence is seen as a potential general purpose technology which might raise productivity and make way for the creation of new products or the entry into new markets. Contrary to it AI may be over-hyped or it is too early to have a strong and meaningful impact on industries. AI is seen as a driver for Productive Growth. Technological innovations usually aim at streamlining operations and rising productivity. Once it involves AI, the technology will increase productivity in a minimum of two ways i.e., Firstly, AI will probably replace human labour for some cutting per-unit labour prices. Secondly, AI will increase efficiency through higher precision and decision-making. AI has the potential to drive the product innovations by enhancing forecasting and minimising the uncertainty of exploration.[6] Recent advancements in computing capabilities have led to rapid increase in artificial intelligence (AI) technologies like voice recognition, natural language processing and machine learning. Mostly interest in intelligent based products supported by AI technologies is also increasing. Intelligent based products are physical objects which has the capability to take autonomous action and make decisions based on interactions with the environment. Intelligent based products can be seen as innovative software based products which has an understanding of the factors affecting the behavioural aspects of using AI-based intelligent products.

AI in India

[7] Indian government is giving high priority on promotion, development and adoption of AI as it has the potential to make life much easier. In 2018, Union Government of India has allocated substantial funds towards research, skilling and training in new technologies like AI which is 100% increase from previous investment. Digital India initiative which is the flagship programme of Union Government aimed at transforming India into a digitally empowered society and knowledge economy. Digital India initiative is providing infrastructure as the core usage for each and every citizen and incorporating these in governance leads to empowerment of citizens. Using the Digital India initiative, funding towards research, training and skilling has increased rapidly for enhancing the new technologies such as AI.

[8] For India, AI has the potential to expedite progress and overcome the traditional roadblocks such as bureaucracy and poor infrastructure.AI finds its applications in practically every sector including lawenforcement, transportation, agriculture, environmentalconservation, healthcare, banking and finance. The Indian government has recently formed task force to precisely look out for any openings for AI around sectors and guide policies. India has an advantage of having a well-established University system as well as well trained workforce. But as far as the demand and supply chain theory it is far from reality as the skills are not matching for the demand created by developing country. Some of the Flagship demonstrations like Deepmind's AlphaGo program can excite young minds to study deep and pursue careers in AI.

[9] Innovation is key for developing countries like India to develop quality education and create an environment for workforce to compete globally. India has been using Chatbots across wide range of industries and it is a major player in Chatbot industries. When it comes to banking sector chatbots are used to deal with customer queries and FAQ's and provide assistance on banking services and products. Some of the major players in banking industry using chatbots are State bank of India, ICICI Bank and many more banks. In the insurance sector, Chatbots are giving guidance to

customers in filling claims, checking the policies, reminding the due date for the policies and locating the providers and any attractive benefits which is in stock for the customers. Some of the leading insurance companies with chatbots facilities are Bajaj alliance, Ackno world, PNB MetLife.

[10] Some of the major IT companies like TCS, Infosys are into the AI sector developing AI based solutions for their day to day tasks. Infosys has deployed IT support processing technology using AI based solutions. IBM has launched Watson for oncology products in some of the hospitals like Manipal hospitals for treatment of cancer patients. Government is investing on R &D in AI for several industries for quite some time. DRDO has forayed into funding of several AI projects at centre for Artificial Intelligence and Robotics (CAIR) for defence related works and as well as civil applications. [11] Major technological and economical advancements in the field of AI have generated curiosity in man for creating technologically smarter and safer world to live in. Human intelligence with the help of Artificial intelligence have been more productive in developing cognitive competence such as the brain thinking like smart machines with high sensitivity sensors equipped and nervous system. Smart Cities initiative by the central government which uses Artificial Intelligence not only improves lifestyle of people but also makes society stronger and cohesive.

Various Places Where AI is Used
Energy
[12] One of the most critical areas of improvement of future smart cities research is the smart energy domain. More research has to be done related to provision of smart customisable networks and methods enabling use of machine learning and artificial intelligence. Renewable energy is a valuable resource for the future development in the field of climate change. Artificial Intelligence entails new rules for organizing new activities and respond to new changes. It is very much required to develop energy infrastructure in order to be ready and face challenges that may affect the growth of the sector and affect the revenues.

Financial Sector
[13] Financial industry is way ahead when it comes to creating and adapting to new technologies like Artificial Intelligence right from safeguarding thefts to managing the cash inflow and maintaining detailed logs to customer engagement to solve problems. Some of the major concerns of using AI is that they generally hand bulk amount of data which are very protected and sensitive in nature. In order to safeguard from the cyber-crime companies implementing AI should take keen measures like data protection and firewall protection for the data stored by software.

E- Commerce Sector
[14] Huge revenue is what makes the world go round and e commerce is one thing which is all about producing sales. From attracting new customers to assist them for after sale services, AI will help in complete customer journey process. In present situation, AI is used to give accurate revenue forecasts at a very basic level by providing specific insights to sales trend and it also helps us to locate the most sought item by the customer making it as a popular item. As a result, firms may enhance their resource allocation to provide great pipeline and look at cost effective outcomes for the beneficial of company and to look into the team performance.

AI in Healthcare Appliances
Managing Medical Records and Data
[15] The most appropriate use of artificial intelligence in healthcare field is data management. Gathering information, storing it, normalizing information and tracing its history. This is the main step in revolutionizing the healthcare systems. As the important step in health care is collecting the data, compilingit and investigating the data, data management is the most used application of artificial intelligence. Robots do collect, store, re-layoutandtrace data to provide faster and most consistent access.

Treatment Design
[16] AI is leading to advancements in healthcare treatments, like upgrading the organization of treatment techniques, analysing proper data to provide quality treatment and monitoring treatments. AI has the capability to rapidly and more preciselyidentify signs and symptoms of disease in medical images, likeX- Rays, Ultrasound scanning, MRI, CT scans and eases faster diagnostics of the disease and thereby reducing the time for patients to wait for the results from weeks to merely hours.

Digital Consultation
[17] Healthcare observance gadgets that use AI techniques are presently in great demand all thanks to Covid 19. They are used as remote patient monitoring systems to check parameters on health indicators, such as sugar level indicator, heart rate indicator, patient pulse rate, height and weight, and so on. Wearable smart watches such as those of fitness trackers like Fitbit, boat smart watch, are now rapidly used. AI can be utilized to remotely alarm the patients if any abnormalities are recorded.Smart watchesare used to monitor information associated to health, such as number of calories burned and number of steps walked. This might help patients who seek to reduce weight. AI can boost the confidence of patient's physical state by interpreting the changes so that they can lead a healthy lifestyle.

AI in Manufacturing and Production
Intelligent Manufacturing System
[18] AI is applied within the field of intelligent manufacturing with the help of intelligent manufacturing system. Against the foreground of 'Internet and AI', the intelligent manufacturing system is characterized by indigenous intelligent sensing, cognitive way, interconnection, collaboration, learning, analysis, decision making, controland implementation of humanmachine, environment, and information in the whole system. The intelligent system comprises of a resources/capacities layer followed by ubiquitous network layer then by a service platform and then by an intelligent cloud service application layer for storing data as well as a security management and standard specification system.

Smart Manufacturing
[19] In 2010s, instead of intelligent techniques in manufacturing, we are coining a similar term of "smart" technologies (called "smart AI" instead of Symbolic AI) in manufacturing with the hope to improve the management of manufacturing enterprises in the product life in order to provide more options for customers. The technologies which are used for the implementation of smart

manufacturing range from spectrum of domains, which are ideally termed as the IoT technologies and then many other related terms such as Internet of Services (IoS), Cyber-Physical Systems (CPS), advanced robotics, and Big Data are added to it. These smart technologies are taking main stage in the 2G intelligent manufacturing i.e. smart manufacturing. The increase of IoT/CPS and smart mobiles has made things become so easy and accessible with which the data generated allows accurate mapping.

Cloud Manufacturing Process

[20] Cloud-Manufacturing of additive 3D printing has been in news from thepast 5 years but, addition of AI gave a new thought of innovations and has opened market for innovative opportunities. One of the bestexamplesis a wood-plastic furniture manufacturing business and how AI can be extended more for business opportunities. This can be achieved by taking into consideration the following aspects: Firstly; if the end user chooses certain wooden chair or table design, the system can show various collection of design and the most efficient way for composite materials to be 3D printed so, in this case AI can be utilized as the implementation of the choices for end-customers. AI can commit to ensure that the highest quality is used for 3D printing service and it can also detect any faults in real-time and treat it immediately so that minimal amount of time and material is wasted. It clearly shows that AI will enhance customer relationship and loyalty and also strengthen the brand name by reducing efforts and costs.

AI in Security and Surveillance

[21] States use AI technology to accomplish a wide range of surveillance goals. The three main primary AI Surveillance tools as incorporated by AIGS index are smart city project/safe city platforms, facial recognition systems through AI and smart policing. It also describes about recent happening technologies such as cloud computing and Internet of Things (IOT) networks which are integral part for AI surveillance. More importantly, AI surveillance tools are not a standalone instrument for repression. It forms an integral part of a variety of digital repression tools such as information and communications technologies which are used to survey, intimidateand harass opponents in order to inflict a penalty on a target.

[22] Over the past few decades, unmanned aerial vehicles (UAVs) are an alternative solution/platform, which creates the safest working environments to humans from risky areas or covert missions. With the feature of remotely real-time surveillance, UAVs incorporated with cameras can capture live images or videos or to track targets such as specific areas, people or vehicles.In recent times, UAV surveillance has been upgraded with latest features like self-controlling, hovering, analysis and data processing by integrating UAVs with artificial intelligence (AI). Using AI, UAVs can be tested to perform stipulated tasks by processing large chunks of live images and videos and simultaneously pin pointing the present region.In addition to above features, AI technology is also used in improving the limitations of UAV surveillance systems like storage capacity, processing and analysing capability, transmission bandwidth, which in turn helps in transmitting data continuously and thereby reducing computational cost and increase the accuracy.

[23] Artificial intelligence (AI) is one of thatbranches of Computer Sciencewhich usually dealswith creation of intelligent machines, which can think and function like humans. To intelligently solve present day cyber security issues like intrusion detection and prevention system,

variety of AI techniques which involves machine learning (ML) and deep learning (DL) methods with the application of the concept of natural language processing (NLP)as well as the concept of knowledge or rule-based expert systems (ES) can be used. For example, these methods can be used for identifying malicious activities, cyber-anomalies or intrusions of unknown persons, fraud detection, predicting cyber-attacks in real time.

AI in Education

[24] Digital Technologies have occupied a major part of our day to day life activities be it the way of communication or the way we conduct to the choice selection. As a result, the educational system has also started to change. Now a days due to the pandemic, more and more educational institutions have incorporated digital culture into the curriculum. Most of the educational institutions have Leaning Management Systems (LMS) installed one such example is Moodle. The trend has changed as more and more students started using tablets, and teachers are using innovative platforms such as MS Teams, Google classroom to interact with students. The trend is shifting towards MOOCs courses offered by Udemy, NPTEL, and course era platforms. The increasing graph of active users for MOOC courses shows the increasing demand for these distant learning platforms and some of the courses can be useful to earn a degree from reputed university.

[25] There has been tremendous change in Education Sector with respect to use of AI above the conventional one. For example, AI, or computers with supporting equipment's help us in creating robots which enhance the learning experience of the student from childhood days. Perhaps, Timms pointed out that colleague robots (cobots) or the new age application of robots are working together with teachers to teach children with their routine tasks, including grammar, spelling and pronunciation and are adapting to the students' abilities. Perhaps, the online education, has evolved from simply downloading materials online and to just copy and paste for the assignment just to pass to adaptive intelligent system which enrich the experience to learn.[26] Artificial intelligence is streamlining the education systems in proper strategic manner to provide and enhance the digital learning platform with help of deep learning systems. Some of the factors which are leading to new age technology in education are Interactive graphical representations, enhanced gaming patterns to resolve problems, teaching through virtual mediums, context specific feedback, precision in. Teaching with AI refers to learning using simulating agents and incorporating human-inspired tutoring methods.

Advantages of AI

[27] Artificial intelligence (AI) applications are used to streamline human intelligence for either solving a problem or making a decision. AI gives us the advantages of permanency, reliability, and cost-effectiveness and it also addresses the uncertainty and speed in solving a problem or reaching a comprehensive decision. AI has been applied to diverse real world scenarios as engineering, economics, linguistics, law, manufacturing and medicine, and for a variety of modelling, prediction, and decision support and control applications. One of the most prominent application of AI has been its extensive use in the Internet such as in search engines like Google, Yahoo. AI tools can provide faster decision making by automating the decision making process which intern depends upon the computational time in terms of algorithmic complexity and processor capacity. With the help of data gathering and processing and decision making, AI can provide faster solutions to complex problems.

[28] Artificial intelligence is designed to complete a task faster. Machines would not require any breaks. The important positive point of artificial intelligence is its tireless performance. They can continuously work without having any breaks and they don't even get bored unlike us. If any dangerous task is provided, machines will not suffer from any health issues. In medical field artificial intelligence is used to tackle issues such as tumours, depressions, neurological problems, cancers. To explore the space, we use artificial intelligence. Machines can think logically leaving aside the emotional parts. Human resources are saved as most of the work is done by machines. Some of the examples of Artificial Intelligence in real life scenario is Fraud detection in various banks, navigate to different places using maps precisely, finding directions using GPS.

[29] Artificial intelligence has a number of advantages, one of which is that its judgements are based on facts rather than emotions. It is well known harsh reality that humans are influenced by negative thoughts and emotions. Machines with artificial intelligence do not require any sleep unlike the humans who has to sleep otherwise humans tend to be more tired. Knowledge transfer can be done very easily by AI. Once the information is stored in AI Machine that same matter can be imparted to other machines very easily. And lot of time can be saved unlike humans where lot of training should be done to impart knowledge. Humans lack in explaining certain logic and reasoning for some decisions whereas AI can precisely explain the logic.

[30] Criminals are extensively using numerous cyberspaces to promote criminality as information technology advances. The banking and Financial industries are trying to utilise this Artificial Intelligence technique to eliminate this cybercrime and cyber threads.AI offers various techniques to the banking sectors to increase their prosperity and trust among customers. In order to preserve trust proper transparency in AI should be maintained. Artificial Intelligence tools provide us the information on customers interest and behaviour. Robo-advice is a computerised platform that is managed by artificial intelligence. Artificial Intelligence in banking sector is also used to safeguard the personal information.

[31] Artificial intelligence (AI) has the potential to revolutionise medical treatment process. Precision medicine, population health, and natural language processing are among some of the fields of healthcare and medical practise where AI has been investigated. The use of artificial intelligence in computer vision has created wonders in medical field. As a result, AI is been investigated to work in different disciplines such as radiology, pathology,ophthalmology, and dermatology. The availability of enormous digital datasets is enhancing AI's progress; deep learning algorithms use these datasets to teach themselves to execute a task.

Challenges or Disadvantages of AI

[32] The following are some of the significant drawbacks of Artificial Intelligence(AI) in our day to day life. It can be misused sometimes which leads to mass scale destruction. Program mismatch occurs when commands are not followed due to which human jobs gets affected leading to delayed results. With the increasing use of AI humans are losing jobs which create unemployment to youths. The working and creativity of AI depends on programmer who sets the clock and the instructions to work. Due to these easy technique's youth become lazy and creativity is lacking in them which affect them in later stages. Creation of AI requires lot of time and money has to be initiated. Technological dependencies are on the rise due to AI.

[33] It is difficult to design machines since lot of necessary equipment is required and they are too costly.Creating, rebuilding, and repairing of machines can be extremely expensive in terms of both money and time.Robotic repair should be used to reduce the amount of time it takes for humans to fix things, but at the cost more money and resources.Robots can cause severe unemployment to youths if they replace jobs that humans can't do.If operated in the wrong hands, machines can bring havoc situation This is one of the most fearing aspect for humans. With its applications automating the majority of the job, AI is making humans lazy and the thinking ability has drastically changed.Human interference is getting less as AI is replacingthe bulk of repetitive chores and other duties with robots, which might present a serious problem. If the situation will be the same then every company is aiming to replace the least skilled employees with AI robots which can perform similar tasks more efficiently.

[34] Despite the fact that the government and schools give high priority on incorporating artificial intelligence into business English education, most of ideas are executed at the professional level.The fundamental reason is that when universities create talent development programmes, artificial intelligence awareness and ability training is not fully integrated into vocational education, which has hampered and hindered the development of professional talent. Innovation and entrepreneurship education will be difficult to progress smoothly if the artificial intelligence training goal is not incorporated in the professional education plan.

[35] The cost of maintenance and repair of artificial intelligence is one of the major drawbacks. To satisfy the changing requirements, the software must be updated on a regular basis without any bugs in them. In the event of any failures the repair cost can be too costly. Bugs are a major drawback in case of any application. While giving complicated task to AI we should keep in mind that any time the computer may breakdown. A little arithmetic error can lead to a series of subsequent issues. This can potentially result in the loss of critical data that is processed by a machine. If robots begin to replace people in every field, this could result in job losses. Furthermore, a person's mental ability may be harmed when the requirement for intelligence and multitasking decreases. Military robots can prove to be harmful to mankind if they are gone to wrong hands.

[36] All of this being said, one of the most serious issues with AI development is that it will soon begin to replace people in all fields, resulting in a high percentage rate of unemployment, depression, crime, and poverty. In addition, some industries always require the human touch, and there is a growing view that machines will never be able to completely replace humans. One example of a job that people believe machines will never be able to do credit to is the loving behaviour of nurses in hospitals and the caring behaviour of humans to other mankind.

Conclusion

In this paper, various aspects of Artificial intelligence have been discussed which gives us the insights of the history of AI and how AI has the potential to grow more. How countries such as India are benefitting from the application of AI has been discussed. Artificial Intelligence has its applications in each and every industry wherever automation is used. Various Applications of AI from each and every industry has been given as an insight in this paper. The pandemic has created a boom for the use of AI in healthcare sector. One of the most sought application of AI in recent pandemic times is in the use of AI in Education sector. Students became habituated to use of online learning platforms and online assessments. As each and every technology has its pros and cons AI is

no special. Various aspects of pros and cons of AI have been listed out in this paper. AI technology is that kind of technology that if it is with safer hands then it can create wonders and if it is in the hands of wrong person it can cause huge destruction. So, it depends on us as to how meticulously we use this booming technology for our betterment not for our deterioration.

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ARTIFICIAL INTELLIGENCE- THE BEGINNING OF AN ERA

AKSHAT BHAGOTRA
M.Tech Integrated Computer Science
Email ID: akshat.bhagotra2021@vitstudent.ac.in

What is Artificial Intelligence

[1] Computer science is a vast domain with a lot of potential and Artificial Intelligence is a subset of it. It is highly improbable that a person has never come across the term 'Artificial Intelligence' but is highly probable that a person does not have any knowledge about it. [2] Artificial Intelligence (AI) is a challenging concept to understand. The word is made up of two parts, 'Artificial' and 'Intelligence.' 'Artificial' in artificial intelligence, without a doubt relates to its invention. AI is a domain that helps to invent machines that can work and think like a human. It is a piece of essential machinery that helps everyday social existence and activities.

History of Artificial Intelligence

[3] Earlier breakthroughs in all domains have had a significant impact on AI and its roots can be traced back to philosophy. Information-based frameworks, hypothesis demonstration, interpreting different languages and affiliated memory were some of the early breakthroughs.

[4] John McCarthy was the first one who invented this term in 1956 and the world was introduced to Artificial Intelligence. This grabbed the eye of specialists and became a focal attention. In the subsequent years, many different software and algorithms were tested to mark the beginning of a new era. Some of this software is used to date. It was considered that anything a person can do, machines could do it better but later on, scientists concluded that developing such a machine is next to impossible. So, in today's time, artificial intelligence is regarded as a machine that makes a human's life easy. The goal of Man-made Reasoning research isn't to create a robot that can think like a person, but rather to use computations, heuristics, and methods inspired by how the human brain solves problems.

Artificial Intelligence in India

[5] India contributes to approximately sixteen percent of the human population. The fate of India lies in its people. To become a global superpower, India has to revolutionize. AI is highly essential for advancement and reaching new heights. If it is implemented effectively in day to day lives, it will hugely impact the GDP growth of our country. Not only it will eliminate the obstacles but it will also lead to development at a faster rate. [6]India's goal of becoming a global superpower rest on artificial intelligence. The Government of India has understood the assignment and made the adoption of artificial intelligence its topmost priority. The Government's initiative of Digital India is the first step towards its goal. The Government also ensures that the technology is not only made for India but made in India as well. The journey is long but well within India's potential.

Various Fields Where Artificial Intelligence is Used

[7] AI has revolutionised the field of computer games.Imagination and reality can no longer be differentiated. The graphics and animations are highly complex to develop and execute, yet with the help of AI, it's a walk in the park. The machine governed characters are highly intelligent and

possess a new level of difficulty for the player. The games nowadays are highly appealing and have transformed the gaming experience of its players. [8] Having control of lights, door locks and room temperature of one's home with the help of a button was never heard of. Yet today it is not a dream anymore. AI sure has made life easy and it has become highly advanced as devices like Google Home and Amazon Echo is s a part of every household now. One of the most beneficial AI-powered products is smart cameras. With the associated Smartphone apps, you can track your location.The virtual assistant has made life easy by providing solutions to complicated questions, providing guidance, and delegates command to various online services using its inbuilt voice command. Data mining is a rapidly expanding field. The procedure entails processes such as organising and transforming data must be completed prior to mining. Data mining is the process of applying intelligent algorithms to uncover patterns and correlation between variables in a huge data set. In the investment sector, AI advisors are growing more popular. Financial guidance and portfolio management are provided by machines who interpret data and provide desired outputs without involving humans. Portfolios are designed by the AI using algorithms based on the buyer's financial limit and aspirations. It can manipulate its portfolio based on the market situation.

[9] AIR OPERATIONS DIVISION is finding the use of AI very beneficial. The data from the simulated flights are interpreted with the help of AI which in turn provides desired outputs. The computers take into account every single detail be it air resistance or a flock of birds to provide the best training to future pilots. They generate scenarios with the highest win percentage. AI algorithms can process the data and deliver the best manoeuvres to the pilot, as well as eliminate manoeuvres that would be difficult for an average human being to do. [10] AI plays a huge role in Intensive Care Units (ICU) and Operation Theatres because of the abundance of data available. A large number of intelligent machines have been innovated in the last few years that act as subordinates to surgeons by monitoring the patient's vital signs. Incorporating these machines into the ICU has increased the rate of survival.

Growth of Artificial Intelligence

[11] Artificial Intelligence is impossible to avoid. It is all around us from the news to everyday conversations. It is used in almost every sector known to man be it in health care, software development, industries, security and the list goes on. AI is the future and it has already laid a mark. Self-driving automobiles are not a source of fiction anymore. Many algorithms are applied in the realm of diagnosis and medical suggestions. AI has changed the scenario of warfare. With modern arms, GPS trackers and guided missiles, the security of the nation is in perfect hands. Face recognition is another application of AI that is constantly used by businesses and government organisations around the world. The life of an average human being has been completely transformed by Machine Learning. All parts of the world have changed as a result of the use of massive amounts of data and computational thinking. Computerized reasoning is the imitation of human or creature insight in calculating frameworks, with the goal of programming them to think and act like clever beings. Some genuine challenges may be handled more precisely and viably by computational frameworks with changed insight than by deterministic and hardcoded computational frameworks.

[12] Artificial intelligence and intelligent robots make it likely that occupations employing roughly half of today's workers will be automated to some extent over the next decade. The very

long-term mission to foster machines and algorithms with human-like intelligence inches closer to reality. Scientists and researchers have developed algorithms to imitate problem-solving and handle data. These machines have brought an era of computerization improving the exactness of forecasts, speeding up critical thinking and robotizing managerial undertakings.When a machine completes an assignment that would normally require intelligent human action, we consider it to have man-made intelligence. A big part of the new enthusiasm in clinical writing about AI has revolved around the ability of AI models to perceive life systems and recognise pathology on clinical images, often to the degree of master doctors. Hence, it can be used to solve a wide range of challenges that radiologists and their patients face. A number of new solutions are on the market that use AI to help consumers manage finances. An AI application, Digit is one such example. Criteria such as bank balance, salary and expenditure are assessed by this application. AI is also being heavily used in recruitment processes by top agencies. Machines and algorithms filter out resumes and categorize them as per the need of the recruiter. It can also forecast the failure and success of a candidate through its advanced algorithms. Pomato is one such venture that are creating AI for the above purposes.

Artificial Intelligence in Healthcare Appliances

[13] Medical practice is being highly influenced by intelligent machines. Various fields that were earlier regarded as spheres of human knowledge only, are also being influenced by AI applications. The objective of AI is to mimic human analytical functions. It's causing a change in health management, thanks to the ever-growing data and the rapid advancement of analytics techniques. The data is being used and worked upon by AI to generate desired outcomes. Cancer and cardiology are three major illness areas that use AI techniques.The use of machine intelligence in medical services is widespread, with experts, patients and drug companies, utilising it whenever they need it. [14] AI and deep learning have modernised medical practice. Surgeries of brain, heart, kidney transplants and many more are carried out effectively which was earlier unheard of. Analysis of diseases and their proper treatment has been made possible by artificial intelligence. It has also played a major role in assessing a specialist's area of expertise and machine-controlled surgeries. [15] Despite the enormous potential of AI in the field of medicine, its implementation has raised ethical issues. The development of a transparent global governance structure is the need now.

Artificial Intelligence in Manufacturing and Production

[16] The typical manufacturing process of commodities does not allow for customization to meet the needs of individual clients. Factories that support small-batch customized manufacturing modes is on the rise. The traits of a custom-designed clever manufacturing facility are self-perception and critical thinking. The AI technologies allow manufacturing units to extract data and design required business models.Intelligent machines are changing are daily lives at a rapid pace. This pattern does not promote imagination, despite the fact that it has the potential to gradually replace traditional management tasks. [17] AI plays a criticalpart in today's business sector. Researchers and scientists believe that AIholds the key to the future. The world is nothing but a network of networks. Huge corporates are investing heavily in Artificial Intelligence as it can handle huge information, carry out calculations, learn from old data and come to conclusions. Computerized reasoning and massive data are increasingly being used in medicine, whether for prevention or treatment, and are clearly changing the way medicine is thought. Some professions argue that using deep learning and AI to

segregate massive amounts of data will cause a chaos in the field of medicine. [18] With the advancement of technology, mechanical engineering likewise is simultaneously overhauling from conventional methods to highly advanced mechatronics designing. Artificial intelligence is capable of analysing a problem, solving it and generating an output effectively and accurately. It is highly productive. Be it model developing or analysing an image, artificial intelligence is utilised everywhere. It has made the construction of huge skyscrapers and complex buildings very easy.In the motor business, AI is also fostering a level of connection that promises to benefit both producers and end users. Actions can be taken by producers if AI discovers that a function or part of the vehicle is malfunctioning to ensure that the safety of the buyer is not harmed.

Artificial Intelligence in Security and Surveillance

[19] Artificial Intelligence holds enormous potential for improving the fight against crime and bolstering national security. Only the usage of AI can lead to success in the face of inconceivable data build-up and the requirement for speedy decision-making. Evaluating data, drawing conclusions, forensic science, counter-intelligence, investigation and inspection is a stagnant process. Only by utilising AI, can this time be greatly reduced, hence dramatically increasing the possibilities for crime detection, prevention and reduction.[20] Perhaps the field that would gain the most from the arrival of AI is cybersecurity. Artificial intelligence approaches can improve overall security performance and provide greater protection from an expanding variety of complex cyber-attacks where traditional security systems may be inefficient and insufficient. Aside from the numerous benefits attributed to AI in the field of cybersecurity, its implementation comes with several legitimate concerns. Hence, to raise the maturity of cybersecurity, a cyber environment is a must in which human knowledge is merged with AI since neither of them has been successful in this domain. [21] AI has certainly revolutionised the defence structure of many countries. It is utilised as a blanket of protection against assaults for the financial frameworks. They are used to effectively carry out undercover operations and stealth attacks. Drones are very useful to scrutinize hostile areas. Automatic missile systems counter the incoming air attacks. Radars are used to examine enemy movements.

Artificial Intelligence in Education

[22] An intelligent instructor is the biggest category of AI in the field of education. In this category, the highly advanced learning and tutoring systems belong that can be adapted as per one's necessity. Various studies have signified the efficacy of these systems to encourage learning. Examples include Cognitive Tutors that are created to assist with math and science equations whereas the learning of physics, computer and critical thinking is carried out by AutoTutor. Another example from recent times is ASSISTMENTS that is a feature that provides instantaneous assessment to learners while engaged in their assignments and also layout reports for the professors. [23] In today's world, views on the education system have taken a drastic turn. Even though the structure of the school system is sustained yet current views on educating and learning are not limited anymore. It has reached out to casual and relaxed learning. Subsequently, supporting learning twenty-four-seven at any corner of the world is the biggest aim and challenge. For instance, Online Open Courses is a great example. Courses in every subject are available now. Every year learners in huge amounts apply for it. The approachability and learning as a whole have drastically changed. A sixty-year-old retired person is

studying with a post-graduate learner. Many of the major online establishments like Coursera have their certification.

[24] With the wide use of AI advancements for educating and learning, educators are offered opportunities to dispose of dull and drawn-out undertakings and to answer to understudies ideal. Especially, equipment headways, for example, the graphical preparing units and the availability to different programming libraries, have animated the utilization of AI advancements. Besides, generally, the future improvement of schooling will be firmly identified with the advancement of AI. [25] There is an immense range of potential and difficulties for learning and instructing in advanced education. Individuals with handicaps are accessible to assist through human-AI cooperation and communication. They can move instructors to apply them in training to expand students and educators for a captivating interaction. The possibility of cyborgs isn't as distant as we might envision. This opens a new era of advanced education foundations.

Advantages of Artificial Intelligence

[26] Critical thinking and forming conclusions are some of the most prominent features of AI applications. They are highly reliable and cost-efficient. AI is being used for data management, forecasting and decision making in all the sectors such as business, healthcare and law. The most eminent and universal use of AI has been in search engines. Human knowledge is bound to a person whereas AI ensures that data is never lost and can be utilised even after the worker leaves an organisation. AI ensures that the data has an endless life and can be used till it is relevant. AI also has a featurewhich learns and grows from real-life circumstances. For equations that cannot be derived mathematically, AI approaches are highly appropriate. They can easily handle and elucidateall types of data.

[27] The judgements and conclusions made by AI is void of any emotion which is a huge advantage. At times, emotions get the better of humans and affect their decision-making skills. Machines can work tirelessly for days thus removing human fatigue out of the equation.[28] Cybercrimes have become very frequent with the advancement in technology. As a result, organisations are in jeopardy. They are defenceless to well-planned cyber-attacks. So, the development of sophisticated security systems that are capable of perceiving threats and making timely judgments is a necessity. Various applications of AI have become essential in identifying overcoming cyber threats.

[29] Suicide is the reason for approximately 8,00,000 deaths every year. The current method for assessing suicide risk is inefficient and as a result, AI application is being used to identify suicide hotspots at a global level. At a personal level, analysis helps to pinpoint the turmoil faced by an individual and provide appropriate emotional and psychological support. AIis also being employed in the therapeutic management of suicidal patients. [30] Since humans tend to make mistakes, hence the term "human error" was coined. On the other hand, computers if programmed correctly not only save time and are efficient but also do not make any errors. AI make decisions based on fixed algorithms and stored data. Hence, the percentage of errors decreases and precision is increased. Repetitious labour that we do daily can be easily automated with the help of AI and the time saved can be used to increase our productivity.

Disadvantages of Artificial Intelligence

[31] Nanotechnologies, virtual reality, communication technologies, the internet and algorithms keep on evolving in the modern era. AI plays a crucial part in today's business world by planning and executing trading policies. However beneficial they may be, yet concerns are being raised by many researchers. They fear that if the pace of evolution is not controlled, mankind might be in danger and hence they feel that immediate action is required.The benefits of deep learning are incredible, and what this region can offer us is the ability to develop and evolve. AI completes job at a rapid rate as compared to humans.

Work that is difficult and complex is completed efficiently and without any hassle. AI is at a stage where it cannot clarify the principle and thinking behind a particular judgement, and hence blind faith and reliance on machines can lead to severe consequences. [32] Legalistic attacks are a huge threat to models and algorithms developed with the help of Machine Learning. For example, it is easy to trick a model developed by deep learning by manipulating its input signal even if the hacker is unaware of the model. Manipulating and interpreting data is the ultimate aim of AI. Gathering data for reformation and regeneration is a speciality of organisations but it is possible that the data collected might not work for machine learning.

Hence, to utilize modern technologies, organisations need to adjust and modify their methods.[33] Sectors that were previously deemed human-only are now being hugely affected by technology. This shift is due to the ability of machines to perform complicated activities effectively and efficiently without requiring humans to play the role of a mediator. For instance, many machines imitate the artistic work of humans. This becomes a portal to a new world in the commercial sector where mankind's stature comes under threat. This possesses legal questions on the jurisdiction of whether the existing laws can still safeguard the artistic work of humans. It's difficult to maintain the devices because the hardware is very costly. Making, modifying, and repairing something can cost a lot of money and time. Mechanical fixes are possible to save time and the number of people who need to fix it, but they will in turn become a liability.

[34] Every week data in billions is being generated by the health sector and as a result, a method of treatment that is researched upon and proved fruitful takes years to come into everyday practice. Hence, during that time frame, the best mode of treatment cannot be provided to the patients. The main issue is that this huge amount of data is not being managedin a systematic manner. [35]Education is a right of every human being. AI has taken the world of education by storm but the poor and backward countries are struggling to keep up with the changes happening around them. Proper infrastructure needs to be developed in these parts of the world to apply the new growing methods of teaching. Apart from that, professors also need to be properly trained and prepared for productive development.

Conclusion

The study surveyed the basic notion of Artificial Intelligence. The market has been highly revolutionised with advanced technologies and algorithms. AI finds its way in every sector improving the quality of work and saving human power. It is making a huge impact in the fields of medicine, engineering, education and finance. It is highly reliable and has led to rampantgrowth. AI, like a coin, has its cons as well. If not properly regulated, it can wipe out humans from the face of the earth.Even now, it has successfully replaced humans from jobs that were earlier deemed for

humans only. Yet, the advantages of AI applications easily overshadow its negative side. The sky is limitless and AI has the potential to lead us to heights that were earlier considered like a dream.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

URVASHI GARG

M.Tech. Embedded Systems
Email ID: urvashi.garg2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial Intelligence is the science involving development of Intelligent machines during the engineering phase, more specifically the Intelligent program that runs on computers. It is similar to the job of interpreting human intelligence using computers and it is not limited to biologically notable ways. In other words [2] it refers to the usage of Computers & Technology to develop prudent conduct analogous to mankind. The term AI was coined by John McCarthy as the Science behind Intelligent Machines in 1956. [3] AI is the base of numerous concepts like computing, software development and data transmission. Various technologies such as Machine learning, Robotics, deep learning, speech recognition, natural language generation and biometric identification involve use of Artificial intelligence having application in healthcare sectors, business organisations, automotive industries and assembly & manufacturing industries. When the aim of AI is to develop an intelligent program for some specific application at that time it is more in engineering and when study is done to solve a particular problem it is more in research. The goal of Artificial intelligence is to develop an intelligent machine which can think and take decisions like human beings and can solve too demanding practical real world problems. It is the study of how to make computers work at the things at which humans are better. The strong point of AI is the execution of repetitive tasks with intelligence. Researchers try to have two goals even in a single product, one is to build a clever machine and another in the understanding of intelligent behaviour.

History of AI

[4] For the past century, AI has reached a noble peak and quite a few downs. Its hype led to increase in the money investment for its development but soon faced shut down due to unsatisfactory results due to lack of data. AI was just a Science fiction in the 1920s. Later by the 1950s, one step leads to conversion in reality from a hype. To determine whether a machine is intelligent or not a paper titled "Computing Machinery and Intelligence" was published by Alan Turning. Machine passes the test as such that a human judge cannot be able to distinguish the machine from human when indulging in an interaction with it. [5] History of AI started in 1956 at Dartmouth College in New Hampshire, when the subject was proposed as the topic for a conference by John McCarthy as an ambitious goal. Initial models failed and later new targets were set by researchers for themselves. Allen Newell, JC Shaw, and Herbert Simon had written the first functional program based on AI technology. In 1957, one person from IBM named Arthur Samuel wrote the first gaming program. Aim for the 1960s & 1970s was expert system development. Special techniques were applied over a wide range of problems and also during the same period early work started on Neural Networks (NNs). In 1962 the first industrial robot firm "Unimation" was founded. Later several scientists discovered that computers can solve analogies and problems as humans and can understand language. In 1969 one publication argued for concise explanation for NNs which led to a break on research for NNs in 1970. Again in 1980s & 1990s NNs research evolved with reinvention of back propagation learning

algorithms which led to great energy within the AI community. The 1990s evolved as some major changes in methodology and documentation were part of AI research and later turned to the development of Hybrid Intelligent Systems and fuzzy logic. In 2007, IBM created Watson which is an open-domain system for answering the questions, who won first place in a television game show Jeopardy while competing with the human participants in 2011. Apple released Siri voice recognition AI based system in 2010. Amazon released Alexa, the personal assistant in 2015.[6]In Brief, Initiation of AI is mapped to philosophy, novel, & imagination. AI has the influence of Inventions in multiple disciplines like Electronics and Computer Science Engineering, the start of which includes taking inferences by Learning, presenting and acquiring knowledge.

AI in India

[7] In India, AI development is in its initial phase and recently several initiatives have been taken by the Indian government like establishment of AI Task Force , AIFORALL and four committees under MeitY. State government has also taken some initiatives like Face Recognition Attendance systems by Tamil Nadu, CoE-DS&AI establishment by Karnataka and AI system to fight risks in the Agricultural field by Maharashtra etc. According to PwC report , AI emerged as a boon in India with its highest use in dealing with Covid-19 situation. Approx 73% companies in the healthcare & pharma sector adopted AI in this year. [8] AI drives GDP growth and contributes differently in many sectors such as Administration, Defence, Agriculture, Manufacturing, Automotive, Security and Medical. AI startups are venturing in several industries in India. [9] AI approaches like ANN(Artificial Neural Network), KNN (K- nearest neighbour) and especially ELM(extreme learning machine) have applications for forecasting of summer monsoon and post monsoon rainfall of Indian state – Kerala with minimum error. AI technology can provide solutions to many of our concerns like [10] for Metropolitan cities, solid waste management is the prime topic of concern & various AI models can be used in forecasting the amount of MSW being generated which is a prerequisite for an efficient Solid waste Management system. AI based accurate forecasting can lead to the design of an effective waste management system for a city like Delhi in India. [11] AI based models can be used for clinical decisions and health care system management which can also help to reduce cost and resource requirements. AI based accurate forecasting can lead to the design of an effective waste management system for a city like Delhi in India. India is currently working on making Indian cities and roads to be smart such that future technology can be applied easily. Research in the Autonomous intelligent system leads to the development of smart vehicles and autonomous machinery. Intelligent factories, unmanned vehicles and robotics are the major developing areas in the automation. [11] AI based models can be used for clinical decisions and health care system management which can also help to reduce cost and resource requirements. AI emerges as the need of life as it is applicable in every area, and this leads to its massive growth and development from all sides. [5] Two main components of its development are its application and functions which includes virtual assistants that automate our homes and programs for facial-recognition to track criminal's records. According to one research paper Semiconductor industry related to AI work will develop immense growth for next few years, approximately annually about 18 percent which will be around five times larger than that of the non-AI based semiconductor related applications. Applications involving AI require high memory bandwidth as computation in NNs requires data to be passed to multiple cores within very less time, in this way AI will create

new opportunities for research and development in the Memory market. Similar to the Semiconductor area there are many other fields which are in huge demand due to AI.

Various Place Where AI is Used

[3] AI can be found in most of the fields like Education, Agribusiness, Manufacturing and Supply Chain Management, Energy, Public Health and Safety, Banking and Financial Services, Marketing and Customer Care, Defence and National Security and General Utility Services. Major research is going on in the field of Automation and Medical Industry. [12] Some of the places where AI can be used are-

1) Gaming Industry: Most commonly known application is in chess. Though machines are not equally intelligent as humans, they can scan 100s of positions in one second using some algorithm such as Brute force to determine the next move. Nowadays very high graphics games are in the market which have human-like intelligence and are popular among youth.

2) Heavy industries: AI can be used in jobs that can be considered as dangerous for human life and can also increase efficiency as Robots do not require rest. It can reduce the loss of human life in some of the dangerous areas which it is challenging for humans to work in.

3) Weather Forecasting: Nowadays, Neural networks are being used in weather forecasting using past data to predict future weather conditions. It has application in predicting the other natural disasters based on some data.

4) Transportation: [8] AI is used to address some problems like efficiency, safety and compatibility with the environment in the transportation sector. It is useful in the automotive industry for applications such as driverless cars, Air taxi and to determine the traffic on the roads etc.

5)Health: [3] AI has application in various areas in Health such as medical records' mining, treatment plan design, assisting repetitive jobs, forecasting health events such as malaria or dengue incidence, online consultation, medication management, making healthier decisions and choices etc. One of the major advantages of AI in Healthcare is its use in the rural & remote areas where there is a lack of human resources.

6)Education: AI applications in education include answering students' queries, asking questions and giving feedback in return, narrative answers' assessment etc. According to a study, AI will change the education segment within the next 4-5 years. Start-ups in India successfully using AI to enhance education quality.

7)Defence and National Security: Infrastructure & economic sectors like power plants and airports that are permeable to attacks can be protected by use of AI. Jobs like detecting mines, recovering explosives and deep-water probes etc. which are not safe for humans can be performed by robots. In defence, initial use of AI started with UAVs & UGS guided bombs & missiles.

8)Marketing: In order to make products' online order and online services Chatbot is being used. It can be used to order coffee from Cafe Coffee Day or any other product from Amazon store etc and automatically the payment can be done using pre-registered card.

9)Customer Service: With some simple programming, complex chatbots can learn things and can work as your company's agent, they can think and communicate as humans do. They replaced the earlier spam bots. All chat bots are not equal and current live chat bots are the recent breakthrough.

10)Medicine: Application of AI increased with the advancement in the ML and DL. In the future predictive models can have applications for personalized medication instead of algorithm based medicines and can also be used for disease diagnosis and preventive medication. AI can improve workflow, accuracy and efficiency for clinical operations.

AI in Healthcare Appliances

[13] AI technologies have potential to enhance the attributes of life health outcomes for an adequate number of patients and hence it seems hopeful in healthcare in coming years. Main application of AI counts healthcare system management, patients monitoring and coaching, clinical support and automated appliances helping in care and surgery of patients. Healthcare facilities can collect data from monitoring devices, electronic health records and robots helping hospital operations and procedures. [14] AI can be utilized in every branch of medical science and it is also helpful in prostheses designing so It can play a major role in Prosthodontics which is a field in dentistry. It is also useful in diagnosis, management, documentation and treatment planning for patients. It helps Healthcare professionals not to work harder but the smarter one. [15] For all this to happen, Health Organizations need to take important steps to overcome the challenges faced to bring AI into a successful healthcare mechanism. Some of the Challenges are: 1. Less information about the power of AI technology and where it can be applied and where not. 2. Lack of strategies to solve difficulties that organizations are facing nowadays to integrate AI based technologies into existing systems. 3. Less number of well practiced workers for implementation. 4. Lack of useful data for study and training ML based algorithm. 5. AI technology incompatibility with existing infrastructure.

AI in Manufacturing and Production

[16] In-depth unification of AI and advanced manufacturing technologies is represented by new generation intelligent manufacturing which is running throughout the full lifecycle of Product Design, Production and service. As the first generation, AI hardly solves Engineering problems, Intelligent manufacturing first generation was digitally manufacturing. [17] Human–Cyber–Physical Systems (HCPS2.0) started AI Technology in the production and Manufacturing. Two most important approaches to promote the manufacturing's innovation driven development are-1) Innovation in manufacturing technology. 2)Enabling technologies that are applicable in promotion of manufacturing technology leading to development through integration of two technologies. [18] At Latest, with Mega Trending Industry 4.0, AI stepped into Manufacturing Industry. It plays a key role in the data driven industries also but as AI is facing a major challenge in making use of Computer Science and production engineer's theory, so research should provide a way to overcome the gap between Practical and theoretical practices. Among manufacturing, electrical technology driven production is in demand.

AI in Security and Surveillance

Artificial intelligence has a major role in security applications. [19] As the National Security Implications are increasing, the requirement for the role of growing AI technology in Security purposes is also increasing as of prime importance. U.S defence department is also developing Applications based on AI for a wide range of Military Purpose. To speed up the Target identification process Iraq & Syria are already using AI applications. Since the bulk of advancement is going on in

the Commercial sector, AI Technology creates challenges for Acquisition in the military field. [20] In Recent times for Military and Civilian applications, UAVs (Unmanned Aerial Vehicles) enhanced its accessibility and connectivity. Its Camera collects information generally for designated areas. These UAVs have application in security, surveillance, seaport and emergency response purposes due to its capability of handling large data and maneuverability. [21] These UAVs play a major role in healthcare, smart grid, smart city and defence etc. For all these applications, data is exchanged between UAVs through an open and unsecured wireless medium and due to Power constraints it is not feasible for UAVs to take efficient and dynamic decisions during information exchange. To resolve this problem, UAVs layer for efficient data storage and processing pass this collected data to the edge AI layer and store only the relevant data.

AI in Education

[22] AI advances in the field of education as Educators and Learners use its applications. Robots are popular as educational devices. For educational purposes, MIT Lab developed Lego Mind storms kits in 1980. Ozobot & Cubelets are the robots which teach & help learners. [23]Development of Computer Technologies leads to involvement of AIED applications. AIED stands for Artificial Intelligence in Education, it state the usage of programs & AI technologies to provide teaching, learning or decision making in education. [24] It includes all the things from AI driven, ordered instructional & dialogue systems and facilitate one to one interaction between student and computer. [25] According to Chassignol et al.AI has been embodied into teaching, learning and administration & defined as a field of study in computer science to solve problems that require human intelligence and a theoretical framework supporting usage and development of the computer system having ability to perform tasks involving human intelligence.[26] Artificial intelligence is being used in other various applications like adaptive assessments, intelligent mentors, educational & social robots etc. AI with adaptive learning and Management systems is being incorporated into traditional educational tools along with various intelligent features. AIED technologies concentrated mainly on learners' prospective, pedagogy and one to one instruction.

Advantages of AI

[27] AI has incredible benefits. Some of the main Advantages of Artificial intelligence are as follows-

- Complete complex work easily and in a shorter period than a human.
- Less space, size and higher efficiency.
- Discover unexplored things.
- [28] Multifunctional with less errors & high success ratio.
- Work for longer hours than humans.
- [29] Automate repetitive & unproductive tasks
- Reduce working costs using machines instead of human employees.
- It can record & process huge data sets in a short duration.
- Much Easier & Accurate decision making.
- Speedy Response & better service without human involvement.
- [30] Fact based decisions rather than emotions.
- Unlike humans, AI Machines do not require sleep

- [31] Easy to use in Remote locations with limited support.
- Resource & Time Effective.

Challenges or Dis-Advantages of AI

Some of the disadvantages of AI are as follows-

- [32] Equipment is expensive and takes a long Time to develop and repair machines.
- Robots replacing jobs can cause unemployment.
- Machines can lead to destruction if they fall into wrong hands.
- Machines cannot create a bond with humans which is an important attribute when involves Team Management
- Machines can perform only specific tasks for which it is programmed, anything other than that can cause crashes.
- [33] Machines can cause loss of jobs and lack emotional intelligence.
- [34] Heavy cost of maintenance & repair.
- It Can cause a major loss of data if the machine fails.
- It Can reduce Person's mental ability as use of their intellect will diminish
- [35] AI implementation lagging in the field of HRM.
- Limited Proven Technology, Lack of Trust and skilled employees.
- [36] Increases Dependency on Technology, Misuse can lead to large scale destruction.

Conclusion

AI has travelled a long journey and still much research is going on in this field. It is an ever growing area and it has application in almost all the sectors. India has a great opportunity to apply AI technology to solve most of the major problems. One should consider the pros and cons of the technology before designing the system. In future most of the changes are going to happen and AI will have the major contribution in that. The major breakthrough with AI is going to be in the field of Automotive and medical industries in the next two to three years. We will see a completely different picture in the coming years as there are some areas where massive research is going on. World is going to be more artificial and it is upto humans how to exploit the opportunity of AI while minimizing the threat to our existence.

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WHY ARTIFICIAL INTELLIGENCE STANDS OUT?

KANIKA SHARMA

M.Tech Integrated Computer Science Engineering
Email ID: kanika.sharma2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial intelligence is modelled on the idea that the human abilities of intelligence and ability to learn can be simulated by machines. It is being attempted to find how to make machines use language, form abstractions and concepts, solve the types of problems which only humans can solve, and develop themselves. [2] It is the science and engineering of developing intelligence in machines, specifically smart computer algorithms. Computers aim to establish an understanding of human intelligence;however, AI is not limited to methods that can be observed biologically only.

History of AI

[3] The history of AI goes back to 1943 when Warren McCulloch and Walter Pitts created the model of artificial neurons. The connections of artificial neurons provided the possibility of learning following which the first neural computer was created in 1951. In the early 1950s the aim of the scientists remained to initiate scientific computing, growing research, and using computers solely for computational tasks in scientific works. However, in the coming decades this nascent technology was not limited to these applications anymore. It was now used for quantitative analysis in business and finance sector e.g., data collection and processing. AI as we call it today was coined in 1956 by John McCarthy who first gave the definition of AI. Consequently, McCarthy came to be regarded as the father of AI. In the following years the list processing (LISP) language for creating AI software was announced which is till date in use. By 1980's, with the growth of telecommunications, its users expanded from professional experts to general users worldwide.Back then scientists believed creating an algorithm that can perform what is limited to human abilities only is not possible, today we see AI as intelligent assistants that are helping humans in getting their work done faster and easier. [4] L. Frank Baum, who gave us the Wizard of Oz, wrote of several robots and described the mechanical man 'Tiktok' in 1907 as an "Extra-Responsive, Thought Creating, Perfect-Talking Mechanical Man … which Thinks, Speaks, Acts, and Does Everything but Live." Such ideas from science fiction have inspired scientists to go to next level.Chess a game of high intellectual abilities and processing, has played an important role for studying inference and representation mechanisms in the building of AI. In 1997, the Deep Blue program made history for AI when it defeated the world chess champion, Gary Kasparov.Due to its magnificent calculating power, computers in the 1940s were frequently referred to as "giant brains." Although common people perceived robots as intelligent computers, early robotics was more about mechanical engineering instead of exhibition of intelligence.It was only in the past fifty years, thatpowerful computational machines and programming languages have come up which can build experiments of ideas about the meaning of intelligence. In 1950 a paper was published by Turing in the journal "Mind". The paper proposes the possibility of an electronic computer programmed to exhibit intelligence, which also described about the landmark imitation game today known as the Turing's Test. The test turned out to be a turning point in the history of AI.Earlier, programs were limited in size and speed of memory and processors

and by the relative clumsiness of the early operating systems and languages. (Memory management, for example, was the programmer's headache until the invention of garbage collection.) Symbol manipulation languages such as Lisp, IPL, and POP and time-sharing systems, other than hardware development in both processors and memory, was huge advancement for programmers in 1950s to 1960s. Then came the LT program computer that could generate proofs of logic theorems, which unquestionably requires creativity and intelligence. It was developed by Allen Newell, J. Clifford Shaw, and Herb at the 1956 Dartmouth conference.Post 1962, the focus shifted from learning to knowledge representation and solving the problems of the formality and drawbacks of the previous systems. In 1980, AAAI was founded to hold annual conferences for AI communities around the globe.

AI in India

[5] A wide range of advances in AI can be found in diverse fields. However few studies have been done specific to the impact of AI on India's emerging economy. The Indian government is coming up with initiatives like Skill India, Make in India, Digital India to boost the economy and overall development. However, AI is going to directly affect these flagships in the near future. This is an urgent call for the gov to seriously consider AI's potentials for national strategies and its development in order to maximise its benefits. Although India has been greatly benefitted by AI till date, its position in the national strategies stays undefined which is why it is at the risk of losing from the US and China. AI has a lot of potential to boost Indian economy and contribute to national security, butwith the lack of a national strategy, it would difficult for Indiato make the best out of AI's perksat the same time potentially becoming a prey to the negative consequences of AI.NATGRID and Aadhaar are examples of AI powered platforms that have become an important tool in governance across a wide range of public services. However, this comes with its own challenges, likedigital privacy and a code of ethics on limits to using AI which have to be monitored by strict laws.Although India as a nation is far behind in AI revolution, Indians on the contrary have been active participants of this and PIO's are driving and influencing research in the United States and other countries. In order to build an AI ecosystem India has to go a long way to take a huge leap into the AI-driven future. [6] AI is expected to bring enormous changes in people's lifestyle and work. A lot of its applications have been potentially improving the quality of life significantly. Along with an array of opportunities AI brings also brings with ita lot of challenges. Studies have shown the annual economic growth rate of twelve developed nations are expected to double by 2035. However, this indicates a possibility of unemployment. While loss of jobs in the next 10-20 years is estimated to be 35% to 54% in superpowers and developed countries, there's a huge question mark in India's scenario. In times of proliferation across the globe, as the technology is advancing there would be no country thatwould be left free from its impact. However, we can maximizethe benefits and minimize the losses by establishingproper policies andinfrastructure. In view of this, most countries have made their strategies for implementation of AI in order to maximize benefits and minimize losses, whereas India is yet to come up with one.

Various places where AI is used

[7] Artificial intelligence has brought revolution and shaped the contemporary healthcare infrastructure via technologies whichlearn,detect and act; it has crucial role right from the genetic

level in our body (DNA) to robot assisted surgeries.Some the fastest growing areas of healthcare that are powered by AI are: R&D in drugs, healthcare services for patients, and clinical trials. AI has benefited pharmaceuticals with fast drug discovery and development and also in removingdata monitoring which is time consuming. Past studies have indicated that AI-assisted clinical trials can handle a huge amount of data, giving very accurate results.

[8] Growth of AI have given rise to various opportunities to boost various industries such as transportation. AI now efficiently addresses the challenges of growing travel demand, traffic, pollution and safety concerns.AI technologies like Fuzzy Logic Model (FLM), Simulated Annealing (SA) and Artificial Neural Networks (ANN) and many more are helping in traffic management, public transportation, and urban mobility, hence making travel time more reliable for commuters. These can be used in road plans, public transportation, accidents and trafficprediction automatically. It is divided into supervised and unsupervised methods of learning. The former includesRadial Basis Network (RBN), Probabilistic Neural Network (PNN), Decision Tree, etc. while the latter includescluster and layer-wise analysis.

[9] Artificial intelligence has gained importance in bioinformatics, cell biology, and DNA sequencing. With various types of AI algorithms, database management has become common for the researchers. These are helping biologists in accessing and interpreting the vast data collected in genomic research. The evolution in living beings and the intricacy of data has led to these DNA sequencing and bioinformatics methods. Researchers have developed various programmes to search, access and use various databases and imitate biological experiments mostly without mistakes.[10]AI based models have been recently used in study of social and behavioural sciences focussing families and children as part of research studies. It has been positivelyused in increasing the efficacy of prediction of different conditions and their diagnosis, to understand development and functioning of humans, and to improve management of data in variouspublic services. Among the popular AI methodologies are elastic net, neural networks, and random forests, which are used for prediction, boosting conventionalmethods, whereasrobotics and natural language processing are used to understand functioning of humans and improve human services.

Growth of AI

[3] Before it was even coined and defined artificial intelligence has gone through major developments. It started with the neural computer in 1951 that was based on the model of artificial neurons. Later AI came to be known as we know it today when it was defined by John McCarthy in 1956. Initially it was only involved in computational tasks in scientific work in computers. Later when entered in industries its role expanded to data collection and management. Further with the development of telecommunications its access was now available for the general public consumers. A list processing (LISP) language for creating AI software was also developed which is till date in use. [4] The Turing Test in 1950's was major breakthrough for AI which discussed the possibility of programming an electronic computer to behave intelligently, including a description of the landmark imitation game. Earlier, programs were limited in size and speed of memory and processors and by the relative clumsiness of the early operating systems and languages. Symbol manipulation languages such as Lisp, IPL, and POP and time-sharing systems, other than hardware development in both processors and memory, was huge advancement for programmers in 1950s to 1960s. Then came the LT program computer that could generate proofs of logic theorems, which unquestionably

requires creativity and intelligence. It was developedby Allen Newell, J. Clifford Shaw, and Herb at the 1956 Dartmouth conference. A major milestone was reached when the Deep Blue program, an AI program that was built on studying inference and representation mechanisms, defeated the world chess champion, Gary Kasparov, in 1997. As of Today, we see AI as intelligent assistants that are helping humans in getting their work done faster and easier whose applications are ever growing.

AI in Healthcare Appliances

[11]AI has resulted in improvements in healthcare like advancing treatments and strategies. It can swiftly and precisely diagnose diseases in medical results like MRI, CT scans, ultrasound and x-rays. It has been widely incorporated in machines and instruments for monitoring health like post operation heart condition, Patient's height and weight. This particular application of AI is most common in fitness trackers, watches and wearable devices such as "FITBIT". These devices track health information like pulse rate, oxygen level, calories burnt, no. of steps taken, etc. and regularly updates clients and gives alarms in case of any issues. This ensures safety and regularity in patients' lifestyle." Face2Gene" phenotyping uses face recognition and machine learning allowing healthcare workers to recognize uncommon genetic disorders. Facial recognition, biometric identification through fingerprints, uses similar approach. It is also used in keeping a check ondiabetes and its inconvenience, in order to give ease to patients.A major application of AI can be seen in surgeries: Robotic surgeryand robot-assisted surgery. [12] With the evolution in science and technology mortality rate in elderly has decreased significantly further increasing life span. Generally, the elderly is cognitively impaired and need immediate medical attention to avoid any fatality. However due to growing negligence towards the elderly, inexpensive healthcare solutions aided by technology to take care of them and providing them with best treatments. Integration of AI with home appliances with the help of sensors provides the most appropriate solution for regular and remote monitoring of patients' health. In This way elderlies can control various devices, also get immediate attention from the family members and healthcare assistants by notifying them about any unusual change and have frequent access to hospitals. A very common example is Alexa home systems. The development of intelligent beds helps elders to prevent bedsores and falling off from bed by monitoring the position of the person while they are in bed. Another example here would be Google Duplex Artificial Intelligence (AI) that uses a voice-controlled speech recognition system, a personal assistant, to respond to the commands given by the person. Internet of Things (IoT) is used for setting connectivity between the appliances, the user and their network. Its software collects data from the sensors and interprets them to control the home appliances like light, fan, door, alarm (in case of emergency), manage phone calls, television, and other home appliances. In addition,there is an emergency module in which sensors are attached to the patient's body that regularly monitors their health and updates and alerts the caretakers, relatives or friends in case of emergency. [13] In order to offer sustainable and efficient healthcare services to improve the living standard of the people and to render the, e-health system is experiencing a significant development. Patients with cognitive impairment can be monitored and observed through AI assisted home appliances. recent trends can be observed in e-health services in homes that uses energy consumption data which analyses and concludes the constant impedance, constant current and constant power paths for load modelling. It uses IoT for the design of a smart-meter, and fog-computing model for raw processing of energy database. For instance, the implementation platform based on GirdLAB-D simulation

forms accurate models of household appliances and test the machine-learning algorithm for the detection of abnormal behaviour.

AI in Manufacturing and Production

[14] Introduction of AI in manufacturing industry has given a new gear to this sector. With the integration of various technologies in planning, production, assembling, management, systems, data and communication, a whole new model of production has been developed. This has cut down loss of time and profit that was caused due to human error and improved efficiency and increased production output in numbers as well as quality. This has been accomplished through various means such as internet, machine-human integrated systems, machine learning, internet of things, data management, 3D visualisation, digital systems, autonomous systems,and models such as service aimed, easily manageable, mutable, and environmentally efficient. The complete flow of all these means and models puts together a well interconnected system of intelligent production. [15] Unlike old school production, AI provides a huge array of fulfilling the needs of individual customers. AI has added value to production by stimulating by integration of various processing and output technologies like analysis, cognition, control, communication, dynamic processing, data optimization, reconfiguration, and decision making. On these lines AI has developed a model that outstands and competes in the market, and caters to human and environment needs.[16] Distributed Artificial Intelligence (DAI) has been widely used recently in manufacturing industry e.g., effectively incorporating available resources for designing processes in assembling facilities. This approach breaks the overall process into several sub-processes. DAI's units works out the sub-processes to reach a set of conclusions. The fuzzy coordination technique evaluates all the conclusions and comes up with the best solution. With the help of CAD information, practical observation data, production data, and designs, DAI lists down manufacturing plans for ease of assembly processes.

AI in Security and Surveillance

[17] Ever since the 9/11 attacks in the US terrorism has posed a serious threat to the national security of not only the US but other nations as well. In the wake of this, concerned nations have come up with comprehensive policies aimed at national security. Similarly, law enforcement bodies within the nations have also become concerned regarding homeland security and more careful about crimes that cause civil safety. With the help of AI criminal and terrorist data can be collected, processed, and monitored. Concerned bodies utilize this facility for decision making, draw strategies and take suitable actions to monitor, prevent, and fight future attacks. This is carried out by the means of tracking communication and activity to monitor deceptive identities carried by criminals and terrorists.[18] Surveillance has become a widely used means of security nowadays, active in traffic, healthcare, monitoring public activities. However, it is not alone in its execution, AI incorporated surveillance systems has been all over the world monitoring a lot of public activities. AI algorithm has been introduced in Pan–Tilt–Zoom (PTZ) surveillance cameras to increase the field of view in order to improve surveillance quality.Incorporation of sensors, big data analytics and IoT has given rise to smart cities that responds in public security.

[19] AI has played an unprecedented role in response to COVID-19 by the means of surveillance. With the incorporation of molecular and computational techniques, IT and

communication, and big data analytics, AI has helped in handling big unprecedented data on public health. Real-time monitoring of outbreaks, briefing on situations regularly, updating government policies, vaccination services, centres, availability, and statistics.

AI in Education

[20] A major focus AI applications in education would be its instructional role, but it is not the only one. In order to deliver precise instruction, one must first determine what should be taught. This is specifically important when an individual experiences difficulty in learning within the current schooling system. Providing teachers with assistance in theidentification and analysis of learning difficulties is a vital application of AI in education. [21] AIED talks aboutbit-by-bitself-designed dialogue and instruction systems, driven by AI,productive learning, the writinganalysis of students, and chatbots to support students, and AI-driven student-teacher matching that allows student to control their learning. It even includes one-on-one student-computerinteraction,complete school likeexperience, etc. AIED involves2 main parts: development of AI based mechanism thatfacilitates learning, and also understand the process. For instance, by reckoning how students solvemathematical problems and detectmis concepts that even the educators didn't know, researchers and teachers can begin to understand much more about theprocess of learning itself, that can be furtherused in usual classroom methods. [22] Technologies and applications used by AI, like smartrobots, have been increasingly used by teachers and students at both university andhigh school levels. AI advancement provides opportunities for customized learning for students to achieve their individual goals and requirements. Since everybody is independent and has unique learning techniques, abilities, and requirements, it can be challenging to satisfy every student by using conventional education methods. However, with AI, instructors can fulfil everyone's needs on a case-by-case basis. Thus, students can be self-sufficient, encouraged, and engaged, while learning. In addition, AI technologies offer opportunities to learners with learning disabilities to understand better.[23] With the expandinguses of AI in learning as well as teaching, educators can now avoid repetitious and complex tasks and timely addressing students, thus improving the adaptability and customized teaching methods. Hardware developments, like the high-speed graphical processing units and the access to different software libraries, have flourished the applications of AI, specifically with the success of DL research and the implementation of data analytics. Future education will be further embraced and boosted with the advancement of new technologies and computing capacities of intelligent machines.

Advantages

[24] The significant growth and integration of AI in almost every field is evident due to the many perks it offers hence proving its dependability and demand. A major one being: it is quick in problem solving and decision making. Due to which it has significant use in searching the Internet. With an infinite span of data and knowledge available on the Internet AI Makes sure that volatile data and information is not lost remains available. And that knowledge stays there as long the relevant data associated with it doesn't change.The dependability of AI has been proven strong due to its efficiency in simulating intelligence in reasoning as well as problem solving and deriving concepts. Its accuracy in these areas has cut time taken in processing and decision making hence saving lot of time. In addition, this has also cut the time and profit losses caused due to human errors

further saving lot of capital and resources. AI's decision making, even in complex uncertainty, is powered by mathematics. It links the causes and consequences with mathematical concepts of probability and permutations and combinations to reach the best conclusion. [25] AI stands out for diagnosing and detecting faults and thus maintains its position in every sector where complex or simple work happens.For various systems for energy development, a lot of expertise and methodologies are put in which use ai based on knowledge and data driven paths. This ability is favoured as Unlike humans AI displays tremendous learning capacity and incorporating more new algorithms and patterns.

[26] AI has displayed lucrative advantages in the fields of medicine showing improved object sensing and classification performance. Improved detection by AI incorporated systems that help in prevention of colorectal cancer. This has been possible with highly accurate and speedy early-stagescreening. reduces false negative rate (FNR) detects regions difficult to reach.AI provides equipment's and technology to perform highly sensitive and accurate operations based on detection, segmentation of region, classification and extraction. To sum up AI has been instrumental in prognosis of various critical diseases and helped prevent it with its accuracy and speed. [27] In order to decrease the amount of consumption of energy and delay of work significantly operations have been suspended by mobile systems and shifted to AI based on the cloud computing model. This has Shown energy and cost effectiveness in terms of storage resources. For instance, storage of data in cloud-based platforms rather than hard drives saves money and backs up the data. This keeps that data available at the edge reducing time in transferring data. AI shows great adaptability with ever changing environment to give consistent and the best results.

Challenges

[28] AI is at a stage where despite a lot of success it faces lot challenges and scrutiny due to which it hasn't been operated in full swing. One of major challenges faced by it is the loss of employment of unskilled workers caused by it. With introduction of mechanical and robotic systems driven by AI, a majority of humans have been displaced from jobs. Development of AI and the machinery and equipment's associated with it is very expensive due to which a majority of the countries cannot afford the perks of AI. Repair, rebuilding or creating the parts is itself extra expensive and time consuming also and ultimately dependent human involvement. AI is still under development and progress that means it is not 100% reliable, it quite possible that it can perform some errors especially in the area of decision making. Also, if it gets out of control from responsible hands a lot of harm can be caused and malpractices also. Its performance is purely dependent on how to it is programmed. Anything happens beyond its programmed scenarios; it fails to give the appropriate result or it might even crash. No matter how much it develops to match human abilities it cannot develop emotions, morality and feelings and most importantly the actions based on these. [29] With the help of big data analytics and its exploitation AI has greatly impacted organisations worldwide and increased competition amongst the organisations. While AI is booming in e-commerce sector and the advantages carried will be enjoyed by some well off sections of the society others, the majority lose on many opportunities and facilities. This is creating a greater gap in the rich and the poor. To take the simplest example, people who own smartphones and other gadgets have greatly benefited whereas those without these privileges haven't been benefitted as far as possible in fact they have rather been marginalised and left behind, this impact is most prominently visible during

the pandemic. [30] AI based systems lack operation safety, there's no monitoring on risk management, lack of detection of unusual activity and analysis of consequences. This nascent technology should be upgraded in safety standards up to the safety needs.It cannot be left to run on its own and needs to be closely monitored especially wherever big machinery is involved in order to avoid accidents. [31] Although there has been tremendous development in the field of AI, AI is not legally regulated. The technology lacks the legal infrastructure that can regulate activities pertaining to it. Cybercrimes have been rising at a similar rate and the methods of responding to these crimes need to be at par be it the, methods of punishment or prevention measures. For example, there have been big data breaches and manipulation, selling and marketing of people's data, but such cases are not dealt with utmost attention due to which many civilians are losing faith in this technology. This is in turn hampering research in AI and technology.

Conclusion

Artificial Intelligence has grown, advanced and expanded ever since it was introduced. It undoubtedly the fastest growing and developing field of science and technology. This nascent technology has come very far yet it still nascent and has miles to go. Starting from just basic to basic tasks such as computation and data collection it has now reached the point where AI is integrally incorporated in our lifestyles that it difficult to live without. It has proven to be beneficial to almost every field and offered tremendous advantages. All in all, it has made our lives easier and comfortable in many aspects big and small. However, it comes with its own limitations and challenges which is hindering its growth and acceptance by people. I believe although AI was developed to be at par with human abilities it cannot fully reach there as the creators of this magnificent innovation are yet to understand themselves i.e., humankind. So, to sum up AI cannot fully replace humanity but it can be a great assistant to humans.

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ARTIFICIAL INTELLIGENCE

PRAKHAR VISHWAKARMA

M.Tech. Embedded Systems
Email ID: prakhar.vishwakarma2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Nowadays, artificial intelligence is playing an important role in various research and management areas. Basically, the capacity to take knowledge and apply in various complicated problems comes under Intelligence.Artificial intelligence applies in different types of software and machines for encoding, and computing. Artificial Intelligence mainly focuses on perception and computation which is totally different from other technical fields. It is capable of simulating human intelligence to do various tasks. [2] Artificial Intelligence is used to compute and encode operations which is similar to human intelligence. This can be related for making computers understand humans and perform task with their own intelligence. It is actually the scientific understanding of machine operations. There is an infinite level of intelligence to implement AI in various parts of areas. So basically Artificial intelligence is the simulation of human intelligence. Developers are using Artificial Intelligence to perform tasks more efficiently to solve complex problems.

History of AI ?

[3] From last years, Artificial Intelligence has faced many ups and downs.There were many investments on AI for its development by the Government. Unfortunately ,Again AI faced a huge loss. Data has to pass over algorithm and data waited for the system's computational power. There are also various policies implemented by the government in the field of Artificial Intelligence. [4] All the previous inventions on electronics and other technical fields has been motivated AI. There were some big and complicated problems which is now improved with the help of AI. Even there are many areas in which AI is needed the most, and its giving the accurate results.Also Artificial Intelligence is not a new word for researchers rather it's a older technology. When some developers and researchers got stuck in some project, then it got solved by introducing AI .

AI in India?

[5] For India, AI is always improving and updating with the given hurdles. In India, AI is not only giving the solutions for desired problems but it also has a hand on developing it. India is behind among many countries in terms of technological development and AI. But now, its growing drastically.In various companies they are revising there technologies and developing its products with the help of Artificial Intelligence and getting the desired output by the machine accurately. [6] There are many countries which are already having some strategies and policies for AI. India has missed this chance due to first and second industrial revolutions but now it's growing up by the talent available in the country.So now, they are working to develop some new protocols related to AI .There is a need of investment by the government to have some good implementation in various field and technologies with the help of Artificial Intelligence.Also Artificial Intelligence market in India covers various companies providing services and type of industry services are provided to.

India has the large amount of people who are well skilled and can adopt Artificial Intelligence. Here India's startups are developing solutions with AI for different fields.

Various Places Where AI is Used?

[7] The amount of data getting more and more today is getting handled by AI in business and economics. AI is also giving new life style in these areas. Huge amount of information by cloud computing gets handles by AI in some multinational companies. Also in the field of cyber security and surveillance Artificial Intelligence is more commonly used as the data should be protected from all malwares, and other threats. And it has been noticed that Artificial Intelligence is working extremely well. [8] Also, there is an advancement in the field of Robotics. Nowadays,there are many robots deigned by AI with facial recognition and biometric capabilities are used in hotels, ships, airports etc.There are different types of technologies used by various industries by the help of Artificial Intelligence to develop its products. Artificial Intelligence is used in various areas such as healthcare,medical imaging, security, manufacturing, chatbots, autonomous vehicles, live stock and various other fields.

Growth of AI ?

[9] In the upcoming years, there has been a drastic growth of AI. Likewise there has been a research in radiology in medicines. Also, the large number of research and development is going on in the field of radiology. [10] Big data has given a huge transformation through AI for simulating human intelligence by programming their entities. If more complicated problems including real life problems has to be calculated, it has been done by using AI. Also it plays a major role in solving business analytics efficiently. It is more advanced in various complicated areas. Even artificial intelligence globally is now growing and expanding at the higher rate. As it is known that technology is the most important element but Artificial Intelligence is the heart of organisations. Artificial Intelligence has proved that it is an element of the coming digital era. Because of Artificial Intelligence there has been significant amount of innovations and research in specified areas.

AI in Healthcare Appliances?

[11] In present time there has been a huge advancement in AI to work for robotics machines neural networks etc. Now these processes are getting applied in medical fields, healthcare and getting applied by various doctors and technicians. AI is actually influencing the development of healthcare drastically. Sometimes AI referred as AI augmented or AI enabled in healthcare system. [12] There are some efficient machines and applications running with AI for the healthcare system. In order to get AI implementation properly, its not like to be just bring AI into healthcare, But it needs a consistent effort for getting its right implementation.AI will not only brings its tools for applications rather it'll also show its efficiency by updating with the new technologies .AI can be improved by observing and correcting its process, implementation, finding errors in the healthcare system. [13] Artificial intelligence is continuously getting involved in various complicated problems faced by the medical staff. There is a need to notice and understand the AI technologies getting implemented in various applications by the medical team. They should also learn the ways AI getting improved, efficient and transforming with the updating healthcare technologies. Also, Artificial Intelligence in healthcare can perform much better than humans at certain times by diagnosing the diseases and work accordingly better.

AI in Manufacturing and Production?

[14] Nowadays ,computing networks perfectly has a hand on to a new manufacturing systems. Mostly with the upcoming technologies, Big Data is in the trend for AI being evaluated more and deeper. And the advancement of Big Data has recreated the value of AI in Industry 4.0 and many other industries. Industries are planning to transfer the real time application data with processing AI in it into various research industries IOT and many other computing systems. [15] By the use of AI, manufacturing and production has now able to do complicated operations very easily.Nowadays , Artificial Intelligence is getting more developed and involved in smart and intelligent manufacturing. [16] There are various techniques of AI such as machine learning which has already been imposed in many industries for manufacturing. And to get efficient manufacturing and production, it requires a consistent effort as per the global perspective is concerned.Artificial Intelligence gives the vast algorithms which can be used for desired permutations and can create some alternative design. AI can fully automate complex tasks and solve the problems efficiently. Basically Artificial Intelligence takes the data from sensors and then it gets implemented on machines and then executed by certain algorithms to achieve the desired result.

AI In Security And Surveillance ?

[17] Artificial Intelligence has the capability to collect data from the source or the sensors and can be helpful, if some unusual activity is observed. There is a huge applications of AI in security which helps in monitoring, in cyber security etc. Upcoming security 4.0 which includes AI has the large impact for improving the quality for the security in full Nation. [18] Even there are many challenges in AI when it comes to public health surveillance as there is a lot of problems while controlling its measures, dependencies etc. But the advancement in updated AI methods helps for getting proper surveillance by complementing approaches. [19] If the matter of cyber security is concerned ,it has a huge advantage with the help of AI. When all the security systems are down, AI enhances its speed and efficiency for giving better protection. To improve more Security and Surveillance ,it is necessary to involve AI in full cyber environment. Therefore, Artificial Intelligence can identify the risks in the system and can give instant response by detecting malware. It can also detect ransomware attacks before reaching the system.

AI In Education?

[20] Artificial Intelligence is actually has the capability in every domain of social interactions. AI has already produced advanced learning and teaching platforms which is now updating in various fields. [21] Big data and AI has contributed a lot in the field of education. They have also contributed in the field of research ,analytics and innovative technologies. Government is also giving some concern for some education programs. [22] Teachers plays a major role in developing students internally and externally. Recently various AI systems have been developed for teachers via computers designed with new technologies which enhances the students learning perfectly. Artificial Intelligence can enhance students knowledge by sharpening their skills and have a brief context of knowledge, grasping power and speed of learning of each student. It can help education in a global way as it make global classrooms available for the students who speak different languages and who are having some hearing problems or impairments. Artificial Intelligence can help students to get the answers quickly through automation advancement.

Advantages of AI?

[23] Artificial intelligence makes decisions only on desired rules and facts not in any emotions. Machines can do long lasting 24 hrs work continuously without getting fatigue as humans. If some prototype is programmed into a machine, then it can easily be copied to other machines reducing the time. There is no need to copy data step by step, if it is programmed in a AI machine as data can be easily transferred directly without using external methods. [24] AI basically used for solving complex problems and making a decision. It also gives the enhancement of permanency, reliability and technicality for a desired problem. It has been applied for various design and modelling techniques.[25] Also, there are various types of applications which has been told for different types of sectors and organisations. In the field of cataloguing classification and documentation, AI is improving drastically. [26] AI is also used in various banks financial and commercial institutions. As it brings the efficiency and accuracy for these areas. Various problems related to cyber attacks are identified by artificial intelligence techniques. [27] AI is also useful for getting high quality data in real time applications and also useful in decreasing the number of errors in it.Also the data received by AI machine is much accurate compared to the data obtained by some other machine. It has more number of advantages as its an human simulation device.

Disadvantages of AI?

[28] AI has drastically affected the jobs and created unemployment in various sectors. Due to this, all the teenagers are getting lazy . People are getting more dependent on technologies. And if there is a failure in system, it can lead mass destruction. If machine is not programmed correctly, then it may give some irrelevant output. [29] The procedure of learning in artificial intelligence is known as deep learning. And according to the studies, it has been found that human brain works in more efficient way as it's an natural intelligence. [30] If machines are used as incorrect manner, it can cause severe destruction. There is also having the problem of utilization as humans are not involving for the particular tasks. Machines are designed only for specific tasks ,they can't overwrite it. Every organisation or companies are looking for Artificial Intelligence robots to work efficiently and replace the minimum qualified or less skilled people. This is the known mentality of the technological companies nowadays. [31] AI is very expensive in terms of cost and maintenance. It may give addiction as people will be totally dependent on it. [32] People are getting more and more lazy as they are totally getting dependent on these technologies. There are some voice command robots such as alexa which is totally automated making people more dependent. And it even replacing people in the work areas and people are embracing themselves to find new jobs which is leading to destroy humanity. Artificial Intelligence can't get improved with experience. Also there is a high cost of implementation by setting AI computers. There is no doubt that Artificial Intelligence machines can perform better but it does not have any emotions or feeling .So it cannot make bonds with the team or other people in some groups. As Artificial Machines are very costly, the repairing and maintenance cost is very high as it is a complex machine.Also as Artificial Intelligence is updating everyday then the software and hardware associated with it should also get updated with the latest specifications and latest requirements.

Conclusion

AI is basically an complex and overpowered machine which can handle complex operations. It's having the capability to tackle the tough operations and do it easily. Also AI is used to create machines which will not use human intelligence.AI will make people more productive, so people can focus on building the next best thing. **AI analyses more and deeperdata** using neural networks that have many hidden layers. All that has changed with incredible computer power. Also, machines think differently from humans, they can uncover gaps and opportunities in the market more quickly, helping you introduce new products, services, channels and business models with a level of speed and quality that wasn't possible before. AI eliminates friction and improves analytics and resource utilization across your organization, resulting in significant cost reductions. It can also automate complex processes and minimize downtime by predicting maintenance needs. Therefore, Artificial Intelligence is now the biggest need for almost every technological industries.Artificial Intelligence main goal is to develop machines that can do what a human can in terms of reasoning. Artificial intelligence is really now affects productivity, employment, and competitive behaviour in significant ways.

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UNDERSTANDING TODAYS ARTIFICIAL INTELIGENCE

YASHAS KATTE

M.Techintegrated Computer Science Engineering
Email ID: yashas.katte2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] AI is an ability to understand data and use to achieve specific tasks and modify its process by learning from its mistakes.[2]Artificial intelligence is usedto simulate cognitive functions of a human. AI was first coined by Marvin Minsky and Jhon McCarthy in 1956.

History of AI

Artificial intelligence technology is much older than you might imagine. Even there are the myths of mechanical men in ancient Greek and Egyptian myths. Here are some significan goals AI has reached:

[3] In 1956 eight-week workshop called DSRPAI(DartmouthSummer ResearchProjectAI) was the first research conducted on AI and was hosted by Marvin Minsky and JhonMcCarthy. The participants of this workshop are the founding fathers of AI.

There was a significant contribution in AI in 2 decades after DSRPAI like in 1964 ELIZA a natural language processing program created by Joseph Weinbaum. A general problem-solving program was created by Herbert Simon and RAND corporation scientists which could solve problems like towers of Hanoi. AI in early stages it was assumed to be simplified using if-then mechanism. These methods were useful while creating IBM's deep blue (chess playing program).

Soon it was realised these methods doesn't work where there are no clear steps to be followed like image recognition. This marks start of research on neural networks using statisticsthat replicates working of human brain. But slowed down in 1969 due to lack of processing power.

[4] AI will transform develop the decision-making processes, discovery and cure for diseases, Human resources management.

AI in India

[5] AI in India is emerging in the area of policy development. AI's rapid developing and government initiatives make AI sector a must to consider.

The Indian AI services market is valued at $7.8 Bn a 22% increase since the last year. AI is being adopted in Indian banking services, contact less payments. More than 109000personnel working for companies which are providing AI services.

India in positioned at rank 8 in top 10 countries to patent AI algorithms on January 2021.
AI can help in

1. Deciding risks of defendants in criminal sentencing
2. Loan approvals
3. Creation of new polices

This advanced technology is usually reserved for China, Japan and South Korea, but India was visible at AI4IA. At a conference, the Government of India and Abhishek Singh, CEO of MyGov.in's National EGovernance Division, said India "has the potential to become the world," and

the country is "the largest AI startup to build AI-based solutions for the world." It is one of the "countries".

[6] A task force has been formed in India to make sure AI can be part of the sustainable development in the economy.

Growth of AI

[7] There is a significant growth of AI from its past. Now AI in able to give answers ethical questions to write poems thus enhancing web-search and able to beat humans in strategical games to prove its every growing intelligence. [8] AI technology created by OpenAI was able to win in a multiplayer game DOTA 2. This technology had showed the speed of AI to learn the skills to play in day 1 was equal to 180 years for a human to learn!

In terms of market size AI technology, it is expected to grow by 40.2% in just 7 years i.e. 2021 to 2028. AI is being used in every sector possible. Its recent use in making autonomous cars has contributed significantly. There is being huge amounts of investments done of AI technology by governments and tech giantslikealphabet, apple, Tesla cars.

Application of AI in Various Fields

[9] AI has a powerful impact on various fields from science, engineering to weather, business. The implementation of AI in these fields has grown more and more. AI in helped in diagnosing covid by processing CT scan images us in AI technology.

AI's diverse applications ranges from Aerospace, healthcare manufacturing, securitysurveillance, recommendation systems.

AI used to process advertisement analytics has helped the companies reach more consumers. AI in recommendation systems like YouTube recommended videos show its diverse application.

AI in web search alone is a technological marvel. Search engines like google can find relevant answers in no time. Its usage as a tool is still not fully exploited.

AI is being used in diverse fields like Gastroenterology, radio systems

AI in Gastroenterology

[10] Using AI physicians are able to diagnose, prognosis and image analysis of patients. AI in Wireless Communication [11] Using AI, a cognitive radio is made which can sense the environment and use resources to give best quality of communication and also be efficient.

AI in Robotics [12] AI is being used to make use of sensor data of a robot of a environment to take motor actions to complete tasks.

AI in Healthcare Appliances

[13] AI in healthcarecan be divided into 2 parts that is virtual and physical. Virtual includes diagnosing patients to treatment decision-making. The physical deals with robots assisting and performing surgeries, intelligent prosthesis. With help of AI, we can diagnose people with diseases using deep learning by categorizing people to different groups or it can interpret data from past health records. [14] AI was able to diagnose people from further health deuteration. Diseases like Pneumoniawas able to be diagnosed of soldiers having combat wounds between 2007 to 2016.

[15] Challenges AI is to reduce the lag between the medical research and treatment. A cure for disease myocardial infarction was published in a research paper in 1959 but its inclusion in treatment was only done in late 1980s.

AI in has a huge impact of genomic, genomic is the study of mapping genomes.

The computer vision technologies like CNN (Convolutional neural networks) beak the DNA sequence image structure in small parts identify the patrens and retrace it to the original image. This result is thenclass put in to groups by AI to get relevant information about the DNA structure.
AI in healthcare applications of computer visions of medical scans can diagnose and treat a lot disease. Determination of blood flow in echocardiograms to detection of brain bleads. AI in dermatology can classify skin conditions and disease thus ensuring safe and faster treatment to the skin. AI has al able to detectcancer cells in lungs.By just Facial recognition it can detect rare genetic disorders.

AI in Manufacturing and Production

[16] The combination of advance manufacturing process and AI. It has ability to give intelligent perception and analysis. [17] Significant manual effort is taken to link diverse data sources use of AI can significantly help in making manufacturing process efficient. [18] Low cost senser data can be used in integrating manufacturing and business models with help of AI

AI in manufacturing can detect defected products in a production line. In manufacturing quality assurance is given the most priority. Image processing algorithms can now detect the perfecting of the product in the production line.

AI's ability to integrate data collected during assembly can provide immense information of the resources consumed and time taken by each process.

AI can also help in recommending alternative design of products thus solving design problems of a product.

AI in Security and Surveillance

AI in Security and Surveillance

[19] AI in surveillance is rapidly growing to wide range of technologies.About 75% of countries are using AI in surveillance. Using technologies like smart city, safe city, smart policing. [20] Conventional cyber security methods cannot preventadvance cyber-attacks made using AI.

AI is efficient in blocking malicious traffic over the internet with 99% accuracy. [21]Use of AI for surveillance is though effective but a concern for privacy. Facial recognition software used by organisations often share data collected to other international organisations and third-party companies this leads to intrusions of privacy of a person

With help of AI , we can get accurate inventory of all devices in a network and its information thus can detect any leak of data or intrusions.

AI can understand the limits of different security tools used in a network.it can give a report of week dives in a network where data can be breached and also provide asset recovery if stolen.

Products like Gmail are using AI to filter suspicions mails and blocks them.

Automatic speech recognition includes a group of methods that allow the interpretation of spoken language. Speech recognition algorithms ingest raw sound waves from the human voice and process them to enable the recognition of basic speech elements including tempo, pitch, timbre, and volume as well. as more complex features of speech include spoken language, words, and sentences.

More advanced speech recognition algorithms can identify complex features from audiometric data, such as changes in mood or emotional state. Because of the temporal complexity of speech, traditional speech recognition algorithms often rely on discrete models to reassemble meanings from spoken language.

AI in Education

[22] The AIED (Artificial intelligence in Education) are technologies that give a personalized learning to students that is tailored to their needs and give the students gradual or instantaneous feedback according to student's need.AI will also assist policymaker in making sustainable policies in education.

The key challenges today for AI in education

1. Implementation [23] Today's technologies like computers, software which are meant for corporate world is used in so called "smart classrooms". [24] Teacher are not able take pedagogical advantage of AI technologies due to this reason.
2. The digital gap between developed and developing nations has made inclusion of AIED in education difficult thus making it non-sustainable.
3. [25] The technology itself is still new even though there has been more than 30 yrs of research on AI.

A lot of time and resources are being spend on the administrative work of a school. AI can automate the grading processes, give detailed report cards thus helping teachers focus on the teaching part.

Another Advantage of AI is that it can be used to teach thus making education free to use and accessible to everyone. Its ability to adapt to different culture and society can significantly help in the learning process.

With help of AI we can make learning resources dynamic. A every student has different level of understanding, capabilities and talents.

Examples :

Gradescapes in a platform where students can upload assignments its auto graded by AI

CTI (content technologies) are making smart educative conents using AI

Thinkster maths can analyse students ability to analysestudents'sunderstaning in math concepts

Doulingo produces custom content to each individual based his/hers capability to learn languages.

Advantages of AI

[26] AI has board application in the real world. It is used in business to medical, technologies.[27]AI can learn faster than humans by simulating different scenarios. Due to this we can develops best anti-virus software to AI bots in video games. [28] For example, AI is advantageous in fashion designing in design support system, recommendation system. [29] AI can discover undiscovered objects, it can solve complex problems and solve gene codes

AI as tool is still not being exploited. Its applications from education to healthcare,Business, speech recognitions, image processing shows it's a great tool.

AI 's speech recognition can also help the special abled people communicate to the world.

The phrase "human error" was born because humans make mistakes from time to time. Computers, however, do not make these mistakes if they are programmed properly. With Artificial intelligence, the decisions are taken from the previously gathered information applying a certain set of algorithms. So errors are reduced and the chance of reaching accuracy with a greater degree of precision is a possibility.

Disadvantages of AI

[30] AI is a very powerful tool it can be misused that can lead to mass destruction.The development of AI systems cost a lot of resources and time. [31] AI has backbox nature where results cannot be interpreted correctly. [32] AI can replace repetitive jobs for which countries like India will have sever unemployment. [33] AI uses a lot of computational resources thus its limited to today's technology.AI's ability to get relevant data from big data is like the invention of TNT. It can be used to manipulate societies and impose foreign sentiments.

AI's is threat on its own, it can have ability to destroy humanity due to a bad code or "for the greater good of the earth".

AI-powered machines and software will likely begin to pull away from human oversight, setting out on their fateful path as sentient beings. But it will happen much later in the distant future.

The fact that AI systems will become more and more part of our daily lives in the near future raises the question of whether regulation is needed and, if so, how it is needed. AI is objective and undamaged in nature, but it doesn't mean it can't distort AI-based systems. Instead of trying to regulate the for AI itself, the best way to avoid such mistakes is to develop training on AI algorithms and commonly accepted test requirements. Similar to the consumer and security testing protocols used for physical products. The enables stable regulation as the technological aspects of AI systems evolve over time. A related issue is the company's responsibility for errors in the algorithm, or even the need for moral code by AI engineers similar to those sworn by lawyers and doctors. However, such rules cannot prevent the intentional hacking of AI systems, the unwanted use of such systems for micro-targeting based on personality traits, or the generation of fake news.

Conclusion

AI is a powerful tool and is still in developing state. It has wide range of applications. AI is lacking in its implementation. AI should be implemented in smaller applications to verify its reliability. AI will have more impact than the invention of wheel. Its untiring property is a boon of the human kind. In future AI can even detect natural disasters and treating pandemic diseases thus saving lives of millions. Its ideas were seeded while cracking the enigma code during world war 2, saving millions. We can easily say that computers did not gave birth to AI rather the vice versa.

I dream a world controlled by AI. Where from the governments to local level administration is aided by AI. There will no corruption, but only a greater good for the society.

Since AI is a powerful tool, it should be implemented carefully with strong policies that prevent harm to the society.

No one knows if AI will allow us to improve our own intelligence, or will it ultimately lead us to World War III, as if Elon Musk has expressed concern. However, we all agree that this creates unique ethical, legal and philosophical challenges that must be addressed. 25 For decades, ethics has

been related to the trolley issue. It leads to the deaths of many and activities lead to the deaths of a few.

In the world of self-driving cars, these issues are the actual decisions that machines, and thus human programmers, must make.Correspondingly, important factors such as Mark Zuckerberg also made many regulatory demands.

But how do you regulate the technology that is constantly evolving in itself? The is a technology that is fully understood by a few experts, not to mention politicians. How do you overcome the challenge of being wide enough to account for future developments? in this fast-paced world and accurate enough not to be considered AI?

Thus AI effect is indeed extraordinary. Its complete understanding can only be done using AI itself.

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ARTIFICIAL INTELLIGENCE

AMAN AGARWAL
21MCI0012, M.Tech. Computer Science
Email ID: aman.agarwal2021@vitstudent.ac.in

What is Artificial Intelligence?

With the help of AI, a branch of computer science, we can make intelligent machines that can work like a human being, analyze like humans, and were able to make their own decisions. The word artificial intelligence derived from the two words artificial which means something man made and intelligence which is it refers to the ability to think by his own, and complete phrase Artificial Intelligence donates itself as "A Thinking Ability made by humans".

Artificial Intelligence is a wide range field of engineering in which we are creating a device or a machine which will be more elegant with the help of contemporary science, designing and automation. It is avail oneself of electronic component to investigate human's brain power. Intelligence isn't about capability, it's around how effectively and swiftly you determine new things. Although no Artificial Intelligence led technology can accomplish different range of jobs that a human can do but still there are some specialized fields in which these technologies can compete us.

History of AI?

Inventions which are done earlier in electronics, engineering, and many other streams have impact on the AI. At continuous gaps from the 1950s, Experts estimate that it will be a few years before we see Artificial General Intelligence systems that demonstrate the diversity of human behaviour in all aspects, including intellectual, emotional, and social conduct.

Artificial Intelligence is a wide range field of engineering in which we are creating a device or a machine which will be more elegant with the help of contemporary science, designing and automation. It is avail oneself of electronic component to investigate human's brain power. Intelligence isn't about capability, it's around how effectively and swiftly you determine new things. Although no Artificial Intelligence led technology can accomplish different range of jobs that a human can do but still there are some specialized fields in which these technologies can compete us.

AI in India

Artificial intelligence increases the no of tasks that are solved by humans and it impacts economic growth. Artificial intelligence increases his self-learning process that automated most of the process. It can also use complex problem that takes huge time. It also changes the thinking process of humans how they create new ideas, technology, innovation. For coming Artificial intelligence in India there are lots of changes in human life. Like changes in human thinking power, Artificial intelligence reduces human power and completes lots of work in a short time. But if there is one problem that Artificial intelligence takes jobs from lots of sectors, many people's lose their work, it transfers the automation in real life. For India, it is blissful as well as dangerous. It impacts huge effects in a national economy like in large businesses build only targeted indicators, optimizes monetary system, balance with demand and supply, extended free time, decrease manpower. One of the top industrial's country in the world is India. For implementing Artificial intelligence in

industries there are huge changes. Everything will happen the automation, reducing labor costs, for businessmen it is great but for normal common people, it is very dangerous, anytime they lose their works.

Growth of AI

Rephrasing- The parameters that the computer changed, especially during the remarkable growth of artificial intelligence over the past two decades.

Since AI works in almost every field, it ends up being the necessities of our lives. It enables the growth of the AI field. It is the reason for the development of AI explosion.

Various Place Where AI is Used

Rephrasing- Now Artificial intelligence is used in different sectors like gaming, fire stations, etc. Fires take place in different places like residential buildings, markets, shopping complexes, school colleges, etc. in some places fire systems may be already. But it is not advanced. It doesn't detect the fire automatically so after some time the fire spreads in a big area. If Artificial intelligence is there it protects already. Artificial intelligence uses in retail, fashion shopping stores, in retail stores, artificial intelligence uses for payment that firsts the movement of payments. If anyone is taking the things then it automatically identifies the things and after at last when the time of payment it tells the whole costs of all the staffs. For payment, there is no need for men, for entering or existing there is also uses Artificial intelligence. On most parts of every human is psychology. In the infield of psychology, there are a lot of chances for improving the field of using Artificial intelligence. There are a lot of students who are studying in schools and colleges, take the data from them and collect the solid data's using Artificial intelligence, after analysis, the result is come out. It is helpful for taking any decision. Artificial intelligence takes the data from any websites or any servers then makes the model for analysis. The analysts use the data to find any decision and make the decisions. Depending on the decision the officials take the decision. Artificial intelligence helps a lot of helps in psychology, like if any person is feeling lonely then Artificial intelligence talks with him; counseling's what is right or wrong. ForcounsellingArtificial intelligence identifies the problem and then provides the doctor's suggestion.

AI in Healthcare

There are already a number of research studies suggesting that show AI could work better or better than humans in important health care tasks, such as diagnostics. For coming Artificial intelligence there are advanced technologies that are done human life easier. Artificial intelligence uses in dermatology, radiology, primary care, diseases diagnosis, screening, drug interactions, telemedicine, psychiatry, etc. in dermatology, with tie-up deep learning and image processing the images of skin tissues are taken and skin cancer is detected. In radiology, there are huge effects of Artificial intelligence. With computer magnetic resonance Artificial intelligence identifies the diseases. Artificial intelligence regularly checks the anomalies and monitors them from time to time. Some scientists make the algorithms based upon Artificial intelligence to detect pneumonia in patients. Now increasing big data, cloud technologies, Artificial intelligence automatically increase computational resources. For screening artificial intelligence with deep learning identifies skin cancer. On average doctors detects 86% of skin cancer but the machine detects 95% of cancer.

Researchers based on Deep mind made an algorithm to suppress breast cancer. in the primary care unit, Artificial intelligence develops a lot. AI training information is substantially possible for computer perception training via impression annotation for label data formation. The initial target of impression annotation is to build AI models for numerous domains.

AI in Manufacturing and Production

For the small group, a new generation of smart factories is expected to support new diversity and customised production methods. Based on the integration of AI technology with communication, production, and related product technologies, we now propose new models, methods, and intelligent production types, as well as the creation of an intelligent production system and an intelligent production technology system. Modern production and transportation systems are supported by ever-expanding and powerful computer networks. Now advancing technologies are causing the main change in manufacturing. most of the works in manufacturing are the basis of paperwork. A lot of processes happen to like marketing, sales, ordering, packing, administration, distribution, etc. So, in that case, Artificial intelligence helps a lot like manufacture automatically, designing products with help of customer data, automating distribution systems, etc.

AI in Security Surveillance

Surveillance cameras have many uses in newborn cities that include smart traffic, health care, monitoring, and meeting safety requirements.

Artificial intelligence has the potential to transform almost every aspect of national security. Defense, intelligence, national security, diplomacy, surveillance, online security, information, and statecraft economic tools are all applications of AI. The application of artificial intelligence (AI) to surveillance or online security in the context of national security creates a new attack vector based on these data feeds.Information security industries grabbed Artificial intelligence-based technology. To prevent DDoS attacks, phishing, intrusion, vulnerabilities, malware artificial intelligence is used. Another side someone uses artificial intelligence for fun and profit. Building advanced artificial intelligence (vulnerability protected) it will automatically make a new vulnerability. Adversaries exploit these vulnerabilities to alter artificial intelligence systems to serve a malicious end goal.

Now fast advancements in security and surveillance machinery are driven by the interest in embellished monitoring and protection. According to data, comprehensive spending on information security solutions outer-perform $114 billion last year. Machine-based learning and algorithms are used in Artificial Intelligence for video surveillance and security to audit and consider the pictures, videos, and data captured by video vigilance cameras. AI can employ machine perception to evaluate stored data and deliver alarms when the system does not remember the person, suggesting trespassing.

AI in Education

Rephrasing- Talking about artificial intelligence reminds us of a supercomputer, a computer with great processing power, including flexible behaviors, such as sensors, and other skills, that enable it to have human-like understanding and working skills. In education, AI has started developing new teaching and learning solutions, which are currently being tested in a variety of contexts. In the Education field, artificial intelligence changes a lot. Artificial intelligence solves long-term problems like mentoring every student, maintaining every student's data, etc. artificial intelligence

provides a mentor system for every student. If any student faces any problem, then it solves problems quickly. For artificial intelligence, every student can access the global classroom and get twenty-one centuries' skills. With artificial intelligence machine learning and neural networks are also come that is very helpful in education fields. Especially data scientists with deep learning predict new aspects in the education world. They analyze the flawed data, methods of teaching, etc. And when talking about artificial intelligence then practical artificial intelligence is implemented in education. The researcher applies artificial intelligence in electronic page-turners, drill-practice monitors, etc, so that problems are solved for the students, in major changes in a few decades, artificial intelligence makes changes how colleges start curriculum in lockdown and interacts with prospective students and teachers. from taking admission to choosing the courses through their marks intelligence system helps a lot. Data mining systems and artificial intelligence jointly control today's higher education. In schools' artificial intelligence is already started for smart classes and smart studies. The training is also given to the teachers for habituating artificial intelligence systems. The schools are improved very fast in a short time in the lockdown. trial and error methods are common in Indian education. Trial and error may be an important part of learning, but for many students, the prospect of failing or not knowing the answer paralyses them. Some people dislike being put on the spot in front of their peers or authority figures, such as teachers. Due to the ability to cope with trial and error, an intelligent ADP system, designed to assist students, may be far less intimidating. Students studying computer science may be able to experiment and learn in a relatively judgment-free environment, especially if AI tutors provide solutions for improvement. Indeed, AI is the ideal format for supporting this type of learning, as AI systems frequently learn through trial and error.

Advantages of AI

Artificial intelligence (AI) applications assist human intelligence in problem-solving and decision-making. While addressing uncertainty and speed in problem-solving or decision-making, AI offers the advantages of being permanent, reliable, and cost-effective. Engineering, economics, linguistics, law, manufacturing, and medicine, as well as a variety of modelling, forecasting, and decision-making and control systems, have all benefited from AI.

One of the most significant advantages of artificial intelligence is this. By manufacturing an Artificial Intelligence Robot that can do dangerous tasks for us, we can overstep many of humanity's delicate barriers. It can be practiced efficiently in every type of ordinary or man-made disaster, whether it is wandering to Mars, deactivating a bomb, exploring the inmost territory of the oceans, mining for coal and oil.

We will be doing a lot of redundant labor in our day-to-day job, such as writing thank-you emails, double-checking papers for bugs, and so on. We can use artificial intelligence to efficiently automate these tedious operations and even phase out "boring" jobs from human's timetables, allowing them to be more inventive.

Challenges or Dis-Advantages of AI

Rephrasing- AI can be misused and will replace the human jobs with it's automatic work doing capabilities and after all it is a machine sometimes it can have a malfunction too which can may cause more destruction.Artificial intelligence develops nowadays a lot such as ML, speech

recognition, image classification, info retrieval etc. but in real life case artificial intelligence should more advanced. When the effective actions are implemented in real life incomplete knowledge of artificial intelligence may be a little bit problem. To implement next generation artificial intelligence, it can perform deep neural reasoning, instead of brute-force shallow computation. artificial intelligence learns with data driven models that is come from experience. Artificial intelligence is expected to learn and make more efficient decisions, as well as perform tasks that are not routine. Artificial intelligence is already dominating and outperforming humans in some financial corporations, according to studies. While developing an artificial intelligence trading system is costly, once built, it can explore vast amounts of data and produce more and better results, such as quickly picking stocks. artificial intelligence uses a lot in automotive industries. There is some technologies uses for traffic analysis as well as driver status, which mainly focus on lane changing intension on highways. But if there the driver is not cautious then artificial intelligence does not work. The driver intention interface (DII) works in separate modules like traffic context awareness, driver status monitoring, and dynamic measurement modules. The use of artificial intelligence is the most difficult aspect of artificial intelligence, its policy, ideology, character, identity and effects of human. In social media many peoples are attacking to female. Like in twitter there is tradition that if they became a subject of Twitter commentary, were attacked on issues of character and identity that were not raised for their male counterparts.

Conclusion

At last I would say that artificial intelligence opens the new door in every fields, industries. If anyone is facing the real time problem or challenging the new one artificial intelligence solves most of the problem. We consider that artificial intelligencesolves everything but that's not true, artificial intelligence is just transferable of human thoughts in way of the technology. There is so much debate about artificial intelligence, but scientists don't stop of researching artificial intelligence. They use humanintelligence. After understanding complex problems, Aspects of intelligent behaviour, such as problem solving, inference, learning, and language comprehension, have already been implemented as computer programmes, and artificial intelligence algorithms can beat human specialists in very narrow domains, such as recognising illnesses of soybean plants. The big problem for artificial intelligence now is to figure out how to represent the common-sense knowledge and experience that allows individuals to do things like have a wide-ranging discussion or navigate a congested street. Traditional digital computers may be able to execute such programmes, or new machines may be required to accommodate the complexity of human thought. According to some Artificial Intelligence scientists, AI will be competent to achieve everything humans can do, but better. This is a debatable presumption, yet Artificial Intelligence will assuredly outrun humans in certain areas. The first example was a chess computer takeover the world chess champion. If AI develops to the mark where it can do lot exceptional than humans, it will be able to excel in science and technology as well. It may determine that developing a particular field of study is no longer profitable, or that space flight is a waste of time as long as humans on Earth live in starvation and more than a billion people inadequacy to safe drinking water. The majority of future Artificial Intelligence situations are hypothetical, however AI raises experiential concerns. It demonstrates that philosophy and spirituality begin where science ends.

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STUDY OF MACHINE LEARNING AND ARTIFICIAL INTELLIGENCE

S. MAADHAVAN
M.Tech Integrated Computer Science
Email ID: maadhavan.s2021@vitstudent.ac.in

What is AI (Artificial Intelligence)

[1] Artificial intelligence is that a machine thinking, learning, interacting, and responding like humans based on the inputs we have given. Most of the organizations have used Artificial intelligence in many that we cannot imagine most commonly they use AI(artificial intelligence) to solve problems and to complete routine tasks. [2] Artificial intelligence played a vital role in the recent development of computer devices and applications For eg.McAffe, youtube are the recent developments. The recent major developments in Artificial intelligence gave equal and new concepts of AI in both theories and procedures. These recent developments are made by including new principle structures but also make the AI open-minded. Recently the researchers used other research papers on cognitive sciences to improve the Artificial intelligence

[3] There has been a recent development in artificial intelligence that the persons working in that area make their algorithms to make it much simpler and easy to understand. These researches are focused that there should be no confusion to the observer and mainly it should not start any arguments between humans about artificial intelligence that how useful it can be for the starting point in the area of artificial intelligence. well to start the artificial intelligence understands the researcher's inner feelings to give him the most appropriate explanation. There are various sources of research in cognitive science and philosophy that how people define and present explanationsso most people expect a higher level of intelligence and social expectations in the explanation process. To avoid this situation in the field of artificial intelligence it should be built on the recent research papers of cognitive science, philosophy, and social physiology

History of AI (Artificial Intelligence)

[4] AI(Artificial intelligence) is known as the system's ability to learn using external data, these systems use those data to reach particular goals through various research papers and flexible adaptations. The word artificial intelligence is first used in the year 1956 during summer where JOHN McCarthy, Marvin. L Minsky, Nathaniel Rochester, and Claude Shannon from different universities worked together on the project on Artificial intelligence. Based on this a quote is also sculpted in porcelain in 2006 in conjunction with the DARTMOUTH university. These researchers are not only researchers but also they are veterans of the early military

[5] Later in 1965, they planned to introduce AI(Artificial intelligence) so a mathematician named ALEXY GRIGOREVICH formed perceptrons one over another by the inspiration of Neural Networks(NN) of the brain which also looks like today's deep learning architectures formed using principles. But AI went int into hibernation during 1970. In 1980, GEOFFERY HINTON formed a mechanism without Neural Networks(NN) without human intervention and in 1989 Yann LeCUn introduced image recognition AI that is also known as convolutional neural network(CNN), 1992 Bernhard E.boser, Isabelle M.Guyon, and Vladamir N.Vapnik developed the support vector

machines(SVM), in 1991 Sepp Hochreiter developed a sequencing tasks system known as recurrent neural network(RNN), during 1997 HOCHREITER and JURGEN SCHMIDHUBER developed the Long short term memory(LSTM) for speech to text translation.

AI (Artificial Intelligence) in India

[6] Artificial intelligence in INDIA will change the way of our lifestyle due to its adoption and high potential which is also known as the fourth industrial revolution. This will bring both advantages and challenges and also it improves the quality of our life. with the help of artificial intelligence, we can increase the benefits and losses can be reduced. All we need to do is create an infrastructure for AI in our country and form a strategy to implement artificial intelligence in INDIA way faster than the other countries. [7] Various systems and mechanics based on AI can develop INDIA in the right phase at the same time it is a risk to invest a lot in AI in INDIA because we don't know whether the AI is present for the long term or not so we should. First, we need to categorize the challenges and opportunities and we need to take precautionary steps to avoid the failure of AI in INDIA.

Various Areas or Fields Where AI (Artificial intelligence) is Used

[8] Artificial intelligence in Medical:

The introduction of Artificial intelligence in surgery was first introduced during the year 1976 by GUNN they used this system for the first time to diagnose acute abdominal pain. In the last 20 years, there has been a lot of interest and vast development in the development of AI in medicine. Mostly these kinds of systems are used to solve clinical problems. Mostly the developments made in the AI in the medical area are for the clinician to formulate the medicines and diagnose the patient. In a recent development, it is mainly designed to help and support the health care workers to make their duties and tasks assigned to them easier. These systems also help in therapeutic decision-making. To make the system do all these functions it must be included with a system called Artificial neural networks(ANN)

[9] Artificial intelligence in Education:

Various articles and international reports say that artificial intelligence in education (AIED) is one of the most recently developing areas in education. There has been an idea for about30 years that artificial intelligence must be implied in education but educators do not have any idea how to apply it on a broader scale and how it can be used for teaching and learning in higher education. There are a total of 2656 publications identified in the period between 2007 to 2018 in which only 146 articles were included in the final synthesis. But still, in conclusion, they say that AIED lacks the critical challenges and risk, and AIED mainly they have a weak connection towards the perspective and theoretical innovations. During the mid-2000's most researchers used the educational data mining (EDM) process to learn using bigger data sets and the interconnection between the data. On the year of 2011 fourth research field of LEARNING ANALYTICS (LA) emerged which particularly focuses on the area of the learning process and learning outputs with the help of multidisciplinary combinations and research papers based on educational psychology, engineering, and educational sciences. The multidisciplinary background is created with synergies and boundaries of AIED, CSCL, EDM, and la and these also have the synergies and boundaries

[10]]Artificial Intelligence in Marketing:

It almost took six-year to implement artificial intelligence in marketing. Today's computers can think faster and smarter in everything like from mathematical calculations to playing chess it is

smarter and faster than a human. In marketing AI can be applied in the quality inspection that is it does not take much time to analyze the quality of the product as we do, optimizing supply chains that can give a future analysis based on your current stockings in the inventory, Generative design this means that it can create a model and run in a simulation that what will happen if this product is in the real world.., etc

[11] Artificial intelligence in Agriculture:

Artificial intelligence in agriculture is one of the greatest development recently because the population of the world is increasing continuously day by day and at the same time farming lands are also been destroyed and one of the most important things is employment is also increasing. This automation in farming using Artificial intelligence will satisfy both employment and also the hunger of the people. These systems will also protect the crop yield from climatic changes, bugs, weeds, population growth, and food security

Growth of AI (Artificial Intelligence)

[12] Artificial intelligence plays a vital role in the growth of our country's economy and it also creates competitiveness between the leading companies present today. The use of artificial intelligence in the national economy is huge and it has no limits it can be used widely. The process of the companies is that to create a strategic plan with the help of artificial intelligence this creates great competition between the leading companies in the production unit this is the reason why artificial intelligence plays a vital role in the country's economic growth

[13] Recently Artificial intelligence has great importance in the Medical field the major growth of artificial intelligence is that deep learning algorithm plays an important role in health care appliances. The recent growth of artificial intelligence is virtual health assistance, risk analysis, and diagnoses. Using CNN and an intense neural network makes it easy for doctors to diagnose the illness ofthe patient [14] Artificial intelligence takes a major role in Economic growth that is artificial intelligence can be implemented in good production which makes it a lot easier to reduce human labor. AI can also be used in the ordinary production of goods but it may also have an impact on the income shares and economic growth but we will be creating a new and efficient process to create the goods. It also helps create new solutions and machines to solve complex problems introduced to new creative scaling effects. But at the same time, some also fear that AI may lead to singularity by self-learning

[15] Recently artificial intelligence has had greater growth in the area of health care systems. AI can be of greater use in the areas of imaging, health analysis, monitoring, risk analysis, virtual health assistance and further can be used in a wide range. Even if the AI can be used in a wide range in the area of health care system sometimes it costs and becomes inefficiency and mainly the ethical values held by a doctor cannot be included in this type of system and it also has some major problems like dynamic information and consent, transparency and ownership, privacy and discrimination but also the AI is improved to this level at this rate one day it will form a perfect system so that AI can be used in the health care system.

AI in Healthcare Appliances

[16] The recent developments of artificial intelligence in the health care system are the intelligent homes for the elders. This house is specifically designed to take care of the elders who have no one

to take care of them. This house is filled with sensors so that we can always monitor the elder ones remotely. One of the devices in the intelligent house is that intelligent bed this bed to prevent bedsores and falling off from the bed by assuming their sleeping position in the bed. One of the main applications of this house is raspberry pi which will collect data from sensors to manage the home appliances like fans, lights, alarms, manage phone calls, and other home appliances

[17] Artificial intelligence has taken a further step by introducing pressure sensors these sensors are used in our daily life bases like smartphones and microphones but not only that it also plays a major role in the health care appliances like machines to check the blood pressure hearing aids. Recently they developed wearable health care aids which can monitor your heartbeat and blood pressure which are known as smart bracelets [18] AI is used in baby monitoring systems using IoT(internet of things) that is the AI uses vision sensors to monitor the baby's activity through a multimodal system. It also has a baby monitoring software known as a control chart. This control chart process works by attaching a raspberry pi to the vision sensors to collect data and form a chart. When the baby exceeds the control limitit sends the signal to the IoT devices that it alerts the caretaker or the family member of the baby

AI in Manufacturing and Production

[19] The new technological improvements and manufacturing improvements have some attention now that is this era is believed to be the era of the internet and artificial intelligence. The recent development in technology is due to the merging of technology and Artificial intelligence. The manufacturing industry plays important role in the Indian economy and people's livelihood, and national security. The combining of machine learning and artificial intelligence with product-related expertise is one of the greatest manufacturing revolutions in the field of manufacturing and production [20] The manufacturing era now is known as industry 4.0 that is the whole industry is fused with AI, sensors, raspberry pi, etc…. This industry is known as the smart industry because it is built with a well-defined cognitive system. The cognitive computer and deep learning methods play a major role in the development of this industry it includes fault detection, scheduled production. some may prefer production methods more traditionally so they include IoT (internet of things) and Cyber-physical systems these systems may perform creative ideas and also the method that the person wishes to manufacture [21] A large amount of production in the industry is profitable but it does not satisfy all the individual customers but in this era, we introduced Artificial intelligence in manufacturing and production. The AI does not only see the internal contents alone but also give importance to the external needs of the products such as intelligent production, network collaboration, and network service it is known as smart production

AI in Security and Surveillance

[22] Surveillance cameras have a large number of uses like traffic monitoring, health care monitoring, and meeting security and it can be more efficient in newborn cities like one in Egypt known by the name New Cairo but these can be improved to the furthermore efficient state by including AI with a new algorithm to the surveillance cameras by that it will make it to cover a large amount of time and area. The camera that is one with Ai including the new algorithm is known as Pan-tilt-zoom surveillance cameras which are introduced in Cairo

[23] There are always great expectations on safety and protection so we deploy surveillance cameras in the places where we think the danger would occur but this has a limited possibility to avoid the accidents or danger occurring but when we add AI that is the artificial intelligence to the surveillance cameras it may increase the chances to avoid the accidents in a wide range, for example, let us take railways crossing the roads we have normal cameras which records everything but it cannot react on its own or avoid the accident that is going to happen but when the camera is included with artificial intelligence it uses GPU accelerated image to avoid the accident

[24] Everybody gives personal care for security in the place they are living because there is a rapid increase in crime rate in crowded areas or suspicious areas. Today the field of surveillance is far developed than we expected that computer systems can monitor any abnormal activity and tackle it. There is always a large demand for security and safety of their personal belongings and themselves including AI in the security surveillance makes it easier for them like automatic weapon detecting with the help of convolution neural network(CNN) with SSD and RCNN algorithms which are faster

AI in Education

[25] Various articles and international reports say that artificial intelligence in education(AIED) is one of the most recently developing areas in education. There has been an idea for about30 years that artificial intelligence must be implied in education but educators do not have any idea how to apply it on a broader scale and how it can be used for teaching and learning in higher education. There is a total of 2656 publications identified in the period between 2007 to 2018 in which only 146 articles were included in the final synthesis. But still, in conclusion, they say that AIED lacks the critical challenges and risk, and AIED mainly they have a weak connection towards the perspective and theoretical innovations.

[26] Recently there has been an expeditious development in Artificial intelligence(AI) and they are showing a greater interest in the applications of educational contexts. There is a sudden development In the scientific literature which helped artificial intelligence to operate In education more efficiently. A scientific literature study aims to show multiple perspectives in the development of artificial intelligence with the help of relevant grants, conferences, journals, software tools, article trends, top issues, institutions, and researchers to have an ethical development. The research done in this study is contributed to educators, researchers, and scholars

[27] AI is nothing but a simulation of the human brain that is it can take decisions, judgments, and predictions like a human brain. Even though AI is well developed it is considered as a primary project In the area of education and computers because the most challenging task is to create an interdisciplinary nature for the AIED, every disciplinary background proposes a unique challenge [28] During the mid-2000's most researchers used educational data mining (EDM) the process of learning using sets of bigger data and the interconnection of the data sets. On the year of 2011 fourth research field of LEARNING ANALYTICS (LA) emerged which particularly focuses on the area of the learning process and learning outputs with the help of multidisciplinary combinations and research papers based on educational psychology, engineering, and educational sciences. The multidisciplinary background is created with synergies and boundaries of AIED, CSCL, EDM, and la and these also have the synergies and boundaries

Advantages of Artificial Intelligence

[29] Machine learning in manufacturing and production has a great advantage by avoiding the normal production problem which often occurs in intelligent manufacturing systems. It also reduces the cycle time and scraps it also improves the resource utilization more than that ML provides powerful tools to improve the quality of the resources. Machine Learning can handle high-dimensional problems and data [30] Artificial intelligence in agriculture is one of the greatest ideas ever and one of the greatest attributes is that we can use AI in photovoltaic technologies to create an energy sustainable crop cultivation. These photovoltaic cells provide enough electricity to cover most of the needs of plants like watering using motor sowing and reaping [31] Artificial intelligence in education is one of the rapid development in this era that it made cognitive science explainable in multiple ways it makes the students understand the context in a much easier way using IoT and other types of sensors to teach the students in a much efficient way. AI in teaching gives a greater advantage to both teacher andstudent to interact whenever they want. This also makes the process of AIDE simpler and much easier

[32] The artificial intelligence in medicine brought a lot of improvement to every hospital that it made it easy for doctors to identify the illness with separate AI tools like ANN and imaging sensors of the ML which is a great help in the MRI scans and radiology which mainly helps to identify the illness like cancer. [33] To monitor things without any fault nowadays we are attaching the cameras with artificial intelligence because it increases the chances of covering every single area and not only this it also includes the automatic weapon detector using CNN and RCNN faster algorithms

Disadvantages of Artificial Intelligence

[34] AI makes people work easy but it also may lead to the unemployment of people on a large scale, it can also be the cause of less creativity in the products manufactured and most of the creativity of the product lies in the hands of a programmer. There are chances that AI can make the younger generation lazy and once the humans who depended on themselves will nowrely on the technological devices [35] Developing AI not only costs a lot of money but also a lot of time and if the AI cannot handle large dimensional data it may be repaired or corruptedit may cause destruction on a mass scale or it may disobey the orders given by the programmer. It costs a lot of money to repair or rebuild the robots with AI. Involving AI in every single job may cause severe employment problems.

Conclusion

Accordingly, Artificial intelligence is useful in every part of our day-to-day life it can be used in security and surveillance, it can be used in the healthcare systems, it can be used in education and it can also be used in the field of manufacturing and production. But still, artificial intelligence must be improved in a lot of ways if it is needed to be used by every citizen mainly it must be cost-effective because it is one of the major drawbacks for artificial intelligence in most cases. We don't know that whether people are gonna use all the facilities in artificial intelligence so we are still not sure whether artificial intelligence is beneficial or not

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ARTIFICIAL INTELLIGENCE (AI)

RITTIK GHOSH
M.Tech VLSI Design
Email ID: rittik.ghosh2021@vitstudent.ac.in

Introduction

Over the past fifty years there has been global upsurge in the field of science and technology. The need for automation and R&D has grown manifolds. Needless to say, that Artificial Intelligence has been one of the finest and most important inventions of modern time by Alan Turing. The human limits have been leapfrogged with the introduction of AI.AI in fields like education, healthcare, agriculture, finance, etc is going to have magnificent and thumping impact over the next generation. From the style of studying, student-teacher relationships to performing the most critical operation cases inside an OT in a hospital, everything has changed manifolds. In this paper we will be discussing about the history of AI and its need in various sectors. We shall also discuss about the growth of AI in India and its advantages and challenges.

Keywords: *automation, R&D, Artificial intelligence.*

What is Artificial Intelligence?

[1] Artificial Intelligence is the science and engineering of designing intelligent machines particularly intelligent computer programs. AI performs task of using computers to realise human intelligence at the same time not restricting itself to methods that are biologically observable. [2] Artificial Intelligence is made up of two words, Artificial and Intelligence. Artificial defines something that's man-made. Intelligence defines the ability to think on its own. This is why Artificial Intelligence is called "thinking power made by human".

History of AI

[3] The roots of AI can be traced back to 1942. This was the time when a short story "Runaround" was published by the American Science Fiction writer Isaac Asimov. The story was about a robot that was developed by the engineers Gregory Powell and Mike Donavan and talks about Three laws of Robotics: (1) A robot will not injure a human being; (2) A robot must obey the orders from the human being except the orders that would conflict with the first law; (3) A robot must protect its own existence without violating the first two laws. This story was an inspiration to generations of scientists working with robotics, AI and computer science. Artificial Intelligence is classified into analytical, human-inspired and humanized AI depending on the types of intelligence it performs. AI is also classified into Artificial Narrow, General and Super intelligence. All these types have one thing in common which is when AI reaches mainstream usage, it is frequently no longer considered as such providing us the phenomenon widely known as the "AI effect". According to the British Sci-fi writer Arthur Clarke, "Any sufficiently advanced technology is indistinguishable from magic. But when one understands the technology, the magic disappears." [4] In 1950 Alan Turing proposed a definition to decide if software is intelligent. In his theory the intelligent behaviour of software can be matched like a human intellectual efficiency. According to Alan Turing a software is intelligent

when a human being is unaware if he/she is conversing with the software or with another human being. The test was called Turing's test.

AI in India

[5] Artificial Intelligence in Indiais slowly becoming a promising catalyst that will help in accelerating progress and to take giant steps to overcome the barriers such as poor infrastructure and bureaucracy. Artificial intelligence finds applications in nearly almost every sector in India including finance, healthcare, law enforcement, transportation, agriculture, environmental conservation and many more. Recently Indian government has constituted a task force to identify scope of AI across various sectors and guide policy.

[6] *Artificial Intelligence in Healthcare in India:* India has a much less production of doctors every year. With only 50,000 doctors produced every year it's not enough to meet the basic standards. India needs 2.3 million doctors by 2030 according to WHO.The doctor-patient ratio in India will reach toRs. 6.9:1,000 by 2023 fromRs. 4.8:1000 in 2017 with the growth of Artificial intelligenceAccording to the statistical data, the applications of AI in the healthcare sector in India will worth INR 431.97 Billion by 2021. With the capability of AI applications to uplift doctors' efficiency, the challenges like uneven doctor-patient ratio, unskilled nurses and hospital employees will be leapfrogged. [7] *Artificial intelligence in Education in India:* With the help of AI, new styles in teaching-learning solutions is rapidly changing the education system in India. Schools are slowly shifting from conventional to smart education to enhance the learning experiences of the students. Digital platforms are a catalyst here.The Indian education sector contributes to a breath-taking economy that educates 340 million students in 800 universities, 40,000 colleges, 12,000 stand-alone higher educational institutions, and 0.15 million schools (Press Trust of India 2020). The need of the hour is the production of future workforce who are multiskilled and smart professionals and can easily work with machines, data and algorithms for performance growth.[8] *Artificial intelligence in Banking sectors in India: State Bank of India (SBI):* SBI is the largest public sector bank in India with 420 million customers. It has embarked on using Artificial Intelligence with the launching of an AI based solution developed by Chapdex called "Code for Bank" to work on technologies such as predictive analytics, fintech/block chain, digital payments, IoT, ML, AI and robotic process automation. *ICICI Bank*: ICICI bank is India's second largest private sector bank. It has implemented the use of software robotics in business processes across various functions of the company.*HDFC Bank*: HDFC Bank in collaboration with Bengaluru based 'Senseforth', has developed an AI based chatbot named "Eva" (Electronic Virtual Assistant). Just like the other AI based chatbots Eva can assimilate knowledge from thousands of sources and provide with simple answers in micro seconds.[9] Major Indian IT companies including Tata Consultancy Services (TCS), Infosys, etc are also involved in developing AI based solutions to meet their own requirements.

Various Places Where AI is Used

[10] *AI-enabled IoRT*- A regular and thorough survey is important for avoiding rat-borne disease and damage to the inside structures of the built environment. Rodents have this tendency to make false ceilings their best place for long term shelter. But a physical inspection of false ceilings for rodents is quite a stressful and risky job. Hence AI – enabled IoRT framework is an excellent

automated candidate that can keep rodent activity inside these infrastructure in check. It uses an internal robot named "Falcon". This AI robot basically serves as aneffortless connection between the users and the robot. Faster RCNN ResNet 101 object detection algorithm checks the images that are shared by the in-house robots and spontaneously identifies the presence of rodents inside the false ceilings. [11] ***Automation in farming:***The automation in agriculture is one of the major concerns and burning topic of discussion for every country. The requirement for food rises steadily with the rises population across the globe. Across the globe, the conventional farming techniques are not meeting the needs in recent times because of which farmers are using harmful farming techniques that includes the heavy use of pesticides that in succession harms the soil. But problems like crop diseases, insufficient storage, pesticide control, management of weeds, absence of irrigation and management of water can be solved using automation technology. This includes practices like IoT, wireless communication, machine learning, artificial intelligence and deep learning. In recent times the gain from the soil and soil fertility has been improved with the implementation of automation in farming. [12] ***Transportation:***The upsurge in the growth of AI in recent times is resulting in unprecedented opportunities to increase the performance of various industries and business that also includes transport sector. The main challenges in transport are CO_2 emissions that harm the environment, as well as safety concerns. The applications of AI in transportation are working day in and day out to overcome these challenges. Applications of AI in transportation includes Artificial Neural Networks (ANN), Genetic algorithms (GA), Simulated Annealing (SA), Artificial Immune system (AIS), Ant Colony Optimiser (ACO) and Bee Colony Optimization (BCO) and Fuzzy Logic Model (FLM). [13]***Psychoradiology:***In the field of psychiatric research, one of the most important challenge is to interpret the outputs from brain imaging research studies that studied the alterations in the brain of a patient into exact diagnosis at a much primitive stage of illness. Psychoradiology primarily aims for this. Complex AI algorithms can be developed clinically with the use of databases that are collected from huge samples from various health centres.

Growth of AI

[14] Alan Turing explains the use of computational logic as well as the necessity to develop machine learning human level AI within a span of 50 years. In his description of the Child Machine (a machine which learns like a child), he explains how AI might be achieved in three suggestions: (1) AI by programming, (2) AI by *ab initio* machine learning (3) AI using logic, probabilities, learning and background knowledge. [15] ***Growth in Automation:***Automation and AI are constantly evolving business exponentially and helps in economic growth with contributions to productivity.Artificial Intelligence will simultaneously help in addressing societal challenges in heath sectors to climate change as well as it will help in the transformation of the nature of work and workplace itself. Machines will have the power to carry out majority of the workload and can even go beyond human limits. As a disadvantage, this might decline employability. On the other hand, it will increase the employability of skilled workers. ***Growth in Economy:*** AI technologies are rapidly generating value in several products and services. Companies across several sectors use these values in a series of processes to personalise product recommendations, identify fraud transactions and many more. The latest technology in AI helps in addressing clarifications, estimations and clustering problems.According to an analysis, hundreds of AI use cases found that the most advanced deep learning techniques implements artificial neural networks that could account for as much as

$3.5trillion to $5.8 trillion annually, or 40 percent of the total value created by most of the analytic techniques.

AI in Healthcare Appliances

[16] Artificial Intelligence is slowly evolving in medical practice. There has been recent development in the area of digitized data acquisition, machine learning and computing infrastructure. AI applications have evolved into segments that was only under the province of human experts. [17] The aim of AI is to duplicate human cognitive functions that will cause a paradigm shift to healthcare along with the increasing availability of healthcare data and steady improvement in analytics techniques. Prior to the implementation of AI systems in healthcare applications, they were provided training through data which were generated from clinical activities. This includes screening, diagnosis, treatment which helps in learning same groups of subjects, associations between subject features and outcome of interest. These clinical data are often not restricted to the form of demographics, medical notes, electronic recordings from medical devices, physical examinations and clinical laboratory and images. [18] The main categories of applications of AI in healthcare involve diagnosis and treatment, recommendations, patient engagement and adherence, and administrative activities. There are many instances where AI performs healthcare more efficiently than humans butimplementation factors are going tocompromise large-scaleprofessional jobs for a period.India has a much less production of doctors every year. With only 50,000 doctors produced every year it's not enough to meet the basic standards. India needs 2.3 million doctors by 2030 according to WHO. The doctor-patient ratio in India will reach to Rs. 6.9:1,000 by 2023 from Rs. 4.8:1000 in 2017 with the growth of Artificial intelligenceAccording to the statistical data, the applications of AI in the healthcare sector in India will worth INR 431.97 billion by 2021. With the capability of AI applications to uplift doctors' efficiency, the challenges like uneven doctor-patient ratio, unskilled nurses and hospital employees will be leapfrogged

AI in Manufacturing and Production

[19] The applications of AI technology in the manufacturing industry in recent years have been rapid development of core technologies in the modern era of 'Internet plus AI'. This triggers a great change in the models, means and ecosystems of the manufacturing industry.[20] Smart manufacturing (SM) is emerging as a latest version of intelligent manufacturing (IM). This reflects the impact and gravity of smart technologies such as Internet of Things (IoT), Cloud Computing, Cyber-Physical Systems and Big Data on industry. [21] Thereal-life applications of AI include data which is very complicated. For example- in face recognition,the data points are not single numbers but images encoded as vectors of millions of numbers. Several AI systems implement machine learning instead of writing long programs that instructs a system how to carry out a task. According to manufacturing policy initiative 11, ML simply finds patterns in data and uses those data to make predictions about the future. This can be clearly understood from the simple example of a robot learning to calculate the circumference of a circle from the circle's radius. To perform this task the robot collects "training data" by drawing circles of different radii, then it measures the circumference with a ruler and then finds a suitable mathematical relationship between the two. This ability of ML gives an upper hand to humans as a human learner would have used his/her intuition to make a decision between the two but algorithms do not have this "common sense".

AI in Security and Surveillance

[22] AI can be greatly used to fight crime and strengthen national security. In difficult conditions of heaps of information and the requirement for quick decision making, AI can lead to success.[23]AI applications in recent times are playing a vital role in operations in Iraq and Syria, with algorithms designed to speed up the target identification process. But in addition, AI technology is also providing unique challenges for military acquisitions which is mainly why the bulk of AI development is taking place in the commercial sector. [24] Cybersecurity arguably is the field that benefits most from the introduction of artificial intelligence (AI). In contrary to conventional security systems that are slow and inefficient, artificial intelligence techniques has the ability to improve their overall security performance thereby providing better protection from agrowing number of sophisticated cyber threats.

AI in Education

[25] With the help of AI, new styles in teaching-learning solutions is rapidly changing the education system in India. Schools are slowly shifting from conventional to smart education to enhance the learning experiences of the students. Digital platforms are a catalyst here. [26] The several factors that plays an increasingly important role in the way that education is taught and delivered to the student includes Information technology, thorough networking, knowledge- based systems and artificial intelligence, interactive multimedia and other technologies. [27] The application of Artificial Intelligence has caught our attention in many ways, *Automation:*The simplest use of AI providing the most immediate benefit by automating simple tasks such as evaluating, classifying digital assets, schedule, teachers can increase time interacting with students. *Acclimation:* Latest technology is an integral part of such an educational and business environment.*Integration:*AI solution can be integrated with most of the IT initiatives such as intelligent technology and a managed IoT network to provide appropriate solutions to teach students. *Delineation:*The needs of students and the requirement of the curriculum are constantly changing. This ensures that the contents provided by the teachers is relevant and practical and AI driven analytics.

Advantages of AI

[28] Artificial intelligence has a wide usage area in all the sectors with its increasing data volume, developing technologies, more information, processing power and new algorithms. These Artificial Intelligence technologies have gainedincredible improvements in the field of health in recent times. [29] With the evolution of the film industry in parallel to the digital economy, includes the rise of streaming platformsand OTD platforms that is involved in transmitting data from a streaming providerand sending the data to the consumers through internet technologies. [30] In another example,the development model combining AI technology and green environment design can not only integrate and analyse problems at a much higher pace and efficiently but also provide designers with new design ideas that gradually grows traditional environment design. [31] AI includes various tools and techniques that are used for optimization and logical regression along with statistics and probability learning techniques. [32] AI applications are very much applicable to simulate human level intelligence for either solving a problem or taking a decision. AI provides the upper hand for permanency, reliability and cost effectiveness while also addressing uncertainty and speed in either solving a problem or reaching a conclusion.

Challenges of AI

[33] Incapable teaching methods and insufficient professional teachers make it difficult for well-trained students to meet the needs of employers. [34] Some of the main drawbacks of Artificial Intelligence (AI) in our daily lives are:

1) it can be misused leading to mass scale destruction,
2) Programme mismatch sometime done opposite to the command,
3) Human jobs can getaffected,
4) Unemployment issue increased,
5) Creativity is depended upon programmer,
6) Lacks the human touch,
7) younger generation becomes verylazy,
8) engageswith a lot of time and money, and
9) Technological dependency increases manifold.
10) [35] Artificial Intelligence can cost tons of money and time to create, rebuild, and repair.

Repairing robotic parts can occur to scale back time and humans wanting to fix it, but that'll cost too much money and resources.[36] Artificial Intelligence affects 1) transparency, 2) vulnerabilities, and 3) learning even in the presence of limited training data in military.[37] Artificial Intelligence workloads includes a complex calculation that includes data bandwidth and latency. Faster networks are always a key. But many Artificial Intelligence algorithms also have to wait a full cycle to queue up the next set of data therefore latency becomes a factor.

Conclusion

This paperconcludes about Artificial Intelligence, itsbackground, it's applications in various sectors of our society and finally about its advantages and challenges. Artificial Intelligence can be regarded as one of the finest and most important invention of modern times because of the need for automation and robotics in this fast-paced world.

It can be concluded that Artificial Intelligence is the road to the future and ourgrowth as a society depends upon how efficiently and wisely, we are using AI. The implementation of Machine Learning, robotics, IoT, AI in fields like education, healthcare, agriculture, finance, etc can have magnificent impact over the next generation. From the style of studying, student-teacher relationships to performing the most critical operation cases inside an OT in a hospital, everything will change manifolds. With the inception of AI in various sectors the efficiency of any operation will increase even beyond human limits.Artificial Intelligence is a hot topic in India in recent times as most of the automations if not all are depended solely on AI. Because of the recent campaign of PM Narendra Modi's *Digital India*.AI has been one of the major talking points across the country. From an uber driver to a student on a digital educational platform, everyone is using AI- based softwares.AI will become the key to future innovations as currently its helping in creating a smart workforce that is quite compatible with machines, algorithmsand multiskilled. Buton contrary, it can also be concluded that AI can cause challenges too. Mainly it can take away employability. Also, not everyone can afford AI particularly in developing countries like India. Even if one does, the maintenance cost is too high.AI opens the window for cybercrime and its misuse.

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ARTIFICIAL INTELLIGENCE AND HUMANITYARTIFICIAL

LEKKALA TEJASWI
M.Tech.Integrated Computer Science
Email ID: lekkala.tejaswi2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial intelligence is the science of making machines that can think like humans and exhibit human feelings. It is also the branch of engineering in which students learn how to make machines act like humans. Artificial intelligence does not confine itself to the methods that are only biologically observed. [2] One of the fascinating facts of the nature of field of artificial intelligence is that it is surprisingly difficult to define the true meaning of AI. The word intelligence is thus taken as the key word to define artificial intelligence as we know the specific meaning of intelligence. Now the word artificial can be known as something that is not formed naturally or which does not exist readily like human brains intelligence. Therefore, artificial intelligence is nothing but computers working like human brain. In other words, artificial intelligence is created or designed by taking the reference as human intelligence.

Historyof Artificial Intelligence

[3] According to the history of artificial intelligence, AI originates from imagination and philosophical practices. Some of the early ideas of researchers in various fields of maths, physics and chemistry were taken as the base of artificial intelligence. These include simple problem solving and learning, representing what you know, in viewing PPTs and understanding different languages. Building a knowledge seeking system is the core property for the base of artificial intelligence. This article focuses on the problems faced by artificial intelligence in early stages and how we got a complete and new matured phase of artificial intelligence which we are using now-a days. [4] The history of artificial intelligence starts in1963 by Alan M. Turing when he invented the Turing machine which was a breakthrough for the field of artificial intelligence.Then slowly many inventions like artificial neurons and the theory of decision came into the existence.In 1949, Donald Hebb he proved that artificial intelligence can be put into learning. Then later on Marvin Minsky and Dean Edmands invented a neuron computer in 1951.

Artificial intelligence is thus first defined by John McCarthy which interested the readers and other inventors in 1956. John McCarthy also known as father of artificial intelligence then introduced a language called LISP to develop AI software. Soon people thought that computers in future can obtain human intelligence and work like human brain. Now it is realised that we can make machines do whatever humans can do which makes our work easier and simple with the help of algorithms. Many national and international meetings took place and are still taking place for further development of artificial intelligence which can allow new ideas and inventions from people all around the world.

Artificial Intelligencein India

[5] Artificial Intelligence (AI) changes our lives with its developing nature. It comes with advantages, disadvantages and problems which we should overcome with the help of new

technologies and inventions. To improve our life conditions and environment, several new things were discovered. There is a scenario in which we may get or lose jobs due to the introduction of Artificial Intelligence. All the countries have huge influence on technologies like AI but there are more gains than losses across the world. Although many countries started planning on AI, India has not yet started. Therefore, this article suggests few things to implement Artificial Intelligence in India. [6] According to the researches done in India on Artificial Intelligence based on research techniques, there are many new research papers (which cross 7000) on AI were discovered in the year of 2004. This data was collected physically. The average number of authors for each paper are three. The word Artificial Intelligence is the most searched keyword according to this article. Many international alliances are also formed to do research on AI. In India, mostly involved universities are IITs, Anna university etc. Number of researches done on Artificial Intelligence are increasing rapidly across the world.

Various places where Artificial Intelligence is used

[7] We notice sometimes that due to rodents, we get rat related diseases and framework of the place where rats live get damaged. So, we should frequently check ceilings and other places where rats may live but it's not safe to check them physically. A robot whose name is Falcon which is household robot is invented to check the rodent activity with the help of Artificial Intelligence. The photos captured by Falcon are detected automatically by object detection method which is pretty accurate. Therefore, with the help of Falcon we can detect rodent activities using Artificial Intelligence. [8] Artificial Intelligence also helps us in the field of Interactive Storytelling. Ancient storytelling groups are not yet interested in modern storytelling techniques which are based on AI. According to this research paper, Interactive Storytelling system can produce and display stories with the help of Artificial Intelligence. The connection between AI and Interactive Storytelling are given in detail in this research paper.

[9] The detection of fire can save lives and reduce damages. Sensors are required for the detection of fire. Knowing and learning about the techniques and methods of Artificial Intelligence is necessary to make sensors work efficiently. For accurate fire detection, AI based wireless sensors is more recommended than ancient fire detection methods. In this article, few methods of fire detection based on Artificial Intelligence and detection accuracy and rate are given in detail. [10] Artificial Intelligence can also be used in tourism robots to avoid tourist guide repeating the same thing again and again to all the tourists. Robots with AI can help us resolve this problem and give us the accurate information about the place we are visiting. In this paper, the difficulties we need to face and how to overcome them are given which are expected while we using tourist robots based on Artificial Intelligence are shown.

Growth of Artificial Intelligence

[11] ArtificialIntelligence (AI) has huge growth when big data comes into action. Artificial Intelligence is that the computers act or think like human beings. In other word computer can obtain human intelligence. Computers with Programming are more efficient and accurate than the computers which only have fixed data which cannot be altered using and modifying programming. AI has a huge contribution in the world of business in which business can prosper. In different parts of businesswhich are marketing, products selling, customer service etc, fields of AI such as deep

learning and machine learning play a major role. In this cite, there are big data technologies which are used currently or in modern times and which is being used to improve business growth. AI is one of the most growing fieldsin the past few years which has high impact on the growth of almost all fields around us.

[12] Artificial intelligence has a huge impact on growth and development of India in near future. If we make use of AI technology in India then in few years there will be a tremendous change. AI can fasten the progress of India's development like catalyst fastening the chemical reaction. Various fields in India like medical, educational, industrial etc are all going to improve as AI comes into existence according to the researchers. Many problems which may affect human lives and risks taken such as miscalculated infrastructures which may lead to the collapsing of buildings are all reduced due to artificial intelligence. Human errors are all minimized when we use artificial intelligence in different fields. For example, Cancer can be detected in early stage to reduce the risk of curing it in last stage which may or may not save the life of the patient while in early stage it is lot easier to treat it. Therefore, many new measures are to be taken to develop India in which artificial intelligence can play a vital role in all the fields of India. These measures are necessary for the future of India.

Artificial Intelligence in Healthcare Appliances

[13] Machines play an important role in giving the accurate diagnosis results and finding better treatment methods which makes the process involved in the hospital check up faster and easier which saves up a lot of time and helps us save more people. Machines like people learn from previous cases given in the internet and other sources which takes us quite a time when we do it manually. It also reduces human errors such as calculations and spelling mistakes with new updated methods of treatment. Cost reduction is also one of the importance of AI which allows patients to check and contact doctors via online medical records and helps us save travel fee in this pandemic condition. A new technology called Telemedicine can help doctors to assist the patients from far away or remote areas. Cancer detection is also easily done with the machines in early stages which can help us have more time to save a person and high success rate is detected. Therefore, when man and machine are together accomplishing a task then we make big achievements in human health and any other fields.

[14] Artificial Intelligence (AI) which in simple words computer obtaining human intelligence is also used in healthcare appliances. Artificial Intelligence makes our life easier and saves us a lot of time. For example, when we go to hospital for diagnosis, AI can be used for better treatment and diagnosis process. With the help of AI major diseases like cancer, heart attack, and brain functioning can be detected in early stages and cured. AI and Machine learning can save more lives and accuracy of treatment process can also change the lives of many patients across the world. Most of the online diagnosis of patients are also based on AI technology which can be used to contact doctors without going to hospital. Therefore, more lives can be saved than before when Artificial Intelligence comes into action. [15]During the COVID-19 (coronavirus) pandemic, the new challenges came into light in healthcare industry. The digital technologies in healthcare systems are considered outdated and lacking when pandemic came into existence. So, new technologies are needed to overcome healthcare issues to help people stay at home and also receive the treatment.

Many institutions, universities and countries should come up with solutions to overcome the healthcare problems for the patients across the world. Technologies like artificial intelligence and blockchain are used to upgrade the automated or programmed heath care systems during pandemic. AI provides the medical images and efficient treatment for coronavirus or other diseases and also procrastinates the outbreak of the virus in near future. In this article, an overview of healthcare structure or foundation to overcome the challenges in the time of COVID-19 are mentioned in detail. The negative impact on healthcare systems reduces as a patient's needs are fulfilled with the help of technologies like blockchain and artificial intelligence.

Artificial Intelligence in Manufacturing and Production

[16] The concept that robots can do more dangerous and challenging jobs than human beings are used here. Many robots are manufactured in these recent years which has given an economic growth in recent years. The jobs which need a lot of patience and concentration to avoid accidents and miscalculations which may lead to a disaster to be done by humans is now done by robots. This also helps us to avoid loss of human lives in dangerous works like mining, industrial work etc. Countries like China, Japan and United states are investing more on heavy metal industries for the more sales volume of robots. Japan has high density of industrial robots when compared to other countries in the world.[17]Artificial Intelligence has a great impact on production procedure. Artificial Intelligence is growing in all fields but still many companies did not start or set up AI. This article gives us the prerequisites to start the technology of artificial intelligence for manufacturing. These are the fields of technology, organization and environment. From the survey conducted on the manufacturing companies, some companies are set on introducing AI in their manufacture.

Organizational components like company size, automated skills etc have a huge influence on manufacturing of artificial intelligence. According to the information in this article, many manufacturing companies not only use AI at their private but also at their overseas manufacturing websites. In this article, we can also find the factors which are required for establishing artificial intelligence at the field of manufacturing extensively. [18] The field of computer game development is tremendously changed from ancient times. Many online game, mobile games, entrance and automated distribution policies are introduced in the field of games development. Artificial Intelligence plays a crucial role in developing any game. Due the huge changes in games, AI has a keen influence in the production of games. Game AI agents are in charge of maintaining long period position of live games, player society, and real-world circumstances. Game industry produces and opens a distinctive opportunity and solves issues. Therefore, artificial intelligence plays an important role for the production of Game AI builders.

Artificial Intelligence in Security and Surveillance

[19] Artificial intelligence is mainly used in automobile industry for safety. It is because AI will not make incorrect predictions or incorrect decisions while driving to avoid accidents. However, manufacturers need a permission from government to use AI in automobiles as it concerns human lives. Government approves it only after the clear testing of AI software to avoid disastrous situations. The validation of usage of AI in automobiles is difficult and is challenging due to the black box or no safety guarantee behaviour of AI software. We don't know how it will behave in different given situations. Three factors were detected which may not allow us to get the validation

of government and which are considered as the side effects of AI in automobile industry. They are data, model and security related issues. To get rid of these issues we need to conduct various types of experiments and improve accordingly. After a complete and problems resolved AI software RDWs safety assessment process should be done and approval should be given to use artificial intelligence in automobiles.

[20] The mainly used devices for security and surveillance nowadays are unmanned aerial vehicle (UAV) and camera surveillance systems (CSS). These devices also have few drawbacks such as restriction of computers storage and dimensions, surcharge of internet speed and high or low frequencies, analyse and action. For this whole procedure to take place requires a huge amount of energy and time. Some data need not be processed but the device processes them too because we cannot give it our command. There is huge risk of the involvement of human errors too. In the article, they proposed an efficient method to process the data with the help of Artificial Intelligence. With this algorithm or method, we can avoid all the drawbacks of UAV and CSS which are mentioned above. This method can help us remove the data which is not required, camera surveillance, storage dimensions can be decreased (approximately 80%). Therefore, the advantages of Artificial Intelligence in security and surveillance are shown in this article.

[21] In case of an individual committing theft, we cannot use Deep learning which is the part of Artificial Intelligence and which contains Analysing videos. It's because that video has lot of data with huge differences and challenges. Therefore, we still require human surveillance. The new technologies in the field of computer vision are helpful to detect the theft case. This involves object detection which is when an individual or group of individuals commit a theft case, the CCTV records the motion of the individual and then notifies us. We can now watch the CCTV and catch the individual involved in the theft or burglary case. Therefore, Artificial Intelligence does not help us much when it comes to Analysing videos but we can use the new technologies in computer vision. Therefore, there are still few things Artificial Intelligence cannot do. So, we are expecting new inventions in the field of Artificial Intelligence.

Artificial Intelligence in Education

[22] From the perspective of educational applications, there are several roles of AI in education. In the past decades, many AIED studies have been reported by researchers. Those studies can generally be categorized into four roles. They are Intelligent tutor, Intelligent tutee, Intelligent learning tool/partner, Policy- making advisor. [23] Intelligent tutoring systems (ITS) are among the most common applications of AI in education (in any case, as we have seen, they have probably been around the longest). Generally speaking, ITS provide step by-step tutorials, individualized for each student, through topics in well-defined structured subjects such as mathematics or physics. Drawing on expert knowledge about the subject and about pedagogy, and in response to individual student's misconceptions and successes, the system determines an optimal step-by-step pathway through the learning materials and activities. As the student proceeds, the system automatically adjusts the level of difficulty and provides hints or guidance, all of which aim to ensure that the student is able to learn the given topic effectively

[24] AI has roots in mathematics, engineering, technology and science and as a synthesis of ideas from all those fields has created a new situation that is only just beginning to generate enormous changes and benefits to the human society. In this section recent advances and

perspectives of introducing methods and mechanisms of AI in education are discussed. Among them machine learning, Case-Based Reasoning (CBR) Systems in computers and Social Robots are some of the most representative examples. The term machine learning comes from the idea that an algorithm is learning from a training dataset. [25] At the macro-environmental construction level, it is pointed out that "a new education system should be established and a learner-centred education environment should be established." The micro-application form should include "building an intelligent campus, developing a three-dimensional integrated teaching field, and an online learning education platform based on big data intelligence. The smart campus is the further development of the digital campus, and it is also the material basis for building a smart campus. The three-dimensional integrated teaching field is a place where the online and offline integrated teaching assistant teachers support individual learning of students, such as smart classrooms, digital laboratories, and comprehensive innovation laboratories.

Advantagesof Artificial Intelligence

[26] Advantages of Artificial Intelligence is that decisions made by it are purely based on rational thinking than emotional thinking. Emotions of human beings can sometimes do them harm as they do things without thinking as they are following their emotions. Emotions can have negative effect on us. Machines will not be tired no matter how much they work or sleepless which is exactly opposite for humans. Humans cannot spread their knowledge on something easily as they require communication skills for it but machines can. Lot of time can be saved when we use machines with Artificial Intelligence. [27] Fashion Companies can also benefit from Artificial Intelligence which reduces human errors and avoids the problems of conflict between human beings. To increase sales, we need to detect the accurate work flow which is done by AI as humans can be easily confused and mess up the profits which should be gained. Fashion forecasting which is detection which type and which textile clothes are largely sold and what will be the fashion for next week or month is also done efficiently using AI. Fashion recommendations are also done according to the preferences and interests of the customers. This article helps us show the different advantages of Artificial Intelligence in Fashion industry.

[28] Artificial Intelligence also plays an important role in Internet Information technology. Information is all around us nowadays due to internet. Internet is everywhere we go. Products are sold at high rate of time in Internet. Artificial Intelligence in education can change our lives as the technology improves or grows. According to this article, Artificial Intelligence technology and modern education can both when combined be useful and innovative. To construct a better educational system, we should make good use of advantages of Artificial Intelligence in Education. [29] The world-wide second ranked Cancer called Colorectal cancer (CRC) can be cured if glandular tissue can be detected earlier. A screening test should be done to detect the Cancer in early stages by the method called Colonoscopy but it is not accurate as it cannot detect smaller polyps which can be avoided due to human errors. Here comes the role of Artificial Intelligence in medicine. Colorectal cancer can be detected using AI based computers while doing diagnosis and treatment process is also suggested by it. In this article, advantage of Artificial Intelligence in medicine and research on detection of CRC using AI are given in detail.

[30] Islamic finance is related to Artificial Intelligence (AI) and smart contract. Artificial Intelligence is nothing but computers thinking like human beings or computers obtaining human

intelligence. The members of smart contract (computer code running) interact with each other. The main point of this article is to let us know the connection and differences between AI and smart contract. When we combine these two, they make a huge impact on the financial field of Islam.

Disadvantagesand Challengesof Artificial Intelligence

[31] Due to Artificial Intelligence, the capacity of firm in the field of business analytics are destroyed. AI integrated business influences firm's overall performance in a negative way. This article tells us about the disadvantages of Artificial Intelligence in business. After the research it is conformed that due to AI, firm's environment and performance have a negative impact on them which is the result of various factors related to Artificial Intelligence. Those factors are poor data quality, lack of practice of employees and lack of rules and regulations. According to the article, poor performance of firm is mainly due to improper planning, poor supervision and poor scheduling. [32] US military is at disadvantage in the war because the enemies could watch their positions and could guess their plan of attacking. US could not especially fight with Russia as Russia is experienced in its war with Ukraine. So, US needs to invest in new technologies to win the war. Artificial Intelligence is the technology with more military uses. To find the positions and location of the enemies US used drones with AI system. Now the risk of surprise attack by enemies can be avoided and US could attack them first. This article gives us the details about the disadvantage of US military due to the lack of enough Artificial Intelligence technologies.

[33] Artificial Intelligence in colleges and universities is given a lot of importance and is introduced in a professional level which is integrated course in Business or English in education as major subjects. Training of Artificial Intelligence requires a lot of effort and time which are not given in some of the universities. Nowadays, few colleges are only teaching artificial intelligence training classes and neglecting remaining subjects which also affects the students. Artificial Intelligence is not included in main professional curriculum in few universities. Therefore, Artificial Intelligence should face the challenge of not including its subject in major course system.[34] As new technologies are coming into light, all fields of our lives are also growing and improving. This article tells us that Artificial Intelligence also have a negative impact on different aspects of our life. Due to AI, the data of various firms are exploited and intense competition among the firm's is started. Using internet people can buy products for anywhere in the world and various uses of AI became public due to internet. Many challenges should be solved such as unemployment keeps on increasing as Artificial Intelligence grows and more wealth inequalities take place.

[35] Solar energy is renewable energy which can change from its one form of energy to the other. Prediction of Solar power is required to prepare for the future unexpected conditions. Solar data can be given with accuracy with different features when took from Artificial Intelligence system. This paper, Solar forecasting based on AI coding procedure are given. Differences in the data are also detected by the AI-machine (by a process called Taxonomy). Challenges to write the programming code on Solar forecasting are also discussed in this paper. Various Solar prediction models are also analysed to help the scientists and engineers studying about Artificial Intelligence in the field of Solar energy and Solar power.

Conclusion

Artificial Intelligence is the science of making machines or computers think like human beings. In other word's computers obtaining human intelligence through science. Artificial Intelligence is

involved in one of the largest industrial revolutions in recent times. Artificial Intelligence have a huge impact on different aspects and fields of our life like education, manufacturing and production, security and surveillance, healthcare appliances etc.In all these fields due to AI we are able to save more lives and are able to change the quality and efficiency of our life.It has its advantages and disadvantages, opportunities and challenges like any other efficient and growing field. Many researches and new inventions are taking place in this field of science. Universities and Colleges are introducing Artificial Intelligence as one of their courses giving the opportunities to students to learn about it.As, AI has a great future, students are interested in learning about it. Therefore, although Artificial Intelligence has few limitations and drawbacks it also has many advantages and opportunities to improve our future and the lives of human beings.

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ARTIFICIAL INTELLIGENCE

JUGI RITANYA R P
Mtech VLSI Design
Email ID: jugirithanya.rp2021@vitstudent.ac.in

Introduction

Artificial Intelligence is essentially the tactic to brand a supercomputer, a computer, or a robot to work and think similarly to a human being. AI essentially tries to solve problems exactly like how a human would approach the given problem.The purpose of AI is to expand computer functions that are connected to human facts, for example, problem-solving, reasoning, and learning.

The intelligence is insubstantial. It is composed of

- Reasoning
- Learning
- Problem Solving
- Perception
- Linguistic Intelligence

The purposes of AI research are cognitive, knowledge depiction, forecasting, learning, natural language processing, understanding, and capability to move and operateitems.

What is Artificial Intelligence

[1] The impressive features of artificial intelligence (AI) are that the topic is very hard to define as such. The above-mentioned problem is of 2 parts to it which can be defined as the inability to understand the subject matter at hand as we assume to already have a preconised notion to the topic or full understanding of the word intelligent.When we split the word artificial intelligence let's try understanding the words separately. Let's start with the word "artificial" – we can definitely understand that it is obtained based on how AI has originated and manner of creation. AI is a conception of human conception and inventiveness rather than based out of biological and natural inspiration like other sciences. So hence we can also say that objects that we can say are artificially intelligent is totally separated from things/ objects are naturally intelligent. We say so because objects that hold distinct properties normally influenced using non-artifacts. Hence, we can stay a strong point saying that these objects possess a certain type of intelligence which is obtained due to specific processes (as they were formed, planned, or manufactured that particular way).

[2] Artificial Intelligence is essentially the most used and significant technology especially machine learning which is defined as the ability of the machine to keep improving itself without human intervention or to explain how to complete the given task. We can definitely say that over the past few years machine learning is used widely and has become extremely effective. You may ask why? The answer definitely lies in 2 reason which are first being we humans are more intelligent that we are aware of, example we are able to recognize a face easily as well make a smart move in extremely difficult puzzles and games. Before the discovery of ML this helplessness to eloquent our own specific information meant that, we couldn't automate different difficult tasks. With the help of ML that is now possible.

Secondly, ML arrangements are often exceptional learners. ML is capable of achieving exceptional feats in a wide range of activities that would include fraud detection, disease diagnostics etc. This in turn have a significant impact on the economy. Speaking of economy and in business AI makes a profound impact as it is used in multiple companies for wide range of activities as compared to previously known technologies. Even though it is in use the full potential od AI and ML has still not been tapped into. So, it safe to say that we can see an exponentially bloom in the coming decades.The outcomes of AI and ML will be overblown in decades to come. It will have profound effect on sectors such as manufacturing, transportation, retailing, finance, law, health care, pharmacy, advertising, insurance, medicine, entertainment, education. The holdup is organization, execution, and business thoughts. Due to the wide and vast capabilities it has generated multiple expectations in the days to come.

History of AI

[3] The first breakthrough in the history of artificial intelligence came in 1847 when George Boole was able to define a conventional syntax for logic interpretation. The second came in 1936, after Alan M. Turning explained the Turning machine. This was followed by Warren McCulloch along with Walter Pitts creating the prototype of artificial neurons in the year 1943. But it was the theory of decision, shaped by J. Neumann and O. Morgenstern in 1944, that led to a comprehensive and official framework for determining the agent preferences. A value altering rule for the artificial neural network that offered the prospect of learning was introduced by Donald Hebb in the year 1949. This in turn lead Marvin Minsky and Dean Edmonds to assemble the earliest neural computer in the 1951. It was at last John McCarthy who coined the term Artificial Intelligence during the summer of 1956.

Artificial Intelligence finally started getting attention from scholars, and it was reviewed at a conference held in Dartmouth. The subsequent year saw the primary problem solver being tested and the next witnessed John McCarthy, who was now regarded as the father of Artificial Intelligence, introduce a language for generating Al software, called LISP, which stands for list processing, and is still used frequently to this day. In the year 1965, Herbert Simon said that, in two decades, machines will be able to do anything a human being was able to. This was far from the truth as scientists, years later understood that building a system that is capable of doing everything a person does would be unimaginable. At present, Al is unveiled in a new sense: making intelligent products ease our work (Russel &Norvig, 2005; McDaniel, 1994, Shirai &Tsujii, 1982; Mitchell, 1996; Schreiber, 1999). Marvin Minsky and Seymour Papert in the year 1968, which showcased the restrictions of simple neural networks. The subsequent years showed leaps of progress in Al. The primary International Joint Conference on Al was conducted in Washington, DC in 1970. In the year 1972, Alain Colmerauer developed a new language called PROLOG for creating Al systems. Johnson Laird, Paul Rosenbloom, and Allen Newell complete their CMU theses on SOAR in the year 1983.

[4] Artificial Intelligence is a field that has been there for over 50 years and it is known to well defined and active. Artificial Intelligence is known to be extremely difficult and extraordinary to summarize the reason being there hasn't been any upsurge of determination leading to a familiar accomplishment. Even with the issue at hand there has been considerable achievement.

Artificial Intelligence is known to have started in the year 1956 in a conference where the term was 1st used. It was known to be attend by todays great leaders of AI. This included Marvin Minsky, Ray Solomonoff, Jhon McCarthy, Oliver Selfridge, Herbet Simon, Trenchard More, Arthur, Nathan and Claude Shannon. Most of these researchers opened centres of research in AI across the globe such as Edinburgh, MIT, Carnegie Mellon University and Stanford.

AI in India

[5] Recently AI has become an area that has gained immense popularity. This is due to the government's initiatives and the regional influences. The 3 core phases of machine learning are the data, the application stage and the model. With an interpretation to impact current policy discussion in the nation, it concentrates on probable dangers that rise from data-driven choices, and in the Indian background particularly.[6] AI-based policies in India have a great effect on today's society. The effect is in relations of communications and human–device connections. The strategy agenda based on AI is predictable to venture far-reaching properties in the direction of deriving benefits to civilization. India's policies on AI are definitely a big factor in the growth in the coming decades.

[7] India has one sixth the world population. AI had definitely helped in the growth and development of the society as well as the economy. It would help in improving infrastructure and other traditional issues. Investing in AI also has risks associated with as well in long term.

[8] India is a country with a very vast background which a wide range of education and wealth. AI is also very useful in overcoming the various language barriers.[9] The Indian Government has come up with multiple policies and schemes such National Strategy for Artificial Intelligence representing that the Indian government is stern about disorderly technology. AI is a technology that requires engineers from various fields of study and hence provides multiple job opportunities. But there is always a need to be cautious as it can be disruptive as well as it can affect human life with unexpected consequences.

Various Places Where AI is Used

[10] Artificial intelligence (AI) has various places such as in defence and cyber security. This is definitely a disadvantage of AI as there have been multiple cyber-attacks in recent times. But as a solution to this AI can be used to protect us from these cyber-attacks as well.[11] AI has widely been used to extinguish fires in residentials as well as commercial spaces. Early detection of fire helps in saving lives as well as the property with minimum damage. To do so main sensors have been identifies that work best suited with AI to give the best possible results.

[12] AI has also is used widely in the tourism industry. It has been used extensively to improve the customer service and experience in form of chatbots etc. Tourism marketing has also seen an immense boast thanks to AI.

Growth of AI

[13] Artificial Intelligence as a technology has had major influence on different sector and industries. This is all credited to methodological progressions in machine and also deep learning methods and algorithms which was individually possible cause of the enhanced computational proficiencies. The main areas that are usually focused on for improvement include reduced cost, enhanced efficiency as these are main factors that influence approaching a problem to compute the

solution for the complex problem statements of the real world. As compared to other sectors there is a paradigm alteration in the medical sector. Here in the Medical sector AI is being used for multiple activities such as improved administration, clinical support, decisions support and faster scientific detection and progress.

[14] There has been a lot of progress in Al during the last 10 years and we have observed its acceptance throughout industries. Medical science would be an ideal example where Al has had a positive impact. It has influenced important scientific studies, clinical practices, check-ups, hospital maintenance and management. All these have resulted in diagnostic and prognostics enhancements and have also been a factor to develop better targeted and custom drugs, improve medical analytics and to make use of robots as an aid during surgery. But even with all these, there are certain doubts that remain with health professionals regarding the use of Al in medicine. Problems with data digitalization, confidentiality, process comprehensibility, system enhancement and duplication must be dealt with to gain their trust.

AI in Healthcare Appliances

[15] Artificial Intelligence played an important and significant role in the process of creating flexible pressure sensors for flexible applications in the medical field. Let's start with understanding what a pressure sensor is. A pressure sensor is made from organic materials which is used in hopeful applications in AI systems and devices to monitor health such as wearables. There has been rapid growth in the field of pressure sensors over the last few decades. It has been widely used in real electric and electronic applications. Due to the sudden boom in organic electronics, this is had led to a faster development in an exponentially unexpected rate. Electronic -skins with meaningfully upgraded properties have been proved using AI systems. So, these pressure sensors are now believed to be the perfect materials for real life applications in health monitoring circuits and appliances.

[16] As we already know and have seen so far, we can confidently say Artificial Intelligence has impacted our life and is used in our day-to-day life. But the application of Artificial Intelligence in Orthognathic surgery isn't that great till date. But due to its expertise and power of image recognition it is to find multiple prospects in dento-facial abnormalities recognition in the coming future. Due to the gap in the technology merge of AI and orthognathic surgery it is the responsibility of the medical professionals to bridge the gap. [17] Al is a technological sphere that has been in existence for years and continues to evolve every passing day. The contributions it has tailored to our lives are innumerable. Take the health care industry for example. Al has aided in making the reception processes, maintaining patient databases, illness checks and health analytics easy to implement and sustain. It has supported surgeries and aided in psychological rehabilitation. Al has even contributed to radiology in numerous areas such as organising patients, improving staff schedules, generating procedures, creating bills, evaluating the quality of tests, decreasing dosage, and understanding images carefully. Contradictory to a popular belief that Al might one day surpass humans; it is not something to be feared about. It is something to be accepted whole heartedly since it aids in enriching our lives.

AI in Manufacturing and Production

[18] The manufacturing in the modern world includes logistic systems that has pervasive and prevailing computation networks. These systems are driven by millions and trillions of data that is

produced using systems, people, sensors, smart devices and machines. With the rapid increase in data the computation abilities of the system need to be analysed quicker deeply and broadly as compared to the past. All this has increased the importance and value of Artificial Intelligence and this has led to rise a new age of technology called Industry 4.0 also known as Smart Factory.Progressive cognitive computing and deep learning procedures have started to be used in many manufacturing processes and systems such as for inspection of the production line, fault detection, and stay on top of the required maintenance. Active exertions are engaged in such a way to apply and strengthen the different methods to handle the required materials in the plants and production lines. The different method that are available based on AI technology along with IOT, research approaches and cyber-physical system are being used.

[19] The different distributed AI in manufacturing systems is discussed below. Here the Distributed AI (DAI) framework is being used to exploit the different structure and setup used for planning the process in different plants and assembly facilities.The above-mentioned approach is used to split the entire production lines and tasks to multiple smaller or sub tasks. These smaller tasks are realized using basic components called 'intelligent agents. The solution is derived from all the subsystems working together to solves the problem at hand- this is actually achieved using a method called as fuzzy management of the agents to derived the best suited solution to the problem and also the most efficient and appropriate for implementation in the industries shopfloor. The above is realised with the help of inputs from CAD, design data, short term plan, DAI system, shopfloor observation etc -this provides the plan for the production which are feasible for the activities performed in the assembly line.

[20] There is a type of AI used in manufacturing processes called Additive Manufacturing (AM). Am is used widely for the purpose of production. It has grown exponentially and rapidly but still its robustness and competency needs to be improved. As it is well known AI is capable of tasks which are not possible by humans with extraordinary outputs as compared to human capability.AI based systems are capable of reducing the workforce to increase the AM productivity multi-fold along with better utilization. The already existing developed intelligent agents are utilised in problem statements that include production, design of product and process. In the paper is it proposed that the system can be improved to a great extent if cloud edge computing is added to the currently available AM framework. This also would lead to better response time as a global reflection.

AI in Security and Surveillance

[21] Artificial Intelligence is the field that is a collaboration of others fields such as computer science, mathematics, linguistics, psychology, and neuroscience. Actions taken by the system is based on the environment it is situated in and hence why it is perceived to be intelligent. The development of AI has been stunted due to the government and investors showing disinterest in the domain. Even with such a bottle neck AI has still shone. A few major break throughs include: Advanced Sensing Systems, Fraud Detection systems, Advanced Computing and human computer interface, Advanced Sensing Systems and Drug detection. The use of AI is what makes a smart city die to its vast roots in the systems and its applications. AI is used to day-to-day activities such as speech and pattern recognition is Siri, Alexa and Cortana. This leads to vast generation of digital information which is said to be several terabytes. So, the question arises is AI futile? As the data is

unique to each individual and hence a readymade pattern to dissimilar groups. This is where AI comes in as AI processes the large data's fast and accurately. So hence the solutions generated are personalised and unique, this is achieved by keeping in mind the balance between processed and custom-made solutions.

[22] The use of camera surveillance systems (CSS) has surged at present and has been widely adopted in diverse industries for intelligent fabrication and assembly. This has in turn caused obstacles such as overloading the broadcasting capacity and storing the volumes of data created during the process. This study tries to address these mentioned issues by building an Al centric system for processing information. Al is known to aid in processing huge chunk of data, and we use this capability to process the many videos stored by CSS. We also have made use of computer vision algorithms to spot irregular patterns, objects, and items, resulting in the reduction in workforce needed for the same. But we should note that the Al applications needed to address the mentioned issues requires a great deal of data processing resources and capabilities. This study aims to address all these mentioned issues with camera surveillance systems. We try to concentrate on refining reasonable surroundings and objects in motion in it. Once this is done, we move to the server side for additional functions. The method mentioned in this study has shown to reduce the required storage capacity and transmission bandwidth significantly. The calculations show an 80% reduction in storage required and improvement in performance on the server end as the calculations required decreases notably. This study recommends solutions to the problems mentioned above at the end. The study would be best suited to be applied to industry 3.5, which is a blend relating the best methods used in industries 3.0 and future 4.0 industries.

[23] Artificial Intelligence techniques has the capability to improve productivity and security in data determined Intelligent Transportation System (ITS) and is also used for IOV (Internet of vehicle) services. In this paper the ITS scenario: railway crossing has been conferred built on implementation of deep learning means for increasing safety and security. The suggested proposed system is Artificial Intelligence based Surveillance system for railway crossing traffic based on grouping of discovery and organization which is based on multiple image processing inputs which include: pedestrian presence, vehicle trajectory, vehicle presence at railway crossings, signalling systems and warnings. The system is designed in such a way that cameras are used to capture the crossing area. The system perceives risky and hazardous condition as railway crossings in real-time. For it to be implemented in real time the system consists of camera modules to send and receive data in a central server for further processing. The system has taken into privacy and security as uttermost priority. Also, the system incorporates YOLO model which gives outcomes of assessing the incidences of objects and conditions.

AI in Education
[24] One of the greatest problems associated with education is there is a gap in meeting the obligations of all students. This gap can be bridged with the help of technologies such as Artificial Intelligence. This is because all students are not getting the best. Usually, students from richer background perform better than those from a less well-off background. Help can be provided by one-to-one training from flexible AIEd instructors, mutually at home and at school, to enhance their amounts of achievement.[25] It is suggested that there is an education shift in education from the usual norms to Artificial Intelligence. (AI technology). There is a goof improvement in the

education system as it now emphasises on the need to learn new fields than those that are already dominant and rules the fields of applications. Since new uses are being discovered every day, it supports this fact and its giving importance to AI in the field of education.

[26] Taking an example of ASSISTments and KHAN ACADAMEY it is clear that AI is being incorporated into the education system using deep learning. Deep learning is also used to predict the level of usefulness of the above mentioned. It takes into consideration multiple relations to come to a conclusion this include forms of educational-knowledge, flawed-data etc. This in turn avoids and shines a light on all the confusions and disagreements regarding AI in today's world.

Advantages of AI

[27] Artificial Intelligence is used in a lot of ways in a lot of industries in today's world so we can definitely say that it has a lot of advantages in today's industrial age. AI ensures that the data or knowledge of a particular person is not lost even if the personal leaves the organisation of the particular team he/she was associated with. Due to AI the life of the required knowledge is present as long as those decisions and the problem are present. AI is similar to human Intelligence and hence it can be used in variety of applications as it can provide solutions to multitude of current scenario problems present in the industry. This also leads to reduced operational costs.

[28] Artificial Intelligence is vastly used in In-Vehicle Information Systems (IVIS) which is a new technology associated with the future of vehicles. It is a method that is essentially the future of self-driving vehicles. It is the beginning of the future. It essentially uses cognitive simulation and its respective performance models to assess the tools of the IVIS. It will particularly be useful for design engineers, transport engineers and other researchers.[29]There are extensive number of advantages of AI. Let's mention a few of the numerous advantages. AI is known to give the most accuracy as there is no chance for human error. AI even known to be used in space explorations, this is because AI isn't affected by the environment as well as the physical state. AI can be used for automation of repeated tasks. AI is used to complete tasks that are harmful to humans and may affect their health. For example, saving people in fires, in industries from dangerous chemicals and so on. AI is hence a very useful technology in today's world.

[30] Artificial Intelligence is also used to build robots which in turn has multiple application such as: it can be used to create robotic dogs to help depressed people who are allergic to animals. Robots also reduce the task and work as a helping hand to humans in all fields of work. It is also making the complex work less tedious and quicker with a better production and faster time to market of products such as electronic gadgets and almost all products.

[31] Artificial Intelligence has now gained a lot of importance in the field of 5G especially in the field of security concern. AI and ML performs a crucial role in strategy, developing and automation of cost-effective security protocols opposed to varied and wide range of dangers. AI and ML has by now proven their efficiency in various fields for categorization, detection and computerization with higher accuracy. As 5G networks' important retail point is better data rates and speed, it will be challenging to deal with wide variety of hazards from various points using conventional defensive measures. Hence, AI and ML can take part in safeguarding highly data-driven software used and virtualized system elements.

Challenges or Dis-Advantages of AI

[32] Here we talk about the impact of artificial intelligence on the educational system as a teacher's perspective. The teachers in the educational field have faced multiple issues due to AI taking over the teaching field. The research was conducted with over 140 plus teachers in the Colombia. AI has replaced the job opportunities of a lot of educationalists.[33] Due to Artificial intelligence it is noticed that female candidate has been more frequently attacked based on character then their male competitors in social media and other platforms. This is an echoing problem found in traditional media.It is found that a Catch-22 for female contenders, in that they also went to garner significant attention at all or, if they developed a matter of Twitter analysis, were confronted on issues of personality and identity that were not raised up for their male equivalents. At the identical time, women competing for president obtained considerably more pessimistic tweets from right-leaning and non-credible sources than did male candidates.

[34] The ability to figure out human like shapes is the called anthropomorphism. It has significant concerns for individuals' options and principles. With the heightened existence of robots, it is crucial to study the deal pattern for this expertise. Also, this tends to be a disadvantage in the field of robotics and robots.[35] As the 5G technology had almost been achieved now 6G has become a technology is a technology that needs to be achieved which is a cellular communication technique. It is expected that to provide speeds up to 1 Tb/sec and broad band frequency from 100GHz to 3 THz. It is quite evident that AI would play a role but might take a long time to realise.

Conclusion

In this paper we have discussed all aspects of Artificial Intelligence. We have included the history of AI along with its advantages, disadvantages and also different applications of AI in industries such as healthcare, manufacturing, Security and Education. AI is a vast complex field and it a technology that has numerous applications with promising potentials as long as we use it only for the better future and do not misuse this technology with extraordinary potential.

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ADVANCEMENTS IN ARTIFICIAL INTELLIGENCE

SAARTHAK YADAV

M.Tech. Integrated Computer Science
Email ID: Saarthak.yadav2021@vitstudent.ac.in

What is AI?

[1]Artificial intelligence (AI) is the branch of engineering that allows us to make machines that can make dynamic decisions like humans, depending on the situation. This ability to make decisions dynamically is commonly referred to as intelligence which allows humans and many other living organisms to survive.[2]The machines that are integrated with AI can do many different things that similar machines that are not integrated with AI cannot do. For example, the AI smart cameras can detect from the type of image and can enhance the image automatically without needing user input. When this feature was introduced, it had trouble detecting the type of image like portrait, nature, text, etc it also had trouble correctly enhancing the image in a way that would look better than the original but after many years of advances in AI, it can now almost always provide us with a better image than the original. The AI to detect faces also had similar troubles in the beginning due to lack of complexity in the AI but now after many years, it can detect faces easily. This AI has many applications from applying filters on faces for entertainment to detecting criminals from CCTV footage by the police for law enforcement. Thus, AI is the tool to evolve machines to increase their functionality.

History of AI

[3] Although it is difficult to know exactly when was the start of AI as we know it in 1942 Issac Asimov published a short story *Runaround*. It's the story of a robot that evolves around the Three Laws of Robotics. This work inspired generations of scientists in many fields like robotics and AI.[4] In the early days of AI, researchers were proud that there were no multiplications in their programs while also being complex enough to play games or prove theorems. This promoted a new point of view of computers that they were not simple number manipulators and could be viewed as intelligent.

Applications of Artificial Intelligence

[5] Learning involves a lot of changes in cognitive, social, and emotional states. Therefore, by determining and understanding them, researchers aim to explore the automatic detection of students' non-verbal behaviours related to hand-over-face gestures, hand and eye movements, and emotions with the help of artificial intelligence to address the needs of the individual student to provide personalized education.[6] Exam-style questions are fundamental educational tools that have several purposes, however, manual constructions of questions by educators are a complex and slow process that hinders the use of new advances and educational activities that require a large pool of questions like adaptive testing and providing practice questions. To reduce the expenses related to the manual construction of questions and to satisfy the demand of questions, automatic question generation (AQG) techniques were introduced that make use of artificial intelligence.

[7] Massive open online courses (MOOCs) are popular because they provide low-cost education, however, the current course purchasing rate is less than 1% of the total students enrolled, therefore, it is hard to know if a course will be profitable or not. Researchers hope to fix this problem by creating artificial intelligence that can predict students purchasing behaviour and therefore a MOOC's revenue. [8] The learning process needs valid and suitable educational resources to be effective. However, determining the quality of an educational resource is hard for a teacher. Researchers aim to determine how the appropriateness of the resources are by artificial intelligence through the data on the performance of the students and other adequate metrics and statistics.

AI in India

[9] The recent innovations in AI are a wake-up call for politicians in India. With China rapidly making progress in AI research, India is also viewing AI as a critical element of national security strategy. Therefore, to secure the country's strategic interests, it is necessary to increase innovation in AI and prepare the job and skill markets for an AI-based future. [10] Due to the high potential of AI, it is often treated as the fourth industrial revolution. As per a study, the annual economic growth rate of 12 countries is expected to double by 2035 while loss of jobs is also possible. But by developing the necessary infrastructure and adapting policies, it is possible to maximize benefits and minimize losses. However, India currently does not have a strategy in place for AI it is being discussed.

Growth of AI

[11] It has been many decades since AI was created and since then AI has continued to grow, with the rise of supercomputers and big data technologies the growth has especially sped up in recent years. It has also become an interesting topic for research. [12] In this paper, the researchers explain the approach to use artificial evolution for the development of control systems for autonomous robots. They use case studies for concurrent evolution of control networks and visual sensor morphologies for a mobile robot.

AI in Healthcare

[13] Due to the advancement of AI in recent years the applications of AI are also increasing in health care such surgical robots that are being introduced can easily complete simple and common surgical procedures from incisions and stitching wounds to prostate surgery, gynecologic surgery, and head and neck surgery. These robots are also becoming more collaborative with humans this allows humans and robots to work together which also helps in increasing the training speed of these robots. [14] As the medical records are being uploaded online as electronic health records (EHR) in hospitals the complexity and amount of data have also increased another cause of this is the increased number of medical tests and practices due to the advancement in medicine. Due to this increase, the amount of data is too much to handle manually and increases the risks of errors. For this AI are being developed that can assist physicians and even diagnose diseases, these AIs can likely be implemented soon. Also, while these AIs process data afterwards some AI are also being developed for real-time diagnosis of the patient. These AIs that are being developed can revolutionise the process of diagnosis of disease.

[15] Becker suggests that AI can be used in health care in four basic ways these include assessment of disease, manage complications, patient-care assistance, and medical research. Assessment of the disease can be done by cross-referencing previous medical records with the same

symptoms and drawing a conclusion. The AI can manage complications by assessing the pattern of disease and predicting complications so that they can be resolved early. Due to AI each patient can be diagnosed and treated individually this can help reduce the workload on doctors and prevent serious cases due to ease of diagnosis and treatment. In medical research, AI can help speed up the process of discovery of new drugs which can help in finding the treatment for old diseases with no current treatment like Cancer or AIDS or newly discovered diseases like COVID-19.

AI in Manufacturing and Production

[16] The products that are manufactured in factories are stored in warehouses for shipping and are also shipped to other warehouses and then to retailers thus, warehouses are a key component in logistic systems. A warehouse should be able to store and export items quickly and efficiently which is difficult in big warehouses which have to receive and retrieve a large number of products daily. Pandian says "The application of the artificial intelligence in the warehousing operations enhancesthepotentials ofthe warehousing functioning in the logistics, management and the co-ordination". AI-powered warehouses are called smart warehouses in these warehouses the AI greatly increases the speed and efficiency of the warehouse.They can also easily track the quantity of all the items stored in the warehouse it can also track the number of items that are imported and exported, this helps in maintaining the supply and demand of each item individually which can decrease the shortage and overflow of items.[17]In manufacturing, you have to manufacture enough products to meet the demand and with an appropriate level of quality, you also have to factor in the cost of production, storage and transportation to earn a profit for the manufactured product. However, meeting this standard is becoming more and more difficult over time due to the ever-increasing process and product complexity, customer demand is also becoming very variable so you have to increase and decrease the production appropriately and there is also competition from other manufacturers that can cause the price to go down and thus decreasing the profit margin for each product. In this highly competitive landscape, AI can meet many of these demands as it can decrease the production cost and it can handle complex processes and products with relative ease.[18]AI-powered machines called reconfigurable manufacturing systems (RMS) are revolutionising manufacturing by decreasing the cost by eliminating the need of purchasing new equipment as it can utilise new manufacturing processes on existing manufacturing systems thus eliminating the need to buy new equipment for every new process. This was the drawback of older manufacturing systems such as dedicated (DMS) and flexible manufacturing system (FMS) as DMS cannot utilise new processes on existing systems while FMS is limited adaptability to new processes.RMS are also able to provide a significant time reduction in manufacturing compared to DMS and FMS systems. Due to these features, RMS is revolutionising the manufacturing landscape.

AI in Security and Surveillance

[19] AI and cyber security go hand in hand as using AI models for the implementation of malware detection software can increase the detection capability of the malware detection software. AI models can also be used to increase the performance of intrusion detection software so using AI for cyber security can prove highly beneficial. While AI models are also prone to cyber-attacks so they need cyber security protection. Malware can target AI models by methods such as changing the sample which can be used to covertly change the behaviour of the AI as it makes decisions based on

the sample. Malware can also target the learning process of the AI which can change the behaviour even before the completion of the AI. Malware can also target the decision-making process itself; this is the most direct attack to change the behaviour of the AI. Thus, cyber security is also essential for an AI model to function correctly and prevent malware attacks.

[20] Camera surveillance systems (CSS) are needed everywhere now but the increasing use of CSS is creating many problems. These problems are in the form of increased storage capacity required to store the video feed, this results in decreasing the amount of time for which the video is stored, this can cause difficulty as older recordings will not be available. Another problem is the increased transmission bandwidth which can overload wires or in some cases storage devices which can cause data loss and can lead to the corruption of recordings. Nguyen proposes a method to solve both of these problems by using AI "The idea is that focus on processing the valid background and moving object in the scene. After that, it will be transmitted to the server sides for further purposes." This method proposed by Nguyen solves the problems by processing the video feed using AI to reduce the size of the video feed which improves the performance by clearing up the transmission bandwidth and also solves the storage problem by decreasing the required storage capacity.[21] Arulogen is developing a keyless door by employing Facial recognition and Artificial Neural Networks. Their function is to register the faces of the people that are allowed to pass, when trying to open the door the AI recognises the face and then matches the face in its database of authorized faces, if the face matches an authorized face, then the door opens if the face does not match any of the authorized faces, then the door does not open. The database and the interface for capturing and processing images can be accessed via a PC.

AI in Education

[22] Reflective writing is an analytical practice in which the writer describes a real or imaginary scene this is a very beneficial practice for a student as it helps to develop their reflective thinking but it requires a lot of time and effort from the teacher to manually analyse the writing and it is improbable to individually analyse the writing of every student in a class. Ullmann suggests solving this problem by a machine learning algorithm that can automate the task of analysing the writing. By completely developing this algorithm we can automate the task of analysing reflective writing and it will greatly benefit students around the globe.[23] As web-based learning is becoming more and more popular but there is a very high dropout rate in web-based learning, to solve this problem personalised web-based learning is being promoted. This increasing personalisation of web learning is beneficial to the student however, the student has to answer some questions to determine the personality of the student this method inevitably requires the student's effort. For this Wu derives a new method to check the personality of the student without asking questions. By this method, the personality is determined by communication behaviour by using this we can get a more accurate estimation of the student's personality.[24] Here Stahvoich presents a technique that estimates the correctness of students' solutions to engineering problems. It starts by examining the handwritten equations and then grades the solution using the lexical properties of the equations. Techniques to this are not completed yet, however, after these techniques are complete, we will be able to automatically grade handwritten solutions which will save time and resources.

Advantages of AI

[25] Khanzode suggests that there are many advantages to AI like AI can do complex work easily while also completing the task faster than a human. It can also complete various tasks at once meanwhile there are also fewer errors in its work. It helps us discover and research new and unexplored things like a cure for diseases, outer space, deep ocean, etc.[26]Chowdhury suggests that the advantages that AI provides are "permanency, reliability, and cost-effectiveness". The property to be able to exist indefinitely or to be permanent is called permanency and since AI is a no living thing it cannot die so it is permanent. The quality of being trustworthy is called reliability and as AI cannot lie it is reliable. If the outcome is more beneficial than the cost to obtain the outcome it is called cost-effective and since AI has to be created once and can continuously work it is cost-effective. Also, new AI can be built on top of an existing AI as its base it costs less to upgrade than to build a new one from scratch.

[27] AI has also been integrated into the marketing as many new products that are being sold in the market include AI as their selling point and customers are also reacting to this new marketing strategy positively. These new products are being sold as smart devices. Due to this market-ers can gain knowledge about customers, competitors and markets. They are also able to automate tasks, reduce costs and improve workflow. These effects are all due to the advantages of AI. [28]In clinical development due to a large amount of data present, it is almost impossible to find significant patterns in the data manually. One of the advantages of AI is that it can handle numbers easily so here AI can be implemented to find patterns in the data.[29] advantages of AI are that by doing tasks similar to labour AI lessens the burden on humans. It does not take breaks as humans do and it also does not get bored or feel tired. It can also work in conditions that are life-threatening to humans.

Challenges or Disadvantages of AI

[25] Khanzode also discusses many disadvantages to AI indicating that it could lead to "mass-scale destruction". AI is reducing the number of labour/low skilled jobs thus causing unemployment. Since AI have to be trained it requires a large amount of money and time. [30] The limitations of AI depend on the programmer. "Lacks the human touch". It does our tasks for us causing the people utilising AI in their daily life to become lazy and also increasing their dependency on AI and technology.[31]The disadvantages of AI are that except for the task in which it is trained, it cannot adapt itself to be able to do other tasks efficiently. This limits the number of cases in which a particular AI is used. We have to create and train different AI for different tasks as we cannot train one AI to do all the tasks.

[29] Bhbosale discusses that the disadvantages of AI are it is not easy to develop and it also needs lots of time resources to create and repair. It also replaces a lot of jobs causing unemployment. It can easily destroy if put in the wrong hands. It causes humans to become lazy. It cannot develop bonds with humans that are in the same team. It can only perform tasks that it is designed to perform.[32] Osipov discusses that the disadvantage of AI is the cost of maintenance, repair and updating the AI is very high. It can have bugs that can lead to the loss of important data. It can cause unemployment and dependency on machines. It can lead to destruction if it falls into the wrong hands. There is also fear among people that robots can enslave us and start to rule the world.

Conclusion

By mentioning these various applications in the different fields, I want to show the many ways in which AI is currently or about to be used in our society. As many other researchers that contribute to the research of AI continue to make advances, the role of AI in our day-to-day lifeis going to continue increasing in the coming years as the fiction for the previous generations slowly start to become reality.While AI has both Advantages and Disadvantages, together we can work towards a future where the advantages of AI are triumphant over the disadvantages.

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ARTIFICIAL INTELLIGENCE

SHUBHAM ADGAONKAR
M. Tech Embedded Systems
Email ID: shubham.aadgaonkar2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial Intelligence is the method meant for making machines think and work just like humans. Intelligence is that term which makes a system to work according to environmental conditions around the system. Artificial Intelligence is a sub stream of Computer science engineering branch which will help build some systems which are capable of performing tasks just like humans. [2] The aim of AI is to find and answer the problems based on data manipulation.AI needs to take into consideration the previous behavior of the system and then guess the future behavior. Artificial Intelligence is a property of a machine or a robot to perform tasks just like humans and the behaviour of the machines will be just like humans. The change brought by Artificial Intelligence in human life has impacted human life on a large scale .And humans has accepted those changes in a positive way until now and the field is growing faster now-a-days.

History of AI

[3] The start of AI was referred to many literatures inventions, materials based on which we could make a guess. The experiments that were carried out until in electronics and engineering and many other fields has boosted the growth of AI. Some of the experiments carried out earlier were based on data interpretation, data acknowledgement, data processing and then finding out some result after all these processes. [4] Before coining the term Artificial intelligence there was much research done on the various points contributing to the term AI. Coming one-one step ahead finally in 1956 the Artificial Intelligence term came into picture in front of the people in a conference. In the previous days many people were not willing to accept the Artificial Intelligence technology as it would have taken many labors jobs away by implementing machine for the specific tasks performed by labors. And people were not ready to believe on the technology due to some risk factors associated with the technology. But now after knowing the benefits of the technology humans are going through many changes in day to day life with respect to AI.

AI in India

[5] Artificial intelligence is the upcoming point of overall progress of India. India's take towards the traditional things there is a lot more to be changed using AI in India. The government of India is trying to make a lot of changes in each and every field based on AI day by day. Human are already adopted to the changes that are happening now a days just like the introduction of the smart phone technology the internet and the applications over the internet. The negative impact of AI on the humans considering the unemployment factors or some life risks is stopping the growth of AI in India up to some extent.[6] Artificial Technology has great strength in the upbringing of various institutions. This research indicates the importance constructing a set of rules for India .If we consider all those rules are present in the present condition

Various Places Where AI is Used

[7] The influence of Artificial Intelligence is at a great scale in various areas and also medicine. But many people are unaware what actually AI means. To get through what actually AI means in the medical field and what is the role played by KR in those fields can be understood by :The materials available for KR and AI, the connections between AI and KR and the mixing of both the topics. [8] Artificial intelligence is the property of machines for human like behaviour or self-decision making up to some extent. Some dedicated work is done by the programmed AI devices, which are used on a large scale problem solving fields.AI is implemented to produce high level machines which can work efficiently in various fields and industries.

Growth of AI

[9] The growth of AI is so fast that at the start of Artificial Intelligence era only the systems that can just work as human in some or the other fields were developed. But now a days the Artificial Intelligence is capturing each and every area and making every system smarter. The processing capabilities of the machines available to humans now a days has made it possible for AI to reach this far.AI is multitasking in various tasks such as accounting, government taxations, various audits etc. [10] Looking towards the growth of AI we can take into consideration two sub-headings one is drastic growth and constant growth. There is no pause in the growth line of AI from when it came into picture. It is not like there are only advantages of AI but there are also some major disadvantages of AI. The most important disadvantage of AI is AI is used to reduce or replace human work in any industrial or domestic fields, so obviously it will reduce human effort but it will also lead to large scale human unemployment. Until there is development in AI there will be a large scale employment but as it will go on implementing the people working on small scale labour jobs will become jobless.

AI in Healthcare Appliances

[11] AI has a great revolution in the Health care field from the past many years.AI helps in identifying the disease with which the patient is suffering from, AI can also pre-determine if the patient has some threat of getting affected by some disease ,so that the patient can get a prior treatment to avoid some serious conditions further.AI can also indicate the level of infection etc. in case of some serious diseases. [12] As we know the electronic technology is leading towards a digital world and the introduction of AI in various fields along with the medical field is becoming dominant. Because of Artificial Intelligence there is a lot of change in the methodology of medical diagnostics, treatments, etc. AI has totally entered the medical field and assisting humans for everything on a large scale. [13] AI points towards the behaviour of any system just like humans.AI is going towards medical applications in a algorithmic way and looking towards todays growth of AI in medical field we can notice a drastic change in the medical technology in the past few decades. The most know sub topic of AI is ML (Machine Learning) which is used on a large scale in various fields including Healthcare.

Artificial Intelligence in Manufacturing and Production

[14] The fast rise in the use of AI in the manufacturing and Production field in past few years has led to many advantages in the industries like rise in production rate, less threat of accidents, increase in

production speed etc. The term (Internet + Artificial Intelligence) has come up with various new ways to design and develop the manufacturing and production techniques.[15] For manipulating PWB assembly we need to make a good use of the features that are available in Distributed AI(DAI). DAI divides whole manufacturing work flow in various small work labels. Those work labels are executed using the features of DAI technology so that we can finally conclude some result of the issue arise during the production. [16] The old manufacturing algorithm of the whole production methodology restricts to fulfill the user needs. The upcoming AI based manufacturing techniques will definitely boost the production rate and can also make possible the production of multiple products under the same roof along with allowing very small scale changes in the manufacturing methods. The AI methodology will give the freedom to the industries to adjust to the nearby atmosphere by decreasing the pollution, putting in front the best algorithms for production, freedom for modifications at any point of time etc.

Artificial Intelligence in Security and Surveillance
[17] Now a days we have to keep moving forward with all the upcoming technologies for each and every aspect including Security and Surveillance also. Accordingly any problem in the cities now a days is addressed using Artificial Intelligence to a life time solution to that problem. The use of Information Communication Technology provides us with peculiar answers to the questions that come up in any field. Thus Artificial intelligence also helps to address the problems in the fields of safety, security and surveillance. [18] Artificial Intelligence assists a wide range of problems in the cyber security and national security fields. Artificial Intelligence is used on a large scale when it comes to cyber security purposes.AI helps to develop the systems in such a way that automated detection and intimation of any cyber threats is easily possible so that the further actions can be planned prior of any large scale attack. [19] The human visual system is the most capable system for investigating any site with the visual levels that are in human's interpretation range. In the recent times many people are busy with research to build some surveillance system which is capable just like the human eye. Suppose some picture is clicked or some video is recorded then the systems is programmed so that it will extract data from that image or video and will compare with some predefined values and in case it does not match with the predefined values then the system will generated a message that something inappropriate is happening on the site. So data analyzing and processing should go side by side with Artificial Intelligence.

Artificial in Education
[20] In the last 5-10 years there is a drastic noticeable change and revolution in the educational fields because of artificial intelligence .We need to analyses two main topics when describing AI in education that are the main focus of AI in education and research that can be made in this field of AI in education. If we travel from the last 90's teaching methods to the todays latest teaching methods, previously the books hard copies were used for the teaching purpose and the students used to sit in the classrooms physically for attending the classes .But today looking towards the pandemic period the whole world has got onto the digital domain and even the students are attending the classes through the online mode sitting at their homes. [21] Web intelligence tells about the basic terms related to the AI in education. In the research and development field WI is almost useful in each and every aspect related to artificial intelligence in education. Some important features of web

intelligence has made researchers to work in the field of flexibility in design, customization.[22] Some years back Artificial Intelligence was just like a dream for humans but now it has become a part of day to day life for humans. As we will move further in time scale, we will be able to see the drastic development in the application of AI in every field. Some important related terms are natural language processing, deep learning, machine learning, and social network analysis.

Advantages of AI

[23] Artificial intelligence taking into consideration machine learning has come up with lot of changes in the specialty field. Artificial intelligence helps radiologists in a effective way as radiology involves a higher risk factor in which AI can be a factor of relief for the scientists working on field. [24] Product enhancement consists of information processing and many team work related tasks. Hence, organizations can manage new product enhancement procedures through practical implementations of tasks, which will fulfill the purpose of continuous gaining of knowledge and growth of research and development organizations, and also helps in new product making techniques. [25] Because of drastic growth in the Artificial intelligence field, the assistance provided by AI in medical field is to next level extent.AI helps in including software in the medical systems which helps in easy diagnosis of any critical disease and can also provide predictive analysis with treatment flowchart. [26] AI has been stated as the most efficient technology in the fields like fault detection and problem solving in a automatic way. Taking into consideration the strengths and weaknesses of the present AI technology many research tasks can be scheduled accordingly .All the methods can be partitioned as data driven and knowledge driven. [27] We already know the importance of medical imaging in the medical field. The x-rays, MRI's all those imaging techniques are very much useful for the doctors for the diagnostics purpose. In the artificial intelligence era computers have got the power of processing just like human brains to take some real time input and process the input data and react just like a human being would have reacted to the same scenario. With the use of AI in machines and medical field a lot of doctor's workload can be reduced along with the machines accuracy and efficiency in case of diagnostics, as humans can make a error because of tiredness and fatigue, but it is not the case with machines.

Challenges or Disadvantages of AI

[28] In various fields like education and medical, although AI is helping to make these work fields easier to work with ,but the teachers and the doctors has to get familiar with all those AI enabled equipment to work with. Also there are dangers that must be considered in the education and medical field while implementing AI because in case of a medical field it can cost a life and in educational field it can be worse if any wrong things are given output by the AI enabled systems or the robots in case of errors. [29] AI is a dominant topic in case of finance.AI is supporting humans in the financial field on a large scale. Establishing some AI enabled machines which would perform the human tasks in the financial fields. What will be the risk factor in case of modern AI based systems and the traditional human computational methods .Obviously there can be error in case of human computational methods, but if any error happens in AI enabled machine systems, it would cause a huge loss if it is not fixed on real time. [30] Using AI instead of the traditional political communication theory, there is a way using which both the comments can be given equal importance and coverage at a large scale. The important points such as communication narratives for

female candidates that should be transparent enough so that both the parts are surely and equally visible to everybody. Some AI based systems can be developed for the candidates to come out of these sexiest problems and can have a control upon their own speaking effectively. [31] Looking towards AI and its requirement in today's day to day life there is a requirement to maintain some rules which are important for peaceful handling between artificial intelligence and Human beings.6 rules or bullet points are to be provided taking into consideration enforcement, employment, ethics, education, entente, and evolution. [32] As we have heard that the most efficient computer existing until is the human brain which is efficient to collect and remember number of images in a individuals life. Somehow for a system to recollect and store this much information and then to reflect it from the memory after a long time is very difficult. Facial information is very much difficult to store and recollect. Yet we expect a machine to perform a better face recognition task than human beings. Using Artificial Intelligence techniques these task can be performed with much more precision and accuracy.

Conclusion

According to me Artificial Intelligence has a lot of advantages in the present and upcoming year's. But there are a lot of disadvantages like implementing AI will reduce the employment rate as there are many tasks perform by humans which will be performed by the machines. And the company or the industry owners would obviously prefer AI implemented machines or robots for one time investment as it will only be a onetime investment for them. But in case of present situation they have to pay so many workers and also there is some much risk of life associated with the field work when the workers are working in some mining area or the assembly lines in various industries in the vicinity of some dangerous machines which can cause loss of life some serious situations. But if we consider the advantages of AI there are a lot of advantages also. The human efforts will be reduced to a large extent with the help of AI enabled machines, equipment, some dedicated robots etc. So eventually every topic has some advantages and disadvantages.

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STUDY ONARTIFICIAL INTELLIGENCE

SRINATH P

M.Tech.Integrated Computer Science Engineering
Email ID: srinath.p2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial Intelligence (AI) is a term that refers to the use of computers that think and act as humans. [2] It is the science and engineering of intelligent computer programs that do human work.

History of Artificial Intelligence (AI)

[3] The beginnings of artificial intelligence are philosophical, mythical and imaginative. Other inventions in electronics, engineering, and many other methods have also influenced AI. Some of the first sections include problem-solving work that includes basic learning activities, information representation, and supervision and demonstration programs in language comprehension, translation, theory, memory, and information-based programs.

[4] While computers have existed for nearly six decades, man believed that machines could do the work of the human brain. Early ideas and the introduction of robots can be traced back to Greek mythology, as well as to Chinese and Egyptian cultures

Artificial Intelligence in India

[5] The use of Artificial Intelligence (AI) in developing new teaching and learning solutions has a major impact on transforming the education system in India. Schools are now moving from conventional teaching methods to tertiary education to improve students' reading skills.

[6] As Artificial Intelligence (AI) revolution strikes communities and enters everyday life, its role in shaping India's development and growth will surely be enormous. In India, AI holds promise as a catalyst for accelerating progress, while providing ways to bypass traditional barriers such as poor infrastructure and governance.

Artificial Intelligence in Various Fields

[7] Some of the major areas where AI is used are:
    a) Banking
    b) Education
    c) Medicine
    d) Smart phones
    e) Home Automation
    f) Weather forecast
    g) Data mining

[8] Data mining finds interesting patterns from large amounts of data . These patterns can take a variety of approaches, such as organizational rules, division rules, and decision-making trees, therefore, information representation becomes a problem for data mining interests.[9] Problem solving: The ability to create a problem with the right agent, to plan its solution and to know when new information is needed and how to get it.

Some study a new hybrid algorithm for forecasting economic boom the usage of indicators of information-based totally financial system (KBE). The set of rules consists of 3 steps, namely pre-processing, processing, and postprocessing. Pre-processing consists of most important thing analysis and reproduction algorithm, which might be used to lower the quantity of variables and growth the volume of data. economic growth is expected for the duration of processing the use of multilayer perceptron (MLP), adaptive neuro-fuzzy inferences machine, and gene expression programming (GEP). The variables are brought one by one to the technique. The great version is selected during the postprocessing step to forecast monetary increase. GEP version is used to forecast unique indicators. The closing step includes substitution of forecasted signs inside the first-class model. on this take a look at, the KBE signs of Iran from 1993 to 2013 are expected in the processing step. The MLP version is used, which incorporates four signs, particularly technological foundation, shape of educated manpower, export and trademark, and worker. indicators also are forecasted the usage of the GEP model between 2013 and 2020. The outcomes are used to estimate financial boom among forecasting intervals. A self-organizing map is used to recognize relationships among variables. The results display the efficiency of the set of rules in multivariate forecasting.

Growth of AI

[10] Artificial Intelligence and with the help of big data has transformed all industries around the world. Artificial intelligence refers to the simulation of human or animal intelligence in mathematical systems to be programmed to think like intelligent creatures and imitate the actions of intelligent organizations. Computer systems with intelligent systems can solve real-world problems that are more precisely and efficiently than decisive calculators with robust code. While many problems in business and business analysis cannot be solved through decisive processes, AI plays a key role in addressing the problems in the business world. customer service, portfolio management, product recommendations according to customer requirements, insurance writing.

[11] The future of health care could change dramatically as entrepreneurs give results that change the way we help, identify, and manage health conditions, using artificial intelligence.

AI in Health Care

[12] Health care is one of the basic need for humans, and intelligent health care is expected to generate a few billion dollars in the near future. Internet of Things, medical sensors, AI, robots are used in health care. [13] AI may allow it better prevention, diagnosis, diagnosis, and treatment of diseases. Areas of major diseases using the AI tool they include cancer, neurology, heart disease and diabetes. AI can also be used to automatically detect problems and threats in a patient safety, such as patterns of inadequate care or outbreaks of hospital-acquired infections with high accuracy and speed.

[14] Advances in medical science and technology, medicine, and public health combined with increasing knowledge about nutrition and the environment and personal hygiene have opened the way for a dramatic increase in the number of years of life around the world over the past few decades. But, the growth in life expectancy has resulted in an boom inside the quantity of older humans, for this reason jeopardizing the socio-financial reputation of many countries in phrases of prices related to health care and the health of the elderly. To address the growing want for elderly fitness care services, it's miles vital to expand low-cost, obvious and easy-to-use fitness care

answers. Clever homes, inclusive of transportable and cellular clinical sensors, actuators, and modern-day records and communique technology, can enable continuous and far flung monitoring of the fitness and nicely-being of the aged at low fee. Smart houses can allow older humans to live of their own consolation area rather than costly and limited fitness care facilities. A medical examiner can also reveal the fitness repute of older people in actual time and offer feedback and support from far awaycenters.

AI in Manufacturing and Production

[15] The industry encourages the use of intelligent sensors, devices, and equipment, in order to empower intelligent industries that continuously collect data related to production. AI strategies enable the production of usable intelligence by processing the data collected to increase productivity efficiency without drastically changing the necessary resources. In addition, AI's strategic ability to provide predictable data empowers complex production patterns and provides a systemic approach to support intelligent decisions in various production tasks such as intelligent and continuous testing, prediction retention, quality improvement, process improvement, provision. chain management, and job planning. Although different ML techniques have been used in various production systems in the past, many open-ended questions and challenges still exist, from Major data processing, storage, and understanding, data thinking to enable practical real-time intelligence to topics such as edge computing and cybersecurity features of intelligent production. Therefore, this special issue focuses on bringing together a variety of researchers to report recent efforts on the basic theory and experimental features of the ML and its application to the production and production systems.

[16] The conventional production for mass manufacturing does now not provide flexibility in meeting the needs of man or woman customers. A new generation of clever factories is anticipated to assist a variety of new production techniques and customized production techniques for the small organization. In this example, artificial intelligence (AI) permits for excessive-cost production with the aid of accelerating the mixing of production and statistics conversation technology, along with laptop, communication, and manipulate. The features of a custom-made smart factory are: self-recognition, performance improvement, dynamic redesign, and clever decision making. AI generation will allow manufacturing systems to look the surroundings, adapt to outside wishes, and extract process records, including business fashions, consisting of clever manufacturing, community collaboration, and extended carrier models.

[17] Production depends on ingenuity. Companies are increasingly using sensors and wireless technology to capture data at all stages of product life. These range from tangible goods and temperatures to vibrations to the supply chain behaviour and customer details. Truck engines retrieve data on speed, fuel consumption and oil temperature for manufacturers and shipbuilders. Optical scanners are used to detect errors in printed electrical circuits.

AI in Security and Surveillance

[18] Security and surveillance are the main focus of any organization that chooses security from any type of physical threat. The installation of video surveillance systems can cost organizations a large portion of their financial budget and could lead to significant changes in their network infrastructure. The aim of the research is to reduce barriers to setting up a video surveillance system into organizations with open spaces, which can allow any outsider to access their networks and require

more expensive cameras to cover their entire area. By installing cameras in an unmanned aerial vehicle (UGV) that can move around using a location integration system, it cleverly selects its own way for its automatically generated locals. UGV can also be directly controlled by analog transmission within a specified range. Video is streamed using an analog video transmitter and can be accessed through a particular channel using an analog video receiver, and can be viewed using advanced software on any computer. Software designed for the ground control station can intelligently identify an employee or outsider using a in-depth learning model trained in the face of employees and can alert the organization itself when it detects any interference. The research has expanded the scope of wireless video surveillance and reduced financial and structural barriers to incorporating video surveillance into the organization .

[19] Analysis of surveillance videos is a social and industrial responsibility. Significant growth in the field of computer vision has been made to activate the automatic monitoring system in terms of human activity recognition such as behavioural analysis, Violence Discovery (VD), etc. First, the embedded video frames are transferred to a light-weight convolutional neural network model to collect important information that includes people or suspicious objects such as Knives / Guns. When something suspicious is found, the warning is made as a pre-VD to the IIoT network while the information is shared with concerned departments. Performance testing and data reduction research on surveillance and non-monitored data sets strongly validates the performance of the proposed VD-Net by improving 3.9% increase in accuracy compared to modern VD (SOTA) methods.

[20] As civilization evolved in the digital age, there arose a need for human institutions to keep pace with this progress. Keeping up with technological advances has become a way forward. For this purpose, solutions to urban problems should be `smart '. Using advanced ICT provides us smart solutions. The latest developments in Artificial Intelligence have transformed intelligent solutions. These advances in AI have improved the way cities cope with important security and security threats

Application of Artificial Intelligence in Education

[21] Computer systems had been hired within the subject of training for many years.The use of AI in education provides high quality education programs for example, there are now ICAI (computer-assisted pc packages) applications for teaching or teaching many special subjects; numerous such applications are discussed here. A third major application is the use of specialist programs to assist with educational diagnosis and testing. In discussing these three major application areas, we show where AI has already played a major role in the development of such programs and where further research is needed to overcome current barriers. [22] The contribution of artificial intelligence to the education sector has always been significant. From robotic teaching to the development of an automated response sheet testing system, AI has always been helpful to teachers and students. These programs help to develop qualities such as self-expression, answering deep questions, resolving conflicting statements, creating creative questions, and decision-making skills.

[23] Education has found it important to accelerate the development of countries through personalized education and student identification, family structures, etc., and to increase access to their knowledge. While it is a challenging task for people to analyze each student independently, Artificial Intelligence methods and machine learning methods provide quick solutions with high accuracy to help people. This paper offers many tests with different educational sets to predict and classify student performance. Machine learning models are considered for each problem and the

results obtained show that Artificial Intelligence can help educators to develop personalized education before or during the working year.

[24] Research has found that AI has been widely accepted and used in education, especially by educational institutions, in a variety of ways. AI initially adopted a type of computer-related technology, which switched to web-based and online learning programs, and eventually used embedded computer systems, as well as other technologies, the use of web-based robots and web-based interviews to perform the duties and duties of teachers or educators. Using these platforms, educators have been able to perform a variety of administrative tasks, such as reviewing and evaluating student assignments effectively and efficiently, and gaining high quality in their teaching activities. On the other hand, because systems enhance machine learning and adaptability, the curriculum and content are customized and customized according to the needs of the students, promoting discovery and retention, thus improving student knowledge and overall learning quality.Butit is essential to be cautious and take vital precautions so that robots and artificial intelligence in no way dominate situations with out human supervision, specially in topics of schooling.

Advantages of Artificial Intelligence

[25] By using Artificial intelligence human activities can be reduced, by replacing people with machines, people can do other jobs. "Man's fault" this expression was born because people make mistakes from time to time. Computers, however, do not make these errors if properly configured. Mistakes are therefore minimized and therefore the chance of achieving a high degree of accuracy may be a possibility.

[26] Smartphones are an excellent example of artificial intelligence. With apps like Siri, which works as a personal assistant, maps and GPS, giving the user very short routes to location, apps predicting user actions, and providing recommendations. Therefore, we see that AI helps everyday life. [27] Artificial Intelligence (AI) can help business leaders automate time-consuming and labor-intensive tasks such as data collection, integration, and cleaning. This allows them to devote more time to high-value jobs and to make more informed business decisions. [28] Fast-paced work, stressful and complex work easily completed, hard work done in a short time, various tasks can be done on time, high success rate, minor work errors and disabilities and, very short-term performance. Artificial intelligence in applied in tesla cars as a auto-pilot mode.

Major advantages are:

- No human error
- Fast in decision making
- Reduces man power
- Highly efficient
- Available 24 X 7

Disadvantages of Artificial Intelligence

[29] AI makes people lazy with its programs that do most of the work. Humans tend to encourage involvement in these inventions that may appeal to future generations. As AI replaces many repetitive tasks and other tasks with robots, human interference degradation which can cause a major

problem within consumption levels. The whole organization is like that we are looking to exchange a few people who are trained in AI robots that can do the same job as others efficiency.

There is no question that machines are much better when they incorporate efficiency but they cannot replace the human interactions that create a team. Machines cannot build human relationships which is an important attribute when it involves Team Management.

Machines can only perform those task which are designed or programmed to strive, whatever other than that they have a tendency to crash or give irrelevant output which may be a sensitive background. [30] One of the big disadvantage is the software must be updated regularly. If there is any break down the cost of repair is high.When AI replaces humans there this can lead to unemployment. [31] The problem is that AI does not have emotions and it works based on the algorithm so believing in it completely is a risky option.

Major problems are:

- High cost
- Lacks creativity
- Risk of unemployment
- No emotions

Conclusion

Artificial intelligence is common to everyone today. Many industries rely on AI because it reduces human capacity and reduces human error. It simplifies one's life. This paper discusses the history of AI, the growth of AI, AI in India, the use of AI in various fields, the advantages and disadvantages of AI. Although there are a few negatives in the practical wisdom but there is a lot of good. So from this we can conclude that artificial intelligence benefits people.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

N. MAHA LAKSHMI
M.Tech. Embedded Systems
Email ID: neelam.mahalakshmi2021@vitstudent.ac.in

Introduction

Artificial intelligence is a technology to make a system, A computer or machine to make as a human. This is a study of how human learn, make decision, work and think. When it makes to solve the solutions for the problems. The goal ofArtificial Intelligence is to enhance system functions which make knowledge of human beings like learning, reasoning, problem solving, etc., The aim of AI research is information representation learning, reasoning, planning, realization, language processing and calculate objects to move. Now a days all sectors are involving with artificial intelligence, application that are used in this fields are speech recognition, handwriting recognition, vision systems, gaming and natural language processing.

What is the Artificial Intelligence?

[1] Artificial intelligence is the raising role in the managementresearch science and running research areas. Intelligence is frequently familiar as the capacity to collect information and decision about knowledge find the solution for complex problems. Earlier many areas are replaced by the artificial intelligent systems with human intelligence. It is the learning and improvements of intelligent machines and firmware that can reason, study, allocate knowledge, communicate, calculate and perceive the things. [2] Artificial intelligence is the study field in the area of computer science. It is formed with the improvement of systems as like human thought working like studying,decision making and self analyzing. The subject of machines developed to perform the task like human beings intelligence such as studying, adapting,self correcting etc. The expansion of intelligence of human by the use of systems like computers, like physical power through mechanical systems. In the sense of restriction, the learn of computers usage techniques more significantly by developing programs.

History of AI

[3] The fixed technique for improving an Artificial Intelligence machinesassumes a standard, familiar function that the artificial intelligence system for significant requirement by its activities. Systems improved with the fixed model technique raising successful. In the short summarize the evolution over and state of art to the next years. Fundamental development producing to general-purpose AI are harder to find,but they have large effect on the earth economy and on human plays therein. [4] In this short history, the starting of artificial intelligence are copied to ideology, invention and imagination. Early fictions in electronics, engineering, and many other studies have effected by Artificial intelligence. A few steps that have task at solving problems which has work in fundamental studying, information representation, and guidance as involving programs in language concerning, transforming, theorem showing, computing memory, and skill-based machines. The article stops with a small test of powerful organizations and present issues effecting the field.

AI in India

[5] In India, artificial intelligence recent advances are a raise call for policymakers, next years each and every person with Narendra Modi, Prime Minister of India flagship programs will be affected directly. AI-based research had made fast progress with China, it is essential that national security strategy critical substance as in AI India view. [6] In India,focus surface of development policy is an appearing of artificial intelligence. The regional country's influence, AI industry burgeoning and governmental ambitious initiatives surround AI that made significant jurisdiction to take, where this with reader of article lives regardless. [7] Conduction of studies by focus of group discussion and the sources of another as websites of different company usage of Artificial intelligence, Government of India reports strategy on AI, studies of literature, implementation of different policies on AI in locations of different and other documents relevant. [8] sixth population of world lies of the India future. As the revolution of the artificial intelligence is sweeping by societies and entering life of daily, its part in India's development shaping and raise bound to important. [9] Today, for efficient delivery of service and application of cost-effective of technological resources, Information and Communication Technology (ICT) is dependent on every organization. In next decades, globally and as well as in India business operations with the preference of growing to services of faster and artificial l intelligence acceptance tools based the global chatbox is accelerating.

Various Place Where AI is Used

[10] To curbing diseases of rat-borne and damages infrastructure built in environment are essential by routine inspection of rodent. False find ceilings for seek shelter be spot of perfect and their construct habitats by rodents. Whenever, risky and laborious of an inspection of manual false ceiling for rodents. For rodent activity of inside ceiling of a false monitoring using a development of an in-house robot which is known as "Falcon" by framework of work with AI-enabled IoRT. [11] In recent 60 years,considerably the artificial intelligence (AI) field has evolved. AI applications which have deployed in the contexts of high-income of country, Relatively nascent of settings of poor resource in use remains. In such settings, limited examples are there with exceptions of few notable. [12] The community of storytelling traditional are not yet widespready generated in the techniques of interactive storytelling development in the recent. In the maturity lack of formalism authoring and techniqueslies by the explanation part. [13] In the economy, artificial intelligence role about broadly to think of economics scholars and technology combination brought and short chapter presents the role of policy of few thoughts in world where ai is ubiquitous in this conference.

AI in Healthcare Appliances

[14] Artificial intelligence defines the combination of science and engineering field assumed upon the calculational theory of which is familiar known as intelligent action, the action exhibit of which including anti-facts creation. Computer science is consist of division of this. It is becoming the popular science in computer science field like improved life of the human in several places. Human efficiency is come down by AI in many areas, then there is amazing desire in healthcare by AI. It allows for accurate findings, demodulation, analysis, and curing of disease. Cancer, neurology, cardiology and diabetes of major disease places which are used the AI equipment. [15] In the modern society, huge advantages in the own electronic things and industrial observing, pressure sensors are awesome devices for updating the improvement of technology and science. Adjustable

pressure sensors depend on organic substance, that include rare desirable of workable and lesser expensive, have high impact in satisfying the artificial intelligence machines and devices thatwearable in related to health care. [16] Artificial intelligence is having the huge brightness in the kingdom of change in health care. AI is a one of study of computer science widely in copy of human intelligence combining with computer machines.The imitation of the act through iterative, complex pattern matching, normally in a speed and scale that extend human activity. The supporter suggest healthcare in revolution for patients and population.

AI in Manufacturing and Production

[17] Manufacturing and logistics machines of modern technology are raising everywhere and important operating networks. In these networks, huge amount of data are created by sensors,systems,machines,smart devices and people uninterruptedly. With this the growing functional activities, large date is quickly examined, extra widely, and extra extremely than previous. It improves the technologies of artificial intelligence and then introduced a Industry 4.0 or also known as the smart factory. [18] In the recent years,manufacturing industry with applications of artificial intelligence technology on the basis research. We knowing the fast improvement of core technologies like 'Internet plus AI in thiscurrent years that helps us huge chance of change in the recent techniques, process, and manufacturing industry in biosphere, in addition to the improvement of artificial intelligence. Then it supports us to create new techniques, process and with creates of manufacturing of intelligence, architecture of manufacturing system of intelligence, and technology of intelligent manufacturing machine, in adding of information communication, same product science and manufacturing with technology of AI. [19] The desire of independent customers are not given adjustability to fulfill the large bundle custom production pattern. Current new years are suggesting the creation of new different variations and small bundle tradition modes. Due to this higher added value manufacturing with speedy the combination of preparing and group of data communication metthologies, involving calculating, reporting ,and rule. Self-image, operations improvement, energetic reconnection, and intelligent analyzing are the behavior of a custom made smart industry.

AI in Security and Surveillance

[20] All the wide of globe speedily the artificial intelligence is multiplying. Remarkable improvements store emerging in the duplicate videos onset which dim the line in the middle of the accurate and not accurate one, to enhance algorithms which cross the good athlete in the globe in different athlete poker. Trades uses abilities of Artificial intelligence to raise the growth of logical refining; traffic activity also monitored by city officials and used for measuring the smart energy. Current time the states are raising the number of positions improved with surveillance of artificial intelligence equipment for tracking, monitoring and involve the policy aims for surveil people like few good and some disturb the human rights and huge of which dark middle one down. [21] With its own people China has raising its technological improvements. Enhanced the new ideas in both private and public areas, then this country is becoming the "perfect police state", "high-tech superpower" in the creating, and a leader of globe in hardship. Officials has able to try the control through surveillance their colonies,policing and fear. This country offers no condition to this. What is important, whatever, is country of China's use of latest technologies to develop an ever-raising, an

ever-introducing surveillance position. China has developed a novel networked authoritarianism mode to be make certain. A place which one freedom,security and liberty are not present and reformed by a state surveillance system which control near one as objective at Xinjiang in China's far west as true life examining. [22] The process of closure analyzing of an object,place and person to prevent and short the difficulty of dangerous unexpected places or undesired abilities to see the normalcy is the surveillance.whatever, normal technique of surveillance has sure elements involving not locating trained manpower and incorrect observation activate unsafe rooms. The surveillance usage like raising use of information and communication technologies (ICT) grown the automation levels. Automation lesser the human interference because of the systems became the better faith and well planned. The surveillance security became easy and well organized with latest improvements of internet of things(IOT) and artificial intelligence (AI). For surveillance with automation efficiency enhancement done with usage of IOT and AI related studying methods.

AI in Education

[23] The next ten years, research in Artificial intelligence is interesting to hypothesize as few persons had found that to live in the 2000 is lucky with combination of Y2K problems. [24]For the students of elementary school, to create the learn of deep learning theories of educational program is the study purpose. The CT element-oriented lecturing and studying model are based by the education program model of which developed by deep-learning. [25] The artificial intelligence in medicine (AIM) potential benefits not expected. The potential got is addressed by this paper. The powerful combination of AIM applications and health information systems, and emphasize computer guidelines are the earlier discussions of there in this topic, for evidence-based medicine and cost-effectiveness of new health care paradigms support.

Advantages of AI

[26] Problem solving or decision making of human intelligence are simulated to utilize the applications of artificial intelligence (AI). This gives the permanency, faith and effective cost with providing unwanted and fast in problem solving or decision reaching as advantages. [27]For the need for manufacturing cost lowering, some strategic materials usage, easier need, speed and environmentally sound coating purposes more are raising in the automotive industry. [28] The new technologies of In-vehicle information systems (IVIS) ergonomics evaluationsis development tools using to help the researchers is the one of the achievement of this program. [29] 5G networks proving their capacity of deployment that over the world is started by technological recent and advancements of architecture. The key network enabling functions like softwareization, cloudification and virtualization are raising performance of key from approach to core network. [30] The raise of networks and the internet has came to interface surrounding of high enabling for customers. The problems interconnection with safe the domains has came raising complex even though this interface.

Challenges and Disadvantages of AI

[31] In the big data settings with recent raising theoretical and advances of artificial intelligence technology are reviewed in this paper. The conclusion is combining human knowledge with data-driven machine learning of priors of common or intuitions with implicit are strongly came to

explainable, robust and common artificial intelligence. [32] In the last ten years, human life had had a significant blessing in the all the areas of the artificial intelligence. Especially in everyday life and in education of the people who study dangers of robots and artificial intelligence for a long time. [33] In the finance, the one of few most discussed topic is artificial intelligence. For study and performing decisions more efficiently and executing greater than normal and recurring functions are done by expectation of artificial intelligence. In some financial corporations, the AI is improving already and outstanding performance of the humans by researchers.[34]With the median of lower survival rate,the aggressive disease is the cancer. Unfortunately, the procedure for treatment is very expensive and long process because of repeatedly high and rate of mortality. For the improvement of rate of survival of patients the exact prior prognosis and diagnosis prediction of cancer is needed. [35] A ten years ago, the article Business horizons are published by call to action of "users of the world, unite!" for social media opportunities and challenges. This is for anniversary celebration, seeing of artificial intelligence and Coexistence of peaceful necessary rule creation need between artificial intelligence and humanity.

Conclusion

To conclude, the globe is on the architecture of transforming into many sectors by artificial intelligence. Like there are already important works in national security, healthcare, finance, transportation, criminal justice, transportation and smart cities that are used for making of decision, models of business, mitigation in risk and performance of system. Economic substantial and benefits in social are developed by these.

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ARTIFICIAL INTELLIGENCE

MONISHA B
M. Tech Integrated Computer Science
Email ID: Monisha.b2021c@vitstudent.ac.in

Introduction

[1] In current times, the world moves at a fast pace and new advances get made every single day. Science has made and discovered a plethora of new objects and opportunities for hundreds of generations to come. The limit of human knowledge exceeds itself and the need for advancement, the hunger for change, has caused computer science, as a whole, to rush forward to take its place in the condominium of the future, along with data science, coding, and many such branches in studies.

[2] Among the many derivatives in computer science, artificial intelligence has made itself known in the world. The uses of it are just about infinite, and the amount of contribution it has provided in important fields such as medicine, security, production and manufacturing, healthcare, etc., has been a blessing in the form of gadgets for the modern life that will take us to the future.

What is AI?

[3] Artificial intelligence is a division of the large and diverse stream that is computer science. The general and most important idea about AI is the formation of a machine, a completely computerized and coded instrument, in a manner that functions and performs as a human person, doing 'intelligent' tasks on its own.

[4] In the year 1955, a pioneer and researcher of AI, John McCarthy had proposed a definition for AI. He quoted that the main goal of AI is to form machines that perform as if they were, truly, intelligent. Unfortunately, this definition causes many dilemmas and inconsistencies. Another pioneer, Elaine Rich, proposed another way to define this complex and big branch. Rich proposed that AI would be the study of making computers that do activities that, currently, humans do better. This definition, concise and proper, puts forth an idea that is true to the goal and routes of AI and its study.

History of AI

[5] The concept or idea of AI, although seeming to be new and 'modern', has been around for a long time. The human curiosity and quest of making something that is 'intelligent' have led many past philosophers, writers, and great thinkers to a road of discovery, a road on which we still walk on today. Some of the earliest mentions include the mechanical tripods in the famous "Odyssey" written by Homer. This mention was the start of a query, an inquisition among many readers-can this be a reality? A walking device, made by man, with intelligence so very similar to humanity and its collective wisdom that can perform tasks on its own, possibly for the betterment of the collective society. It seemed like a daydream, a mere thought of science-fiction, but many forget that, with the advancements being made in AI, this dream is very close to soon mimicking reality.

Many other writers such as Jules Verne, Isaac Asimov, and L. Frank Baum has written and described their versions of the mechanical men, forming more such depictions of the highly responsive, thinking, and talking machines, that do every single thing, such as walk, talk, help, act,

everything, that is, except live. Golems from the Jewish tradition, Mary Shelly's Frankenstein, and many such science fiction works inspired many to think about the possibilities of AI.

[6] During and after the rise of modern computers, post-world war II, artificial intelligence took place in the heads of many in the form of thoughts of inventions never imagined before and a new door to opportunities suddenly opened. The demonstrations of modern computers were marveled at and due to their amazing calculating power, was dubbed as "giant brains". Many advances have science been made towards the development of AI and every single step taken has been more important than the last.

AI in India

[7] As one of the leading nations in terms of human resources and population, India, a country with a great number of people working in the engineering sector, has enormous scope and research in AI and machine learning. The government of India has shown an enormous interest in Indian research and development of AI within the borders to help the society and population that it belongs to. It emphasizes the AI concepts via the Skill India initiative that has been taken to introduce interest among younger and newer generations of the country. Many such flagship initiatives are taken by the government towards actively pushing policymakers to take seriously [8]AI's potential for many national struggles and even frontline protection by AI means.

Adoption of new policies to push the limits of AI innovation and management, other than towards just information technology and consumer sectors will prove to help in the improvement of the acceptance of AI handling in present-day India. The quick spread of AI and its different ways of assistance opens a whole new book in the library of development of the future of the country, and this can be done specifically designed short-term policies that work towards the incorporation of AI concepts within the government, that work for the long term benefit will be very helpful in reaching our potential and destinations never seen before. The country has a long way to move forward when it comes to AI and its various uses, ideas, and research, but it's well on its way to making it among many others on this front.

Various Places Where AI is Used

[9] The very definition of AI is that of assistance, to do things that humans can already do, only better, more perfectly. Many various types and forms of AI has been and still is used today for not only development but to make one daily life easier, to make life as we know it as uncomplicated as we can, and for research, to know more about the earth we stand on, our environment and ourselves. [10] AI is used for mostly healthcare purposes, to save people, and to make a life for people with chronic Ailments much happier. Many research organizations of other topics (such as space) also benefit from machine learning. NASA itself has integrated AI into its advancements in space research and exploration. Many of the equipment, including spaceships, have taken inspiration from intelligent machine learning and such.

[11] Many other fields also take the help of machine learning and smart devices to assist in their efforts for human development. Information systems and applied computing use AI to expedite the information and data collected in their own time, which in turn benefits the field to provide better and more accurate results. AI is also used in many modeling and simulation work as well as robotic planning of expert control systems. AI usage has also been very important and significant in

chemical and biochemical research, in the form of different kinds of equipment to form stable environments that are required to form. The field of AI is vast and has proved to have a significance of priority.

Growth of AI

[12] There is often a worry among people focused on the development of AI and do not think that its progress is unhindered even though the same people have said this in the course of hundreds of years. The field of AI is rapidly growing every single day with new and more efficient systems popping up for pattern recognition and process supervision. Furthermore, the modern hardware that is being prepared every single day is employed every single day for the programs made. Every year, new and more developed, systems appear to accommodate the newer better systems in order.

[13] *The Economist* has made an estimation of AI-related mergers and acquisitions being 26 times in the past few years. This shows how significant and fast the rise and increase in demand for and of AI is. The rapid advancements are more shown in manifestations of other forms of AI as well, such as robotics, sensors, and their connection. These advancements include but are not limited to the creations of chatbots, complex strategy and problem-solving, virtual assistants, and cashier/cash-less stores.

AI in Healthcare Appliances

[14] AI, while having an innumerable amount of uses and requirements, none of the fields take more advantage of it than that of healthcare and medicine. Intelligent machines have been a part of medicine and remedy since it was born and it continues to be in use even now. There have been inventions of biosynthetic machinery used as labor and the very prospering use of robot-assisted surgery for procedures of many issues, such as urologic and gynecologic problems. There has been a new rise in the usage of robot-assisted laser surgeries in hospitals for painless, Scarless, and efficient surgery methods in isolated areas of affected tissues.

[15] Robotic intelligence covers up a lot of health-related equipmentation such as surgical robotics, medical diagnosis, medical statistics, and human biology research devices. AI use in medicine has two main divisions, virtual and physical. The virtual form of AI in medicine focuses on an information-based approach for deep information learning and its management to gain control of health management systems such as online health and diagnosis records, and active help with decisions in treatment. The physical branch of AI is characterized by the assistance of robots for patients and surgeons alike. The future of this branch talks of nanotechnology, used as drug delivery systems. The ethical and moral standpoint of an unconscious being responsible for the lives of millions to come is still being debated and talked about. AI in health care shows so much hope and while we have reached a zenith of these benefits of AI, there is still much more to be done. The future for this branch is ever-growing and will never stop, thus, this would only mean more to come and better equipment to help save people.

AI in Manufacturing and Productions

[16] One of the most intensive uses of AI occurs in the field of production and manufacturing. The competition around the world and the constant change in the requirements of consumers and customers facilitate endless and constant change in the environments of the manufacturing industry.

In addition to this, many companies and enterprises are pushed towards the redesign of products and the constant reconfiguration of systems of production. Due to this and the fact that the situations of the current manufacturing systems barely ever get satisfied by traditional approaches, many authors, researchers, and pioneers have proposed the flexibility and efficiency needed by manufacturing systems can be provided by artificial intelligence and machine learning.

[17] There have been many incorporations of AI in the manufacturing industries of the world such as techniques of pattern recognition, expert systems, artificially made neural networks, and even hybridized forms of artificial intelligence. These techniques have been used for a long time and will still be used in later days, albeit modified and tweaked. The new smart manufacturing technologies and advancements reflect on the huge scale and influence on things such as cyber-physical systems, big data, cloud computing, and the internet. There are more ways to go for the future of production, but the involvement in AI is so prominent that a life of manufacturing without AI would become unimaginable.

AI in Security and Surveillance

[18] AI has been used and trusted everywhere, to the point where it exists in our own home, in the phones we use daily, and in our offices. Many people tend to trust AI forms of technology for security for the reason of the low probability of it failing, therefore, the existence of AI and its usage in the field of security is more preferred and has a lot of faith put into it. The industry of security has several different forms of AI-based techniques of surveillance. The varied uses include the diversity of forensics, intruder alert systems, infrastructure protection, and homeland security, leakage of sensitive information, malware detection, and access control. A lot of these involve the use of smart software for private and public security, and hence, have a lot of faith put into them.

[19] While there truly is a certain significance to intelligent machines now keeping us safe, these situations raise many questions and problems. The existence of adversarial AI where the AI systems are used for improper reasons such as profit or fun worries many. Production of this new AI is open to an entirely new class of vulnerabilities that these adversaries then exploit to change and alter the behavior of system AI to serve a more malevolent destination. Many regulations shine a light on the fact that any kind of data is anonymized whenever it is possible to do for the goal of protecting the privacy of the general public and extra safeguards can be placed when non anonymized data is needed.

[20] This goes to show how AI comes to give many troublesome questions. Plenty of such concerns are shared by experts for topics about the error rates of facial recognition and the falsehood positives specifically for minority populations. Due to the general public becoming more conscious about the algorithmic bias in datasets of training AI and the impact it has prejudicially on the predicting policing algorithms and the multiple other tools of analytics used by the law. While these issues still exist on the dependence of AI in security, the development of it every single day moves to use to a future of surveillance completely dependent on AI.

AI in Education

[21] Smart learning has been part of the educational curriculum for quite a while now, about 20 years. While computer-based learning has been existing for a while, it isn't appropriate and does not individualize every student in teaching. This is where intelligent tutor systems come into play. These

systems that focus on every student as an individual have been shown to affect students' motivations and performance in a positive way. It has also been shown that this is because AI tutoring and learning focuses on all the main topics, that is, planning, reasoning, machine learning, explanation, knowledge representation, and natural language.

[22] Applications of AI in education is a field that pushes learning, wherever it occurs (workplaces and traditional classrooms) to support lifelong learning along with formal education. It braves to conjoin the self-disciplinary AI and the learning sciences, for the development of learning environments that are adaptive and tools that affect, personalize, engage, include, and are flexible for the students. In the core of education via AI, we can find the goal to make education and knowledge, often implicit, by making them astronomically precise and explicit. Therefore, AI in education can be a tool powerful enough of giving us deeper knowledge and also help us understand more about how learning actually happens.

Advantages of AI

[23] There has been significant development in the innovation of technology for as far back as the industrial revolution, with smashing successes in a change of innumerable manual tasks and work that has existed for years and years. The formation of AI gives a possibility for the same potential of transformation for the possible replacement for activities and tasks humans used to do, all within the range of applications in the intellectual, social, and industrial level. The speed at which the new age of AI has been moving forward is unbelievable, along with groundbreaking new opportunities and new discoveries in algorithmic machine learning as well as autonomous decision making.

[24] Intelligent machines have multiple applications and are utilized to mimic human knowledge when solving a problem or during decision making. Few of the many disadvantages include but are not limited to reliability, permanency, cost-effectiveness, all while being just as fast and certain in a problem-solving scenario. Multiple fields apply AI in practical and theoretical use, fields such as engineering, law, linguistics, manufacturing, economics, and medicine while also providing for realms such as prediction, modeling, decision support, and control applications. The rigorous use of the internet could be considered one of its most promising applications. The significance of AI maybe its efficacies, and are limited in functionality and capability equally.

[25] The very wide range of applications that a tool has is established with its reliability and AI is one of those things that prove very reliable in numerous unique areas because its capability to mimic human knowledge and intelligence in a process of reasoning helps it to do so. AI also works towards minimization of costs due to reduction in personnel time need. The various advantages of AI cannot be limited to a few words, nor a few pages. As of now, the near future can be seen through the eyes only of a non-conscious learned machine.

Disadvantages of AI

[26] While AI can be very helpful and reliable, it doesn't change the fact that it also does an equal amount of harm to one's daily life. AI is a powerful tool, capable of an infinite number of possibilities and a whole range of applications, but only when used right. When in the wrong hands, misused, or taken at an unnatural level of advantage, it can lead to destruction, ranging from the smallest faults and errors to mass-scale deterioration of data and/or harm. The taking over of AI to human jobs may seem good, easy, preferable, and efficient, but this can cause many jobs to be

affected and cause an increase in unemployment, and this, in turn, can drastically affect the economy in ways more than one. The creation and limits of AI are not unlimited and are very much dependent on the creator/programmer.

[27] Other limitations include that AI-based search systems and engines can never be trusted to give the 'optimal' answer or solution. When using search methods that are mainly based on AI for problem-solving, it can be found that is it's often tough to understand the nature of a solution or the problem itself due to the calculation being made by mathematical programming means. There are also int=stances wherein a model would have to rerun the solution multiple times to gain an assessment of the sensitivity of said solution based on many different parameters and assumptions about the problem, just to gain some insight into it. This may end up being a little difficult from the point of view of the resources of the system. These can be the reason that development in AI gets limited from time to time and can cause backlogs on the route of a successful future for the world.

Conclusion

The world of AI has a lot to offer, from doing human jobs better than them to even saving lives. The very concept of AI had come up a long time ago and has only grown since, taking over the fields of science, making breakthroughs in communications, and solving problems left unanswered for ages. The many formations of policies that occur in our country, India, can lead to development on the machine intelligence front and form thoughts of a better future for the nation. The AI, we learned, is used in hundreds of existing fields, ranging from language, problem-solving, decision making, and data interpretation, to appliances and equipment in chemistry, science, and medicine alike. The growing field of AI has just been born and has already reached new heights we've barely explored before and it's still moving and moving. AI has been shown to have a big hand in modern medicine, whether it be for surgeries or drug inducing, and has provided sanctuary for the ill. AI has proven to be of spectacular help in the manufacturing industry and aid in private security, even schools may soon have AI learning as part of the curriculum. A learned machine can be a blessing and a curse in many ways, as long as the usage is appropriate. The future for AI cannot be seen but can be ensured that it'll be somewhere in the stars.

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ARTIFICIAL INTELLIGENCE

MUKUL MALVIYA
M.Tech Embedded System
Email ID: mukul.malviya2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] The term artificial intelligence can be defined as the ability of the system to predict the external data precisely, and to grasp these data for achieving any particular task and specific goals in which we are interested in. Artificial intelligence is made up of two words artificial which means something that is created by the human and intelligence which means ability to think therefore the word artificial intelligence means thinking power made by the human.[2] Artificial Intelligence is a process through which we can make machines to take decisions like human beings, and think like a person who can make the decisions. This field is formed with the idea that one day machine can able to think. The aim of AI is to create consciousness for that AI goes through many stages of planning, reasoning, analysing data, prediction from output and then work accordingly.AI uses mathematics statistics and probability for the prediction.

History of Artificial Intelligence

[3] The origin of AI is probably started in 1942, when a science fiction writer Isaac Asimov published his story in which he discussed about three laws of robotics. First one is that in any condition a robot should not harm human being, and it should allow any human being to harm it. Second one is it should obey all the orders given by human being. And the third one is it should protect its own existence such that it does not conflict with the first two. Later on this work inspires the scientist and the American scientist then co-founded the MIT AI laboratory.[4] The term Artificial Intelligence was first used in July 1956 at a conference in Dartmouth College. Many scientist have attended it who later on became the leaders in that field. The two approaches for the general AI are top down and bottom up. In top-down approach which focus on higher levels functions. In bottom-up approach which focusses more at deeper level which is at the neuron level.

AI in India

[5]More than 700 languages are spoken in India and at least 20 languages are first language which are spoken by millions of people. But a large section of people is either monolingual or bilingual for them language become a barrier for communication and access to information. Natural Language Processing and Automatic speech recognition is been a research topic within AI. These algorithms are used in machine translation, spoken dialogue, sentiment analysisand social media analysis.[6]In India it is predicted that the uses of AI in healthcare domain will be worth 431.97 billion by 2021.Due to this the doctor patient ratio in India is expected to increase . With the help of AI the efficiency of doctor can be increased by solving challenges like uneven doctor : patient ratio by providing high-quality healthcare and training doctor and nurses to handle complex medical procedures.

Various Place Where AI is Used

[7]Artificial Intelligence can do many interesting things like web search, photo tagging or email anti-spam. And due to continuously development in machine learning it is used in many segments of industry and basic science.[8] Artificial Intelligence is used in various diverse fields from which some of them are Expert Systems, Natural Language Processing, Speech Understanding, Robotics and Sensory Systems, Computer Vision and Scene Recognition, Intelligent ComputerAided Instruction, Neural Computing. And these systems are growing continuously which is having a huge impact on various fields of life. The various technique which are used in AI are Neural Network, Fuzzy Logic, Evolutionary Computing, andHybrid Artificial Intelligence.

Growth of AI

[9] In last 150 years the economic progress is depends upon the automation. Due to Industrial Revolution, there is transition from steam to electricity to automate many different processes. Now we are in the aera of AI where the progression from manual automotive engines to self -driving cars. Currently AI has replaced the low skilled man power work and in coming days it may replace the high skill man power work. The advantage with the past improvements in AI is we can predict the possible future effects of AI.

AI in Healthcare Appliances

[10] In last few years the growth in artificial intelligence research in the fields like engineering, biomedical has been exponentially increased. In fields like healthcare, medicine and radiology the AI has many research due to availability of large digital data sets.[11]Machine learning is used in healthcare by fitting the models to data and learn from it. In 2018 Machine learning became popular in AI. In healthcare machine learning is used to predict what sort of treatment protocols is going to succeed based on various patient symptoms and the treatment given to the patient. Machine learning require training data set from which we can predict the outcome variable and this process is called as transfer learning. [12] With the help of AI pharmaceutical companies has improve the speed of drug discovery and also automates the process of identification of targets.AI also helps in reducing the repeated work. Pfizer is using IBM Watson which is a machine learning based system which helps in finding out immune-oncology treatment. The power of AI and machine learning will help in faster, cheaper and more effective drug development.

AI in Manufacturing and Production

[13] The complex AI algorithms can be very helpful in medical research. These algorithms can learn features from large set of data and then we can obtain a meaningful insight from it which can be used for clinical purpose. AI have learning and self-correcting abilities which is used to increase the accuracy.AI can be helpful for the physicians by providing latest medical information from textbooks, journals. AI solutions can also help to reduce the errors in diagnostics and human clinical practice. With the help of AI we can extracts meaningful information from large patient data and use it to for making real time inference for prediction. [14] AI have huge potential in areas like product designing, customizing the product manufacturing, product management and after sale service. With the help of RFID data which we can collect through RFID -tags that is attached in shopping cart. Also the power of deep learning can be used in in identifying machine faults by analysing mechanic

data which is collected from sensors, induction motors, gearboxes and bearings. In this way AI helps in improvement in the manufacturing .[15] With the in Internet of Things(IOT), and fast change in information environment there is breakthrough in AI Technologies like Big data analytics ,crowd intelligence and cross media intelligence.The new generation machines which are intelligent enough to automate the process of full product cycle which includes design, manufacture and the integration process.AI will bring revolutionary changes to the manufacturing industry.

AI in Security and Surveillance

[16] The development in Artificial Intelligence, Machine Learning and IOT can be used to implement the intelligent surveillance systems. The smart AI driven security camera can be used to identify weapons and guns, face mask and suspicious object. AI can help in preventing the mass shooting. [17] Artificial intelligence runs on data and patterns for building a model. And these models can predict the future. With the help of these models various anomalies occurring in real life can be detected. These models can help in prior detection of the anomalies and we can reduce it to an extent.[18] With AI and automation we can detect human behavior in a video surveillance and can detect any suspicious activity. This is possible only because of deep learning and machine learning. By combining the computer vision and video surveillance public safety and security can be automate.

AI in Education

[19] Computers are used in education from last 20 years. Many attempts have been tried to simulate the working environment which helps student in learning process. One such example of this is ITS(intelligent tutoring systems). It provides flexibility in presentation and also provide ability for idiosyncratic student to respond. It also helps to increase the student performance and motivation. [20] AI is used in education and it is a subject of academic research for more than 30 years. With the help of AI the learning process will improve. AI needs computer to operate so with the help of algorithms we can improve the human intelligence.[21]In 2015 in one research paper titled Deep knowledge tracing which is used to apply Deep learning in educational dataset. The dataset is taken from Khan academy and another one is from Intelligent Tutoring system which is an online platform used in US. Deep learning can used to discover patterns in the data by using artificial neural networks which can mimic how a biological brain work.

Advantages of AI

[22] Artificial intelligence (AI) is used for simulating the human intelligence which is used to solve a problem or to make a decision. AI has many advantages like permanency, reliability, and cost-effectiveness. AI has vast applications like engineering, economics, linguistics, law, manufacturing and medicine, and for a variety of modeling, prediction, and decision support and control applications. [23] Thedecisions made by AI is based on facts not on emotions this is one of the major advantage of AI. The decisions made by humans are affected by emotions. Human beings need sleep whereas we can run AI based computer 24/7 in this way AI become tireless. With the help of AI we can spread knowledge i.e. we can use someone else work which can save our precious time. [24] AI can do complex task where humans can find it difficult or which is impossible for human. AI helps to discover unexplored things. Humas can do the error whereas there are less chances of doing error with AI. [25] AI provides greater accuracy with higher degree of precision

when compared with humans. AI is used in healthcare industry for clinical procedure. Due to excessive work human may make some error so with help of AI we can find them.[26]The advantages of AI in electrical automation control which often needs to design the controlled object model, but in the construction there are many uncertainty factor like changing of parameters, and numerical type which make design more difficult. SoAI implementation is not much difficult and also it does not need any function approximator.

Disadvantages of AI

[24] As the coin has two sides AI also have another side which is some time AI can be used to mass scale destruction.AI may replace human jobs which will lead to unemployment. With the increase in in AI automation it leads to make younger generation lazy. [25] It is not easy to make machines and they are also costly. Machines are designed to perform a particular task. If we try to make any changes they may be crashed. [26] AI has made important boom in last 10 years. Isaac Asimov has already told about possible dangers of uses of AI in daily life. In education there are challenges that must be considered. Use of robots in classroom instead of teacher may lead to dangerous situation. [27] One of the main disadvantage of AI is the maintenance cost and repair cost. The software needs to be constantly updated. Another big disadvantage is when we do any complex task it may have bugs which can lead to failure of the machine. In addition to these there is fear of robots which may replace human beings.[28]The disadvantages of AI is been already appeared to people for example siri which is a voice assistant in smart phones which requires a network connection and end users cannot have active internet connection throughout. Another big disadvantage is it make people lazy.

Conclusion

In this work firstly I have found out what is artificial intelligence and where it is used and then I went for advantages and disadvantages. On the one hand there is advantage of AI and other hand there is disadvantages of AI. As the coin has two side we can use AI for the betterment of society as well as for destroying the society. But one thing is for sure that AI is growing very fast and many issues can solve with the help of AI. AI is automating most of the task which requires human intelligence. But still in some area like autonomous vehicle, self driving car human beings perform better than AI. The AI has the ability to learn and by the time the performance will get improved.

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OVERVIEW OF ARTIFICIAL INTELLIGENCE ALONG WITH IT'S APPLICATIONS; PROS AND CONS

T. HARSHA PRIYA

M. Tech Integrated Computer Science
Email ID: harsha.priya2021@vitstudent.ac.in

Introduction

[1] Artificial intelligence is the study in science of constructing and bringing an effective action in a machine using computer program which is able to do the tasks that requires human intelligence . In Artificial intelligence, artificial means some thing that is not naturally occurred and intelligence means the ability to acquire and apply the information.[2] It engages in solving issue which require human intelligence such as problem solving and pattern recognition, and decision making. Artificial intelligence is commonly known part of computer science because it upgraded humans life in many fields. Artificial intelligence is also defined as the study of mental faculties such as ability to think, etc. by the help of computational modules.

History of Artificial Intelligence

[3] 1940's : the began of history of AI by the creation of computers, next in 1950's researchers gave a try to construct the machines which could mimic humans .And during the period of 1980's ,it under went second birth, when its ability was discovered . Then slowly software products were produced. And at that time machine learning , a part of AI was developed .The origin of AI is based on fiction and imagination.AI is influenced by inventions in electronics , engineering. Early development include work in problem solving which consists basic work in learning, knowledge representation.[4] McCarthy was the first person to introduce the term artificial intelligence in 1956. It have many successes .They are : heuristic searches , character recognition and facial recognition systems and so on .In the year 1990,there is a large progress in technological settings, mainly in AI field. Now in 21st century it is having a great impact on organizations and industries.

Artificial Intelligence in India

[5] In present situation, Artificial intelligence can play a major role in helping Indian health care system in terms of employment. It can support the Indian health industry in improvising the complete functioning.In India,advancement in AI have critical impact in public sectors like identifying fraud tax, avoiding subsidy leakage.[6] Artificial intelligence changes the way we live and made it easier. It is also considered as fourth industrial revolution. It causes advantages and also challenges. The disadvantage is that it will cause unemployment for many people. on the other hand, it is estimated that it will increase the annual economic growth rate of 12 countries by 2 times. However the disadvantages can be decreased and we can get as much as benefits from it by putting necessary policy in place.

Applications of AI in Different Sectors

[7]AI has the potential to make traffic field more efficient. It can reduce fuel consumption and decreases CO_2 emissions and helps in decreasing air pollution.AI which can help in transport fields

are genetic algorithms, artificial immune system ,simulated annealing ,ant colony optimizer ,fuzzy logic model, artificial neural networks, bee colony optimization. For successful implementation of AI in transport field it is important to know the relation between AI and data and on the other side, also it is important to transportation system traits.AI helps to keep road traffic flowing. It can ease traffic congestion. [8]With the boost in information technology(IT) ,it is easy for criminals to commit cyber crimes. So cyber infrastructures are at high risk .It is important to create a more advanced cyber defence systems which detects the threats and make intelligent decisions within the shortest time with best set of data available. human intervention is not sufficient for monitoring and protection of these infrastructures AI helps in cyber crime identification and prevention.

[9] There are number of algorithms from machine learning and artificial intelligence which are used in medical field. The algorithms which are used in medical field are naïve Bayesian, support vector machine algorithm, artificial neural network, fuzzy logic. AI algorithms are used to analyze large amount of data through electronic health records for disease prevention and diagnosis. Artificial intelligence is much used in surgeries regarding brain ,kidney transplantation etc .

[10] AI plays an important role in agriculture sector .as the agricultural sector is facing many challenges, AI helps in:

- Crop management,
- weed management and
- disease management.

It helps in identifying poor nutrition of farms. It identifies the effected region and decide which herbicide should be used in the particular part.
The various applications of artificial intelligence are:

- Transportation system
- Education
- Health
- Entertainment
- Communication
- Public security and concern
- Health
- Employment.

Development (or) Growth of AI

[11] There is a remarkable and outstanding development in AI from the past.Present world has a lot of impact due to arrival of AI powered machines. we can now do the work without human force. In coming generation work which requires human force will be completely replaced by robots and machinery. Now we are in the edge between real and less than real. we are in the world which could have not even imagined by people in 18th century. Across the globe, both private sector and government sector have a intense interest in advancement of AI [12] Along with AI only few subjects are producing excitement in science and technology. Stephen Hawking and Elon Musk also raised their concern over the effect of AI. [13] Machine learning and artificial intelligence are entering into day today life and also making a lot of transformation in business. Fast response id required for rapid changes in business.

AI systems could inform the day to day function .It is helping humans by reducing the work load in various sectors.AI has its own place in overall systems of organizations such as inhuman resource development where screening, recruitment, etc. are done by AI systems.[14]The Moore's law which states that for every two years ,the number of transistors on a microchip ,though the cost of computer is halved and the power of the computer is increased. This had a chief impact on AI. Recently in the ancient board game Go ,AI based machine had a defeated human. AlphaGo is an AI-based machine, initiated by London-based Google DeepMind, had a win over Lee Sedol of South Korea who is the world champion of Chinese board game. It is one of the advancement in Artificial intelligence.

AI in Healthcare Appliances

[15] Physicians are provided with complete information to come to a decision about patient health, by the help of AI. It helps doctor to estimate the health risk of patient and gives the information about the side effects of certain medications. An expert can look into 50 patients a day which weakens the notice given to a every individual as it is hard to take care of everyone, which can be perfectly attained by AI The quality of treatment by AI will not depend on how many patients treated per day, and the duration of working hour Doing repetitive jobs: Robots can perform tasks such as Analyzing tests, X-Rays, CT scans, data entry, these works more precisely in short span of time.in the field of cardiology and radiology one should look into huge data which is time consuming process. Medical Sieve, an algorithm started by IBM.

[16] BasicallyX-rays are most commonly performed diagnostic imaging tests which are prescribed by physicians. Different abnormalities on chest X-rays can be identified by a deep learning algorithm trained on a well labelled database. [17] Especially in medical field (specifically in cardiology), artificial intelligence has been running profitably and strongly .there is a much benefit for doctors it gives a chance to treat the patient effectively as it is not possible to give such treatment in short time without AI technology.AI is also used in ventilators, which pumps oxygen rich air into lungs. Medical field is trying to bring a decline in the rate of deaths because of cardiac arrest by making an apparatus which is easy to handle and to rescue victim from cardiac arrest.

AI in Manufacturing and Production

[18] Keeping in the view of the industry 4.0 paradigm, one can say that there is a huge impact on manufacturing industry due to machine learning. The industry 4.0 paradigm recommend and support the utilization of smart sensor devices, and machines for the factories which gather information related to production. without notably changing the required resources, machine learning helps us in increasing the manufacturing efficiency by producing the actionable insights by filtering the collected data. [19] In current era the production sector has become fascinating part with new variations which are changing the world of production technology and the change is in getting better return than in past, by using the same input, which is called as intelligence manufacturing or production.IM resulted in boosting the productivity in manufacturing sector in the wake of 4th industrial revolution. Intelligent manufacturing take in the use of complex analytics, application of sensor in robotics.

[20] During the past several decades, intelligentization, aid by artificial intelligence technologies, has become the primary style for industrial manufacturing and for boosting the

development of smart manufacturing. Industrial artificial intelligence which is known as technical core of smart manufacturing is yielded by giving additional attributies to AI(Artificial Intelligence).AI-powered manufacturing puts forward the extraordinary improvements in various sectors of closed-loop production chains from manufacturing processes to end product logistics. Diagnostics and predictive maintenance of production process are being widely supported by advanced AI methods.

AI in Security and Surveillance

[21] There are lot of disadvantages due to ordinary household door locking systems. For better security purposes, the remote proctoring facility is attained facial recognition and object detection technique using CNN algorithm. Convolutional Neural Network is used to identify anomalous activity and detects objects near to it. The door can be unlocked by Electric door lock solenoid. certain threshold value for the distance between a person and door is assigned , when a person reaches the value ,it captures the image . incase if it is mismatched an message will be sent to owner so that he is alerted. [22] face recognition plays crucial role in security, surveillance. There are cc cameras everywhere for safety concern such that persons near that camera could be recognized .And for security for places where allowance is illegal.ML and AI based algorithms are used to deals with a system which could recognize the face. HOG feature extraction and SVM classification algorithms are used to design this.

This appliance is such that one could identify the face of people and give us information about presence of intruder [23] As there is much positive impact on algorithms for factoring and discrete log, due to research in cryptography. Similarly we can advance the field of AI by the use of hard AI problems for security concern. CAPTCHAs can be used for security purposes and they are constructed by using 2 families of AI problems and solution for these problems can be used for steganographic communication. CAPTCHA is an test which humans can pass easily without any difficulty but computer programs cannot. A program which has victory over CAPTCHA, can solve an unsolved artificial intelligence problem. It ultimately gives us 100 percent favourable situation in 2 ways, one is that the problem is unsolved and there is a way to separate and identify humans from computers, or the problem is solved and one can communicate candidly on some channel.

AI in Education

[24] From many years researchers are going on about the applications of artificial intelligence in education. It supports structured and systematic form of learning .It uses AI algorithms to communicate to people and to provide the sufficient information required [25]The three advantages due to AI in education for learners are collaborative learning, and intelligent virtual reality and separate mentor for every student so that care given for individual increases. Intelligent tutoring systems ,this provides learner with immediate guide according to their needs based on their understanding and knowledge without presence of any mentor physically, it also gives the observation note on the task.

[26] It is also proved that learning collaboratively gives a lot of information than learning alone. By learning in groups they can stay focused without any distractions and involves more in the work and can have good result . These are the four applications of AI in education which support

collaborative learning: adaptive group formation, expert facilitation, virtual agents, and intelligent moderation.

Artificial intelligence in education deals with advancing the computer software that helps learners in gaining the information easily. Mentors and learning schedule are provided to individuals or group of people according to the achievement level. Ultimate goal is to imitate a tutor's behaviour.

AI is applied in various domains in education field :

- programming
- writing essays
- physics
- reading ,etc.

In the near future education ,with the help of AI change from batch processing to personalized learning and from print to digital. furthermore online teaching and learning are completely included in traditional system of learning. Already this is implemented in K12 in the USA .

Advantages of AI

[27] Human work could be reduced which is displaced by AI. AI could be used as a cheap labour which performs task effectively in very short span of time. unlike humans , there is no need of break for energizing during their working hour. In mining and fuel exploration processes where there is risk of life for humans, the science of robotics and AI comes into play where humans could be replaced by robots. There are many advantages of AI in industries. It is very common for humans to commit mistakes but systems would ever commit mistakes if they were programmed correctly. So that the allotted work can be performed precisely with great accuracy.

The users gets required information from many websites by using digital assistants. Machines can take decision and perform action fastly by using AI and other technologies.

Apple's Siri, window's Cortana are some applications in of AI which made life quite interesting and easy. [28] One of the way to get out of depression and loneliness is to adopt pets ,so the people who don't like animals can use robotic pets.So knowingly or unknowingly we are using artificial intelligence in our daily life.one of the main advantage of artificial intelligence is that it could be used in exploration of space, as there is no effect on the robots due to the different condition in space. The prepared robots are in such a way that they could sustain the changes.

[29] The advantages of Artificial intelligence are constancy, and increase in rapidness of decision making and problem solving increases. In different fields such as engineering, economics, manufacturing etc. AI plays a crucial role. It has a very good role in search engines such as google etc. [30] In current generation, computers are the suitable instruments for application of AI technology. compared to noncognitive tasks, AI has more victory over the cognitive tasks. However the ultimate goal is to do a particular task effectively in less time.

It has many advantages such as:

- Self driving cars
- Plays chess
- Proves theorems
- Plays music
- painting

Disadvantages of AI

[31] As the instruments required are expensive, it is not easy to prepare the machines.it requires human effort and a lot of money for reconstruction or repairing the machines. As robots are used to do most of the tasks, people with minimum qualification are being replaced by AI which performs same task quickly.

[32] It is also clear that robots cannot emotionally connect with humans, they lag with soft skills such as team management and all. It only performs the task which are programmed to execute, out of that it may give non-related data which is a disadvantage of AI.

Also one of the disadvantage is that if the same situation continues, in the near future AI robots and machines may replace humans and rule us.

[33] Some of disadvantages are listed below:

- loss of jobs for people
- people are depending on technology excessively
- it needs a lot of money, people become lethargic,
- to meet our demands, the software should be updated many times.
- cannot substitute the bond between humans to form a team

[34] If the robots are handled by a person with wrong intention then the military robots will destroy the opposite group without any second thought which can cause a huge damage for the people. It is very expensive to maintain the AI machines.

Conclusion

Artificial intelligence helps to complete the task precisely and saves a lot of time it also helps in making quick decisions. Artificial intelligence made life easier, it reduces the burden of performing complex tasks by humans. Artificial intelligence is used in health care, manufacturing and production, transportation, security and surveillance, and in education. It reduces the human works and is very helpful. Also using AI technology in wrong manner causes a lot of disadvantages. It is also clear that there is a lot of advantage for future generations due to AI and in coming future there will be more advancement in AI technology. It's would be tough to imagine our daily life without the applications of AI and smart appliances. Artificial intelligence made learning easier, and also reduced the burden for teachers by reducing most of the paperwork. It also helps people to escape from entering into a dangerous tasks in mining and fuel exploration.

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ASSIGNMENT ON ENGLISH COMMUNICATION

DEBOPAM SEAL
21MCS0003, MTech Computer Science
Email ID: debopam.seal2021@vitstudent.ac.in

Introduction

Artificial Intelligence is not the future, it's the present. Today, most big-time corporations are leveraging the power of AI in their business in some way or the other. This will only keep increasing as the dependence upon technology increases with each passing year, and the need to process the humungous amount of data being generated every second becomes too much for human minds to sift through. In this paper, we will go through some very important questions about what AI is, how did it originate, and how it is useful to us. Additionally, we would also look at some of the problems that are being created due to the rampant use of AI in every digital field imaginable.

What is Artificial Intelligence

[1] Artificial intelligence is the science of creating machines and computer programs that can think. It is loosely related to the task of computers understanding human or animal intelligence, but in the case of AI, it does not always adhere to the methods that are observably in nature. The system needs to be taught or trained based on some pre-defined data, which the system will later use to make intelligent predictions based upon similar input.

[2] It can also be defined as the activity geared towards making computers intelligent, Intelligence is the ability of an individual to act with some form of foresight with respect to its environment. Basically, a system that reacts to some stimulus depending upon its environment can be considered an intelligent system.

History of Artificial Intelligence

[3] The concept of artificial intelligence dates back to the mid-20th century but some researchers argue that the movement started with George Boole a century earlier when he described a formal language for logical reasoning in 1847. Almost a hundred years later, Alan Turing described the during machine and created the Turing test that the foundations of an intelligent machine was laid. The term was first defined by John McCarthy in 1956 and that was when the researchers truly took notice of the technology. McCarthy tested the first general problem solver and announced the LISP(List processing) language for the creation of intelligent software, which is still used to this day. Today, Artificial Intelligence is defined as the programs that help humans work faster and more efficiently.

[4] Rudimentary forms of AI have appeared in texts through human history, from the stories of Greek Gods to immortal machine-like beings throughout the ages. The modern interpretation of AI has shifted from being self-controlled entities competing with humans but tools that help humans achieve their goals more efficiently and achieve tasks that were impossible before with traditional computing.

Artificial Intelligence in India

[15] Contemporary strides in the field of AI have been an eye opening development for both the general population and the policymakers in India. Some of the biggest programs introduced by the Modi Government have the probability to get affected in the coming years. India's neighbours, China are doing quick research in the field of AI-based research, making it necessary for India to keep up from both an economic and national security standpoint. Development of AI-based infrastructure is paramount in the coming years if India has to participate in the AI future and be able to secure its ambitions and interests.

[16] The "National Strategy for AI" of India is in requirement of improvement. Some light needs to be shed on the security, privacy side of the use of AI by the government.

There is a huge chance that AI-related technologies would be good for the development of organizations and thus the creation of a complete policy regarding should be developed. Only in that way will the general populous of the country would be able to reap the rewards the maximum amount of benefits of the technology.

Various Places Where AI is Used

[17] There are several areas where Artificial intelligence can be used in real world scenarios:
- In applied computing :
  - Enterprise computing
  - Business process management
- Computing methodologies :
  - Artificial intelligence-based computer vision
  - Natural language processing
- Social and professional topics:
  - Professional topics
  - Computing and business
  - Automation

[18] The field of AI made significant strides in the past few years, although most of it is distributed and scattered and lacks a coherent structure. That said, AI has been a revolution in the medical field and its contributions to the fields of:
- Radiology
- Pathology
- Ophthalmology
- Dermatology
- Cancer research
- Human brain modelling

Has been unprecedented.

AI in Healthcare Appliances

[6] The benefits of AI in the healthcare field can be huge. Fields such as virtual health assistance, risk analysis, health information management, 24/7 lifestyle monitoring, medical imaging can reap great rewards with the technology. I is expected to reduce cost and improve efficiency greatly. We

need to keep in mind, how AI-based medical apparatus can also lead to numerous situations where the status quo and ethics are challenged.

[7] In modern times, we are in the age of Artificial Intelligence and big data and each medical organization possesses their own database and infrastructure to access that data. It is being increasingly difficult to service customers in an efficient manner as their data is split so many ways. Electronic medical records are making it even more difficult to process the huge amounts of data being generated and yet the cost pressure is increasing as companies fight to provide better services at a lower price. The promise of AI is nowhere more enticing than this sector where there is a need of such a transformative technology that can not only parse but also make sense of these enormous data stores.

[8] There has been a recent rise of data aggregation and data complexity in the medical field, this is ripe ground for Artificial Intelligence to sink its teeth into. Many kinds of AIs are being developed and used in the life science companies. Major areas where these systems are being used are, treatment recommendations, diagnosis, patient engagement and administrative activities. As it stands, there are many scenarios where an AI can perform as good or even better than humans, but implementation factors might stop large scale automation of such tasks in the near future.

AI in Manufacturing and Production

[9] In the last few decades, smart work, supported by AI systems has turned into an essential in the industrial and manufacturing field, speeding up development of intelligent manufacturing. In contemporary industries, standard Artificial Intelligence is given extended features, creating the industrial Artificial Intelligence, making it the core of intelligent manufacturing. AI assisted manufacturing creates surprising advances in various parts of the closed-loop production chains, starting from the product creation to manufacturing logistics.

[10] Artificial Intelligence techniques along with the new and improved IOT, WOT (Web of Things) and Semantic Web, have the potential to bring a revolution in the modern industry 4.0. Semantic Web of Things for Industry (SWeTI) have the power to face the challenges introduced by industry 4.0, interconnect systems that are from different sectors and different domains and create an intelligent service system for smart manufacturing.

[11] The recent talks of AI has attracted great interest in the field of production process. Artificial Intelligence research has experienced boom in modern times. Almost all the research has concentrated predominantly on Artificial Intelligence tech but less in tech that helps organizations at the firm-level. Its perplexing as a lot of companies have not yet fully incorporated AI in their production work flow, and are struggling to move ahead with the technology.

AI in Security and Surveillance

[12] After the 9/11 incident, information technology has become an essential asset in creating a safer country. Important national security problems and domain challenges can greatly gain by creating an intelligence and security informatics field. ISI would handle information gathering, processing, and distributing problems as biomedical informatics similar issues in the medical field. Database content and schema discovery is a bright option in addressing some of the singular ISI challenges.

[13] Security and Surveillance with respect to public health informatics is deemed to be a core issue. As the size of the information being created grows, using AI is the only way to approach

processing of such huge quantities of data. Examining these techniques though is still a very concerning issue. Analysing patterns and recognizing trends is the only way in this data rich environment to foresee and prevent another global outbreak of a virus.

[14] In recent years, cloud computing has gained significance in the general use cases. With extreme development of the semi urban and rural areas, surveillance data is being created at a prodigious rate. To solve this issue, huge amount of storage systems and processing power is required according to the conventional solution. As IOT technology advances along with AI, edge computing presents a novel answer to the question of parsing this huge data set by proposing to process a portion of the information in local edge surveillance systems.

AI in Education

[19] Computer-based training (CBT) and Computer aided instruction (CAI) are systems that have been in use for the purpose of education for more than twenty years. The problem with systems like this was that the coursework was not developed and specialized to help individuals and thus computers couldn't replace the human tutor.

Research in the fields of AI, has created various Intelligent tutoring Systems (ITSs) which provide an inherent ability to mould itself to the needs of the individual student. It can make intelligent decisions based on the learner's comprehension speed, and other learning metrics to create specialized programs for each and every student.

[20] The research field, AI in Education focuses on the creation and implementation of AI techniques for helping human learning experiences and creation of such systems that focus on the same. "Intelligent tutoring System" (ITS) is the term used for systems using computational methods to create and support learning decisions about how to plan the curriculum, how to visualize the knowledge, the explanation, the cognitive modelling and management of the dialogue. The main goal of this research is to develop systems that can hold more domain related information than any single person, have a higher ability to infer about the behaviour of a learner, better ability to reason and selection of the points.

Advantages of AI

[21] Human knowledge and intelligence is heavily tied to individuals or a collection of individuals, from the point of view of an organization, AI can capture or manage such knowledge and expertise to the end that if, the individuals or groups move on from it, the core expertise is not lost and can be transferred to a different person as appropriate.

AI frameworks can learn from the success or failure in real world scenarios and use that data to increase its own reliability and useful ness.

AI systems can be very robust and reliable to process complex or private data, that can be too sensitive for a human to go through or process.

[22] Machine Learning and AI today are used to model and automate the most efficient privacy and security paradigms against hackers or data theft. These technologies are instrumental in the field of classification, identification and automation with absolute efficiency. ML and AI are front runners in data privacy in virtualized parts of the network. They also help in quickly providing E2E security and are beneficial for early detection of threats and anomalies.

Challenges or Dis-Advantages of AI

[21] One of the major disadvantages of AI systems that has been identified from multiple sources is that, AI systems are black boxes that use the training data to map the input data and the output. The systems don't really "understand" why the input gives the specific output but just what kind of relationship the two possess.

Given the fact that AI systems are basically probabilistic systems, in some situations like genetic algorithms and ant colony optimization where the optimal result is necessary, the systems might not be able to always provide it with certainty.

[23] Here are a few key disadvantages of Artificial intelligence:

- Can be used easily for nefarious means
- Effects human livelihood
- Sometimes we don't get the desired output
- Computers aren't inherently creative, so it depends upon the programmer to come up with creative solutions
- Dependence on technology is increased
- During the training phase, it requires a lot of time and resources to get going.

Conclusion

The field of computer intelligence has come a long way, from the days of Alan Turing, when AI was just a concept and nothing more, to today where it is being used in practically every field imaginable. Its easy to spot the advantages of such a technology, which is probably the biggest technological revolution since the advent of the internet, but there are some issues as well which keep it from becoming ubiquitous. Some of this problems are inherent to the technology itself and has to be taken as the price of progress, like the other great inventions of the human race akin to, Gun powder and the Atomic bomb.

With all that said, its exciting times for people who are interested in the field as new research and innovation is paving new roads every day to explore opportunities that we couldn't even imagine a decade ago. From identifying cancer faster than experienced doctors, to solving long standing mathematical problems that were thought impossible and we should be excited to see where we can take this technology, or where this technology takes us.

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IMPACTS OF ARTIFICIAL INTELLIGENCE

M. NAVYASREE
M.Tech Integrated Computer Science
Email ID: navyasree.m2021@vitstudent.ac.in

What is AI

[1] It is science and technology to create practical devices, especially the careful operation of computers. They aim to replace machines in place of humans, think and work like humans.[2]It is a field where human skill and technology are used to create different gadgets and programs which ease human work.

History of AI

[3]AI had some confines for which it is not acknowledged by whole in medicine. But now AI can scrutinize various algorithms and technologies which have been enhanced well. AI has been discovered in 1950. We can now smear AI in medicine to advance precision and work proficiency.[4]AI has been derived by John McCarthy. After this, the researchers gripped diligence on this subject and presented it at a conference in Dartmouth. After a year AI has been utilized in the predicaments and had been examined for its effectiveness. Researchers affirmed that AI could substitute humans in the near future but eventually resolved that it may not be conceivable to generate algorithms that could do everything as humans.

AI in India

[5]As AI is intensifying every day its influence on daily life and societies is quite notable. AI seems to promise for India and work upon conventional barriers while equipping agencies to advance administration and physical systems. Advancement of creativeness based on AI and engendering of suitable physical systems is crucial for India's economy, labor market, and competencies.

[6] The nation'sprovincial impact, prosperingproduction, and aspiring government inventiveness all overtechnology create it as an essentialauthority to assess wherever anthologies of this are live. While the prevailing strategymethod is formulatedto stimulate the instantaneousadvancement of AI for economic extension and the commongood, the universalsensation continues in India and some other jurisdictions: the constraints and harms of ontology-based solutions are yet a retro-activedeliberation for the advancement and implementation of data claims.

Various places where AI is used

[7] AI can advance many traits of homeopathictraining, comprising disease analysis, clinical training, medicalconsequences, and admittance to health.[8] The brisk development of Artificial Intelligence (AI) offers remarkable chances to enhance the performance of numerous industries and companies, comprising the transportation sector.[9]AI in heavyconstruction, gamble, spiraling, climateprediction, proficientorganizations with intonation on dexterousarrangements.[10] Artificial intelligence is taking part in a vitalcharacter in cybercrime uncovering and inhibition.

Growth of AI

[11] The effects of man-made intellectual (AI) and mechanization on progress and occupation depend mostly on administrations and arrangements. In the first part, AI can pricklegrowth by displacing work with capital, both in the formation of labor and products and in the expansion of thoughts. Still, AI might delayexpansion whenever combined with an inappropriateopposition strategy. Given experimental examination of French data shows that robotization reduces total effort at the business zone level, and second that non-taught workers are more unpleasantly impacted by robotization than directed workers.

[12] Prominent organizations are using man-made intellectual to enhance and expand their efficiencies. The ability to intrude AI into the national economy is huge and this cannot be restricted to individual companies.As a matter of first importance, it is the chance of key planning on the size of the entire economy, that is, the quest for ideal replicas, building objective indicators for huge businesses, forecasting of total demand and supply, optimization of the monetary-crediting framework, and so forth Accordingly, the introduction of vital planning dependent on man-made reasoning into the national economy framework, would accumulate a prototypical of protractedimitation, without falsifications between diverse areas of the budget, and subsequently apply a replica of its maintainable, emergency permitted development.

AI in Healthcare Appliances

[13] The most seemingconsumption of man-made reasoning in medical care is information administration. Man-made intellect is subsequent in developments in medical care treatments, for example, promoting the organization of treatment strategies, examiningdata to give a predominant treatment scheme, and monitoring treatments. Replicated intelligence can rapidly and all the more exactlyidentify signs and side effects of infection in medical pictures, for example, X-ray, CT scans, ultrasound and x-beams.

[14] Flexiblestrain sensors contingent onnormalproperties, which connect differentassistances of flexibility and insignificantexpenditure, have risen as anintenselyenergetic field due to their auspiciousclaims in computerized reasoning agendas and wearable medical service tools.[15] The complexity and mounting of info in medical amenitiesinfer that man-made intellectual (artificial intelligence) will gradually be functional inside the field. A few categories of man-made intellect are as of now being applied by spenders and providers of care, and life sciences administrations. The essential divisions of consumptionscontainconsequence and treatment proposals, patient obligation and obedience, and supervisory exercises.

AI in Manufacturing and Production

[16] Artificial intelligence invention works with the development of innovative models, means, and structures, framework engineering, and invention frameworks in the space of astutegathering. Hence it uses independent detection, interconnection, assistance, learning, inspection, vision, triangulation, control, and the implementation of human, machine, material, and normalinformation to authorize the management and enrichment of dissimilar parts of an accumulatingexertion or assembly, including three components (individuals/associations, practicalmanagement, and gear and innovation) and five streams (data stream, coordinations stream, capital stream, information stream, and administration stream). This works with the construction and gives high efficiency, top capacity,

financially savvy, and climate cordial help for clients, and along these lines further develops the market strength of the accumulatinggamble or assembly.

[17] Customary artificial intelligence has dedicatednotableesteem for problems of accumulatingreservation and control (Smith 91). By considering semantic data about the area that doesn't fit precise calculation; by daubing heuristics astutely and exactly, and by the executionof an efficient method that won'tneed a reputed bewilderingmodel, the representative scheming has provoked frameworks that are equitablyfaster than mathematical software design and are more adjustable and organized to oblige more excessive requirements, while producingconsequences better than dispatch rules. Nevertheless, these agendastruly will usually be vast, composite, and clear to a preciseformation, in this manner creating them expensive to improve and hard to keep up with and to recompose. Besides, while they are faster than some mathematical programming codes, they are not fast enough for an office whose setup and problemfluctuate day by day.[18] These restraintsneedcreators to insistently work on the exhibition of their creation cycle to convey the completed item inside the most surmised timeframe and the least formation cost. Anyhow, foreseeable and idyllicpreparations are tough to get under a furry and energeticaccumulating climate. In this manner, in light of the necessity for new policies, a vast (and incessantlyintensifying) number of events have been observed to inspect and take benefit of the consumption of replicated intelligence policies in a mixture of modern claims.

AI in Security and Surveillance

[19] There are numerousstraight uses of computer-based intellectappropriate for communityprotection purposes, both in the US and somewhere else. Kevin Kelly takes note of that in the isolated area "the policies of the succeeding 10,000 new dealings are not difficult to measure: Take X and add AI."1 There is comparably an extensivepossibility of usages for artificial intelligence in public protection. Comprisedbeneath are a few models in network safety, data security, monetary and financialgadgets of governance, guard, vision, country safety, policy, and progression. The AI techniqueallows the framework to improve from related knowledge to predict which areas in records are perhaps going to be destitute to numerous kinds of ruining changes, and henceforth maliciousbases of info. This practice will be cooperative in both digital protection (recognizing and securing) and digital fault (identifying and taking advantage of).

[20] The undocumented contentedteenagers and hacking apprentices, there is a mound of proficient invaders infuriating to generate candid gains lodging united organizations. Either un-favorable states, immense companies, or factions are frequentlyintensifying their possessions and skills in cybercrime to spy, take or cause harm all the moreserviceable. Usual ways to deal with Organization Security seem to commencestriking their cutoff points and it is being supposed as the necessity for a more intellectual way to deal with threatappreciations. This paper gives a demonstration of the necessity for the expansion of Digital safetyprocedures and how Man-made perception could be of use to aidchallenge a share of the problems. It gives furthermore, an undisputable level framework of some best in man-made intelligence Organization Security approaches, to get done with inspecting what is not so distant eventual fate of the use of man-made intelligence to Assemble Security.

[21] Man-made perception (simulated intelligence) actions have been usuallypractical to desirable illness eruption location and early reprimand, pattern anticipation, and general wellbeing

reaction representing and estimation. Such general wellbeing observation and response activities vigorous postures curiously focused hitches like information thinness, nonappearance of positive formulating tests, distress in generating baselines and assessing the control measures and interweaved conditions between non-stationary components and better-coarse hazard examinations through interaction and interpersonal organizations. Conservativeoverall wellbeing observation hangs ondynamically on measurable methods. Late years have seen a vastgrowth of replicated intelligence authorizedpolicies, including yet not constrained to reflective learning–based models, accompanying measurable methodologies.

AI in Education

[22] AIED incorporates the whole thing from AI-driven, bit by bit modified educational and dissertation frameworks, through AI-upheld investigative learning, the inspection of understudy constituting, intense specialists in game-based situations, and understudy support chatbots, to AI-worked with deputy/coach organizing with that puts deputiesobstinately in charge of their learning. It likewise incorporates understudies joining balanced with PCs, the whole school draws near, understudies applying cell phones outside the homeroom, and significantly more next to. What's more, AIED can similarly focus light on learning and information practices. The field of AIED is both subsidiary and ingenious. From one viewpoint, it carriesconjectures and systems from related fields like AI, logical science, and instruction. substantial effect on training is the application of AI to aid school and college administrative capacities, for example, class timetabling, staff booking, offices the managers, accounts, online defense, welfare, and safety.

[23] The rapidevolution of dispensationrevolutions has functioned with the implementation of AIED (Artificial Intelligence in Education) applications. AIED indicates the operation of AI (Artificial Intelligence) inventions or application programs in informative settings to work with educating, learning, or independent direction. The Computer grounded intelligence in training (AIED) has established new open doors for preparation useful for learning exercises and rising better inventionenhanced learning applications or circumstances. Computer-based intelligence applications may adopt the part of an understudies' guide learning processes, dichotomizes their learning execution, and give moment help to them dependent on their necessities. Because of the possible requirements of understudies, an interdisciplinary group (e.g., made out of PC and learning researchers) can generate a practicality mentoring framework that authorizes understudies to learn, rehearse, and communicate with companions or instructors yet in accumulation gives clues, direction, and provisions to people reliant on their status or requirements. Then again, knowing the measurements and elements of AI inventions, teachers could hold appropriate AI applications in their classes to develop understudies' learning exhibitions, motivation, or obligation, while informativepredictors can distillate on the complications of the AI applications.

Advantages of AI

[24] One of the most inspiringusages of AI has been its exhaustivepractice on the Internet, for example, in exploration engines.AI sustains cost minimization as it authorizesreduce on the necessity of faculty time. Computer-based intelligence moreoverallows the progression of a learning skill which can be used to enhancepostponementof the life and need of the application AI methods are likewise fit for handling both subjective just as measurabledata, a component that most

meticulouslyrationalpolicies need. Computer-based intelligence gadgets can be practical to the identifiable proof of securitydiscontinues and in the turn of events and the board of electronic reaction and constraint plans. [25] When an untruespirit is organized for something, it is effortlesslysimulated to the others, tumbling the time spent in any case giving data to entirelydissimilarpersons through receiving ready. One of the many mistakes of artificial mindfulness is that its choices are grounded on evidence rather than feelings. Certainly, even in our most extreme events, it is indisputably true that human choices are inseparablyconnected negatively by our emotions, unlike humans, machines with falseinsight do not needa break, sodisabling the inherenthaziness of the evanescent state in humans.

[26] AI has uncoveredpersuasivequantities in perceiving and scrutinizingliabilities of constructingpotencyorganizations. [27] AI hasmore achievement at logical tasks such as computer-based game playing and theorem attesting than perceptual tasks.[28] The endowment of AI on the ground of tutoring has always been momentous. From robotic teaching to the expansion of an involuntary system for answer sheet investigation, AI has always aided both the teachers and the students. These systems contribute to verbalizing traits such as self-introspection, undertaking subtle queries, untangling dispute testimonies, provoking efficient queries, and choice-making abilities.

Disadvantages of AI

[29] Nonappearance of originality in replies. Incapability to explain the reason and perceptive behind the firmchoice. It can be used to cause largescaledevastation if given in the erroneous hands Any unproductive things can lead to the AI constructingerroneous solutions and since it cannot elucidate the perceptive behind its answer, blind dependence on AI can cause problems. [30] AI is forming humans sluggish with its applicationswhich ease work. Human beings are inclined to get habituated to these developments which could put inhibition on future generations. As AI replaces most repetitious with robots, interruption from AI therapists, which can be a significantproblem in contractideals. Every organization tries on the way toswitch low-accomplished individuals for artificial intelligence robots proficient in doing analogous work with superiorproductivity. Technologies can only accomplish the errands they were premeditated or automated for, anything they have outside of that incline to jam or give unrelatedconsequences that could be a gravecontextual.

[31] AI training is the only insincere path that won't cause expansion of technology training.

[32] At some point it can be distorted and lead to hugeannihilation on a large scale, program discrepancy at times divergent to the command, affected human jobs, increased unemployment, creativity depends on the programmer,lack of human touch, the young generation convertsindolent, it takes a lot of time and money,the necessity on technology rises.

[33] The utmosttask for civilizations and dealings would be to yieldthe benefit of the use of artificial intelligence technologies, which provide prodigiousprospects for innovative goods/amenities and enormous efficiency developments while evading the dangers and hindrances of augmented joblessness and greater prosperity dissimilarities.

Conclusion

AI has a great impact on our lives it became easier by the technology evolving every day. Through above all we can say that AI is our future as it uses human skills and works like humans. The

Utilization of AI will surely make wonders if we use it in a way where it helps to grow economically, reduces man work and all.It can even become a threat to us and cause destruction and can produce incorrect solutions .so careful use of AI is needed. As AI also affects our employment opportunities we should make use of it up to the mark to grow ourselves without using it for malpractices. The skill and knowledge which we have if we use that to develop AI not only help us but also the total world. With AI we can overcome many perilousrestrictions by developing technologies. They can be used when intervention is hazardous. The knowledge that apparatuses could reflect and execute like humans was not a myth anymore. We can see AI in every kind of aspect from search engine which collects and gives us the required information to detecting cancer etc. Life without AI would be difficult and not productive as human work .so AI is not a threat until we use it in a precise manner and for our growth purposes. We can learn much and explore more when we use it fully up to the mark it can make wonders and ease our lives. Above all, we can analyze how AI stood in our lives and how it impacted us. As it provides vast opportunities to grow and improve technologies we all should make use of it and should input all our skill and creativity into it making it much effective. We are lucky to have this as our ancient people don't have life was quite difficult for them and in any attacks of bomb blasts too many people died who tried to decrease the radiation if AI would be there we would not lose people.

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ARTIFICIAL INTELLIGENCE

PRADEEP KUMAR CHAUDHARY
M.Tech. Computer Science
Email ID: pradeep.chaudhary2021@vitstudent.ac.in

What is Artificial Intelligence

[1] Artificial intelligence is one of the comprehensive branch of computer science which deals with various aspects of imitating the cognitive functions to solve the real world problems and to construct the systems that has the capacity to think and learn like human being. To difference artificial intelligence from human intelligence, it is often called as machine intelligence. Nowadays, Artificial Intelligence has become a huge source of attraction. The reason behind this is the positive achievement received in machine learning (ML). AI always favors explanation ability. Advice Taker, which was presented by McCarthy in the year 1958, can be considered as one of the early instance of AI as a "program with common sense". Moreover, reasoning abilities with common sense as an important feature of AI that was available in Advice Taker was presumably considered for the first time. Rather only proposing solution to problems related to pattern recognition, contemporary research focuses greatly on building real models of AI systems which contains understanding and explanation support feature. One of the very practical field of AI is Machine Learning (ML). ML follows the way to develop software that supports feature of automatic learning from previous data to increase the behavior of learning and experience in order to do predictions on the newly data available. Sense-making and in context understanding along with in decision making are the huge challenges in this field. We can even consider ML as toiler of the Artificial Intelligence. The progress of new learning algorithms and presence of huge collection of data has greatly supported the development of ML. Deep Learning (DL), which depends on deep complex neural networks, is also getting hugely favored nowadays. [2] Artificial intelligence is the sub-field of computer science which depicts the intelligence of the machines or software. This intelligence has been employed to advance the human life in different areas. Therefore, Artificial intelligence is gaining a huge popularity in the field of computer science. Artificial Intelligence has found a vital role in research and operational areas of science. Computational intelligence along with the ability to discern reasoning and acting accordingly is possible with AI. Artificial Intelligence should not be confused with psychology and computer science. AI mostly focuses and computation which contrasts with psychology. AI supports reasoning and perception along with action which makes it different from computer science. Artificial neurons along with scientific theorems supports the functionality of AI. Artificial Intelligence has been found to be more useful than neural intelligence because AI is cheaper, coherent and somewhat less temporary. Moreover, AI can also be replicated and distributed easily. Also, the documentation of working of AI intelligence can be done comfortably. We should not forget that in some cases AI can work much faster and with higher precision than humans. The experiment to test the thinking ability of the machine performed by Alan Turing (1950) found that machine passes the test if certain conditions are satisfied but could not be specific. Language understanding, problem solving, learning and adaptive systems, perception, modeling, robots and games are some of the areas of Artificial Intelligence.

History of AI

[3] A conventional language for logical reasoning was first delineated by George Boole in 1847. About one century later in 1936, Turing-machine, which is one of the turning point in Artificial Intelligence history, was described by Alan M. Turing. The prototype of artificial neurons was designed by W.Pitts and W.McCulloh in 1943. Just after one year, in 1944, theory of decision was discovered by Neumann and Morgenstern. In between 1949 and 1951, progress in artificial neurons was presented by different researchers. Finally, in 1956, J. McCarthy was first to define Artificial Intelligence (AI). At Dartmouth, AI was kept in dialogue for the first time. One year later, Lisp (List Processing) language was reported by father of AI, J. McCarthy. This language is still in use. AI can get new meaning these days which is the art of developing intelligent machines to assist the task for easy and faster completion. M. Minsky and S. Papert demonstrated the perceptron in 1968 which exhibited the limitation of simple neural network. The International Joint Conference organized in Washington, DC. in 1970, was the first conference on Artificial Intelligence. Consequently, in 1972, A. Colmerauer presented a new language, PROLOG for creating AI systems. [4] One of the productions of artificial intelligence which is more profitable and strong is machine learning (ML). In mid-20th Century, ML theorists were having the objective to create algorithms where neural network would take huge amount of input and produce a predicted output for the related domain that was polynomial in nature. A comment was written on DeepBlue by J. McCarthy for the victory of Kasparov, in 1997, where he claimed that the recreation through automation of human intelligence was all he desired.

Growth of AI

[5] The development of AI was initiated to create intelligent machines close to humans. It is believed that when the Technological Singularity arrives, artificial intelligence will supplant the capacity of human brain. At present, AI has limited number of functions, hence called Weak or Narrow AI. Weak AI is used for specific task. However, it is predicted that AI with consciousness has intelligence as strong as humans and can take intelligent decisions and execute multiple functions. To obtain AI with complete functions, efforts has augmented quickly over the past years. AI is constantly increasing its influence in various fields like big data, cloud computing, medical, etc. Amazon Eco, Microsoft – Equivio, Google-Smart Contact Lenses, etc are the best examples of AI that can be seen these days. [6] Due to development of AI and technology, Cortana and Siri, driverless cars, IBM Watson, Automated Trading and Deep Learning have become common these days. Various companies like Yahoo, Google and Amazon are providing open-source tools which helps a lot in the development AI and various other related technologies.

AI in Healthcare Appliances

[7] Recent studies shows that AI has exceeded human work in several fields, likewise people in healthcare are also hoping for this to happen. Prevention and detection of the disease as early as possible may be achieved by AI. Similarly, AI may play a vital role in diagnosis and treatment of illness. A lot of time was wasted just to find out the idea and information regarding the illness instead of absorbing and understanding it. The development of AI has helped increase thinking ability of an individual in 3 different regions. They are statistical analysis and computational intelligence along with generational hypothesis. AI is used in different fields of health science like

carcinogen, neurology, blood pressures and cardiology. [8] AI helps in various activities in radiology. It supports in scheduling patients, billing, staff optimization and making protocols. Moreover, AI also aids in analyzing image quality and controlling radiation dose. Image interpretation can also be performed by AI. AI can make our life better. [9] AI and digitization has created a new era in the areas of dentistry.AI software is supporting the dentists to diagnose different cases precisely and even treat them efficiently by providing all the genetic information required. AI, by spreading the awareness, is helping oral and maxillofacial patients to get early treatment.

AI in Manufacturing and Production

[10] The technology of AI provides the enhancement of fresh models, processes and structures along with system architecture in the fields of intelligent manufacturing. IMS (Intelligent Manufacturing System) possesses different characteristics like independent and intelligent sensing, interdependence and participation. Understanding, evaluating and decision-making also come under features of IMS. Moreover, control and implementation of material, machine and information are also signified by IMS. [11] Nowadays AM (Additive Manufacturing) is continuously stretching its influence in the field of production. Agents empowered by AI can help to decrease the workforce needed to increase AM production. AI empowered agents also help to scale up the efficiency of resource utilization. At present, AI agents are deployed to solve various issues related to product and process design along with different stages of production. AM with smart structure using cloud-edge computing is the new area of research to create intelligent agents with increased efficiency and comprehension. [12] New era of IMS which includes intelligent products and services along with intelligent building processes will help to bridge the gap between production and management. The advancement of Industry 4.0 is possible via this bridge as the Enterprise Resource Planning will be internally connected with environment of Industry 4.0.

AI in Security and Surveillance

[13] Large number of cities and states have already started to use advanced artificial intelligent surveillance tools to watch, monitor and keep the track of the citizens to prevent crime and inhuman activities. City officials also deploy these tools to control traffic congestion. One of the reports suggests that out of one hundred seventy-six countries, 25 use AI technologies like facial recognition systems and platforms for smart/safe city. Hence, this proves that AI enriched surveillance technology is continuously getting deployed in various parts of the country.[14] Automation in detecting security vulnerabilities for wide varieties of harmful inputs, deploying neural networks is already presented by PNNL (Pacific Northwest National Laboratory) and Microsoft. Use of AI technology helps to mitigate the wrong information. Bots and the system related to it has supported a lot to shift threat environment. [15] Intelligent surveillance and video analysis has helped to provide automation in interpretation of human activity. It has also assisted to discover unusual incidents that can give rise to unnecessary threats to security and safety of the people. Thus, artificial visual sensors (AVS) are deployed by various surveillance community.

AI in Education

[16] As various types of occupations will be affected by AI, it is believed that AI is going to have a huge impact on the teaching materials and techniques. OECD which stands for Organization for

Economic and Co-operative Development, assists for taking survey under PIAAC (International Assessment of Adult Competencies) evaluates grown man/woman's proficiency on important information processing expertise. According to this organization, the proficiency mark of over fifty percentage of grown human tie with AI and the percentage is continuously augmenting. Even, Open Leader board of IBM is following different parameters to understand the development of AI in education. [17] Over two and a half decades, AIED which stands for Artificial Intelligence in Education, has achieved a significant progress. To achieve the central idea of AIED, we need to understand our past and outline our future accordingly. It will help us to identify our strengths and emerging opportunities in our field of interests. According to one of the research, evolutionary and revolutionary process is going to effect the education in the next twenty five years. Evolutionary process deals with our conventional style of teaching practices like classroom practices, interaction between students and teachers, etc. While revolutionary process includes integration of technologies within day-to-day activities of students and teachers.[18] The area of Web Intelligence (WI) plays an important role in covering different aspects of AI which are already developed and also those which are emerging. However, WI faces many challenges as well like intelligent web mining and web services, social networking, etc. One of the important benefits of utilizing Web based AIED is to increase adaptively and easiness while learning. WI offers the most recent and relevant details searched on the web. To reduce the effort and the time wasted by the learners on discovering educational materials from the web services, the service needs to be automated and composed. The learning environments based on Web supported by ontology enhances automation in different activities.

Advantages of AI

[19] The encapsulation of ideas and knowledge in an AI structure exists as long as the problems and the conditions for the scenarios do not change. AI helps to promote learning capability which further increases the life and the significance of the application. "Reinforcement learning", which is one of the features of the AI enhances the reliability of the tools and techniques used in various fields. AI helps to reduce the operational cost by involving AI in decision making process.

[20] The decisions which are taken by AI are dependent on the facts. It is not affected by emotions in any way, but human decisions are generally influenced by their feelings. Unlike humans, systems designed with AI are tireless and perform decision making tasks continuously.

[21] AI provides the facility to enhance the understandings on scientific facts and performs the complex calculations through various computational models. If we compare with human, AI can finish task earlier with few errors. The function accomplished by AI is boundless. AI supports to discover new and interesting things.

[22] AI has been found very advantageous in the field of fashion industry. AI is considered to be efficient in optimizing decision making which are very significant for the industry. As big data era has evolved significantly, the companies like fashion companies, use AI to find the difficult relation and dependencies along with the uncertainties that is involved with human cases. These companies utilize AI very efficiently in fashion recommendation and design support systems.

[23] One of the unique features of AI i.e. to accommodate in the dynamic environment which is changing very fast, supports to perform multiple task with their needs for allocating the resource, schedule computational job, and predicting vehicle trajectory point. Hence, AI along

with mobile edge technology (MEC), helps to supply real time processing and evaluation of data with efficient and intelligent services by placing the resources of computation and storage on the network's neck.

Challenges or Dis-Advantages of AI

[24] One of the most talked disadvantages of AI is that it has affected human jobs because of which employment has decreased. Also, the younger generation are becoming lazy with the development of AI as the dependencies has increased rapidly in AI. Moreover, sometimes AI can involve wastage of both time and money. It may be misused which can result in huge destruction.

[25] Human involvement is decreasing rapidly due to the replacement of humans with AI supported robots for performing repetitive tasks which is creating an important problem to to mobilize the standards. Team management which requires to create a bond with human cannot be achieved with AI. AI machines can only complete the task that is assigned to it. If we want the machine to do anything out of that, the machines will get crashed or may give the outputs which are useless.

[26] AI robots fails to connect with the teachers and students emotionally. This can hamper the personal development of the students and can even replace the teachers one day. Thus, AI has created a king of fear among the teachers and proctors. Also, it may happen in the near future that AI can start acting like superior brothers which may start to regulate humans. This can lead to ethical dilemma.

[27] Extension of AI in high-risk zones like banking, law regulation and implementation, health services and humanitarian support, can be challenging and intimidating. Also, it is difficult to achieve proper accountability and transparency to govern AI. Hence, it creates a burden to handle the legal and ethical as well as technical aspects of AI.

[28] Implementation of AI is very critical in the field of military and defense of the country. Training data insufficiently which is required for machine learning can create a problem in handling the military and defense information. Also if the vulnerabilities are not handled properly, it may lead to lessen the efficiency of the system substantially. Repetitive analysis and evaluation is required to encipher the issues like inter-operation using AI. It can be time consuming and convoluted.

Conclusion

Artificial Intelligence is one of the rapidly developing branch of computer science. Incorporation of reasoning abilities along with understanding, acting and predicting has made AI one of the most useful tool in varieties of applications. The craze of Artificial Intelligence is increasing continuously. AI, Machine Learning and Deep Learning are the topics that are discussed a lot nowadays. It is very obvious as the application areas of AI has evolved tremendously. J. McCarthy is considered to be the father of AI. AI can be categorized into two types broadly. They are Weak or Narrow AI and Strong AI. Weak AI has limited functions and is used for specific task only. While talking about Strong AI, it has multi-functions and is used for multiple tasks. Apple's Siri, Microsoft's Cortana, Amazon's Alexa are some the recent use of AI. Artificial Intelligence has played a very important role in the development of healthcare recently. AI has helped in early diagnosis and treatment of illness. Statistical analysis and computational intelligence have developed a lot due to progress in the field of AI. Hence, this has helped to analyze different diseases precisely.

A new area has been evolved in the field of dentistry due to AI and digitization. Development of fresh models, processes and structures with wastage of very less time is possible to huge progress in Intelligent Manufacturing System (IMS) in the field of manufacturing and production. AI has assisted Security and Surveillance widely to control the crime rate and to reduce the incorrect information. The significant development of Artificial Intelligence in Education (AIED) has helped revolutionary process development in the field of Education. AIED has provided the facilities to ease the learning process. It has assisted the students and teachers to preserve time and effort while searching the educational materials. There are numerous advantages of AI. The idea and knowledge covered by AI frameworks remains for very long time period. AI's decisions are not affected by the emotions. It is based on facts. It helps to perform complex task with few errors in scientific research. AI has even found a place in fashion industry. Optimization using AI is found to be very useful in this field. Mobile Edge Technology (MEC) has helped in real time processing and evaluation of data with efficient and intelligent services. While talking about disadvantage, AI has affected human jobs. The replacement of humans with AI robots has caused to increase the deployment in certain technology-oriented companies. AI robot fails to connect emotionally with people. In some cases, AI needs repetitive analysis. Hence, it becomes tedious tasks sometimes.

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ARTIFICIAL INTELLIGENCE AS A POWERFUL TOOL

BRIAN E SHILO

M.Tech Integrated Computer Science and Engineering
Email ID: brian.eshilo2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] The most important branch of science and engineering that deals with making intelligent machinery and smart computer programs is known as Artificial Intelligence. Apart from performing the simpler tasks of using computers to understand human intelligence, AI has proved to do tasks that surpass all restrictions of the human body.Unsurprisingly, AI at the human level has proven difficult and progress has been slow, although there have been significant advances. The slowness and demand to exploit what has been discovered has led many people to define AI wrongly, so many times in ways that exclude AI at the human level; relegating to human parts of the job that human-level computer programs should perform.[2]AI could also be defined as the capacity of man-made machines to behave like us and exhibit what we call as intelligent behaviour of humans or just the potential to accomplish tasks in varied environments.

A Quick History of Artificial Intelligence

[3]Artificial Intelligence, in its infancy was thought to be over responsive, innovating in thoughts, very mechanical in its speech, but it eventually started to think, speak, act and do almost everything humans can, except to be alive.[4]1956, the year AI came into being, the term Artificial Intelligence was coined, for the first time ever and defined by John McCarthy. This made it to one of the very important conferences at Dartmouth. Researchers were starting to discuss about it in more conferences now. Soon, AI started to evolve and its application further diversified into various parts of the modern market today. Several of these applications confirmed its value. And today with all due respect and honor, we can acknowledge, McCarthy as the Father of AI.

AI in India

[5] Indian consumers have upgraded since the advent of recent achievements of AI in the country. They now use high-end online services that are run by the most powerful AI algorithms by making apt recommendations- be it a product or a service, they are all always ready to engage in the escalation of AI. Hence, AI has proved to play a pivotal role in India.

[6] An AI task force has been set up in the country to stitch AI into the Indian economic, legal and political thoughts, making its path ready, to be the one, to support by achieving its goal of becoming a leader in AI economy.Artificial intelligence at the basic level can be thought of as two types. The first, artificial superintelligence, which draws the idea towards thinking that computers can outperform human intelligence, social skills, and scientific knowledge in almost all areas. The second is general artificial intelligence. This usually refers to the goal of computers displaying intelligence in multiple areas, to be at least on par with human intelligence.These two categories of AI are, as some experts have stated, "logically possible and absolutely implausible".

Various Fields Where AI is Being Used

[7] AI plays an important role, say, for even the medicine we know today. Conquering the challenges of collecting large data to simply trying to apply the necessary knowledge in, to attain the best solutions for high order hospital problems- The development of Artificial Intelligence in this domain has helped to make better decisions with higher success rates with outstanding results, just as predicted. [8] Everything is now AI-Driven. Personalized, perfect and convenient. All of the necessary sophistication to keep the process of learning smooth and efficient and not cumbersome has been accomplished by the involvement of AI in every step of learning in and around the field of education. Support, and other kinds of convenience that was an extra support earlier, is now a really handy add-on due to the involvement of AI. Putting the students now in safe control of what they need to study with enough ways to avoid distractions - and other useful events have been made completely possible due to AI in education. Whether adopted by students, teachers, parents, and policy makers, or not, so-called intelligent, adaptive, or personalized learning systems are increasingly being implemented in schools and universities around the world, collecting and analyzing huge numbers of students Big Data and although many assume that "Artificial Intelligence in Education" (AIED) means students are taught by robot teachers, the reality of is more prosaic but still has the potential to be transformative.

[9] Tremendous change in the way businesses operate, to be more efficient and profitable, called e-business, including e-commerce, e-signature, mobile banking and such sophistications possible only by introducing AI to this field. [10] AI in agriculture can be used to forecast and recognize patterns so as to avoid wastage of resources or rather efficiently implement smarter methods to improve farm outcomes. There really is no area where AI is not being used. AI is present across all domains!

Growth of AI

[11] The establishment of easy-to-use programmed software, like AI, is expected to be the driving force of long-term growth in the global economy in the near future. This has been predicted using several models, including the "Romer (1990)" or "Jones (1995)". [12]The nice consequence however is, AI seems to contribute at least by a factor of three more by 2030, than in the upcoming five years, even as we take into account the significant transition costs that smaller firms may face.

AI in Healthcare Appliances

[13] AI has reached that point, where it is now able to organise almost countless number of healthcare records into well structured and useful data, even sometimes far better than humans do. AI also has helped to improve the accuracy of the number of patient visits, especially to speculate and manage the crowd to staff ratio efficiently. [14] Personal healthcare needs the collection and organisation of data, to provide a full view of the necessary behaviours, traits and characteristics. These are neatly arranged for further research after the treatment of the patient, efficiently and in a manner useful – accomplished by AI. [15] Connecting smart devices, such as wearables in an ergonomic design, and of course, low cost, makes it easy to analyse personal "biodata", and further using AI to diagnose the then health condition of the person, and hence provides better support for personal healthcare. This is a wonderful, human-friendly system that takes healthcare support to greater heights, with the help of many emerging tools, including AI.

AI in Manufacturing and Production

[16] AI has proven to be an advantage in the manufacturing sector too. Using AI, cost for travel has reduced and a lot of time has been saved. Several modern technologies, interactions, production lines and chains have been improved and made more efficient using AI. Clearly there is an increase in the significance of AI in modern manufacturing and packing.[17] Flexibility in code and AI, has allowed the binding of these technologies into the existing manufacturing processes and made it more understandable via intuitive software, and so much more.[18]Classically, AI was imagined to never be integrated into manufacturing and production due to the problems it may create instead of easing things. But the converse became true. If not, AI has just pushed this sector to do well.

AI in Security and Surveillance

[19] Human eye is itself a highly structured device that can scan and help store a large column of visual data. In the past few decades, the computers have gained this sense of sight too. In fact, with the advent of AI, its application has made it do things more efficiently, than our own human eye. From auto-video analysis to storage- everything is intelligently powered by AI, and has proven its fate to be the best. [20] AI powered technologies having a focal point around security and surveillance has drawn newer questions that make us afraid. These questions raised concern over privacy. Should these be regulated? Is it necessary? But in the end of the day, AI for security has helped it to surpass human limitations, and expectations too.[21] The consequences of such practices, are driving the way our social world and the environment around this will evolve. Focus on the relation between security and surveillance and AI has made it a smoother process to understand many aspects around the same.

AI in Education

[22] Artificial Intelligence in Education collects large amounts of data which, in a virtuous circle, can be computed to dynamically improve "pedagogy" and "domain" models. This process helps to inform new ways of providing more "effective, personalized andcontextualized support" while testing, refining and improving our understanding of teaching and learning processes.[23]It is evident that computer-assisted education can benefit from the use of artificial intelligence methodologies. Artificial Intelligence can be considered to be a science of modeling, which develops, applies and studies formalized models of certain aspects of the world. Artificial intelligence techniques are used to model specific aspects of human and agent reasoning and problem solving relevant to comprehensive learning. In general, intelligent education technology requires the use of knowledge models and process models when performing educational tasks. These models no longer need to always include a tutor role or a detailed student model, but instead they may often need to reflect different partner roles and thus help the field of education.Second, as in other high-stakes contexts that use AI for decision making, the ability of an "Application Program Interface" to explain its decisions is about cultivating user confidence in those decisions.This includes the confidence of the students and their consequent willingness to follow the AI given suggestions, as well as the confidence of the teachers, which is the key to adopting these technologies. Researchershave to systematically investigate who, why, when, and to what extent the interpretability andconsequent explainability of the sub-models using AI may be beneficial; proving to help all sorts of modeling outside education too.

[24] AI seems to be the best available solution to all the problems this field holds. While few educational sociologists would agree this deterministic claim, this AI solutionist thinking is also gaining ground. Using a relatively new method for sociology - a knowledge graph - with Bourdieu's theory, we can critically examine how and why different actors in education, educational technology, and policy, value AI fundamental concepts, such as personalization, that they collectively, help in improving the quality of education experienced by any student.

[25] The issue of "technological inclusion" of individuals through education has profound social, political and economic effects, such as the ability of individuals to enter the labor market and contribute to the socio-economic development of societies; likewise, "technological exclusion" confronts us with serious social, political and economic problems, such as unemployment. In addition, the use of technology in education can change educational contexts, their geography, as well as the dynamics between individuals.

Advantages of AI

[26] In intelligent transport systems, real-time detection, sensing, monitoring response and control are of fundamental importance and artificial intelligence can be used effectively in all of these applications, from efficiency to the management and development of these systems.[27]Mechanical AI is used for standardizing when the service is used for routine and transactional purposes, for cost containment and primarily in the service delivery phase. Thinking AI is used for personalizing when the service is rich in data and utility, for quality leadership, training and most importantly in building services in stages. Artificial intelligence is being used for relationality when the service is relational and at a high level, for leadership in relations and especially in the interaction phase of the service, offering high reliability.

[28] Artificial intelligence also plays a notable role in robotics. Usually, generic robots are programmed in such a way thatperforms repetitive tasks, but with the help of AI, we can create intelligent robots capable of performing tasks with their own experiences without preprogramming. [29]Methods based on artificial intelligence (AI) have demonstrated high performance in classification, object detection and segmentation tasks. Through "multidisciplinary" and "collaborative work" between clinicians and technicians, the benefits of AI have been successfully applied in the automatic detection and classification of polyps. New AI-based systems show improved polyp detection rate and contribute to better clinical decision making for the prevention of colorectal cancer (CRC) – hence an advantage in treating cancer.

Challenges

[30] One of the major drawbacks of artificial intelligence is the cost of maintenance and repair. The software must be constantly updated to meet changing needs. In the event of a breakdown, the cost of repair can be very high. Another big drawback are the bugs. When setting up many complex AI tasks, remember that any machine can fail. A small error in the calculations can cause a large number of consecutive problems. It can also lead to the loss of important data, which is processed by the machine. Another aspect; if robots start to replace a person in any field of activity, it can lead to unemployment.In addition, a person's mental abilities may be reduced, as the need to use his intellect, non-standard thinking and multitasking will decrease. There will be a dependency on machines. Similarly, if military robots fall into the wrong hands, they will cause destruction. The

machine does not possess the ability to think before acting. In addition to all these drawbacks, there is a growing concern that robots may replace humans. The fear ofArtificial Intelligenceenslaving us to rule the world still exists.

[31] Some more, maybe.It lacks the human bit, younger generation may get lazy, actually might need tons of your time and money, creativity depends on who writes the program andTechnological dependency is hyperbolic.The main drawback at the moment is that modern AI is not yet able to process the Intelligent's thinking and communication the same way as a person. But all is not as sad as it seems. There are active developments, enthusiastic enough to develop this large companies are making significant progress, for example, Google is developing a semantic information search network, is working on speech recognition. The introduction of logic continues in application areas and programs. Today, the computer only executes the exact instructions that a person gives it. So, it becomes clear that thinking in yourself is an impossible task for a computer, but high level programs are relatively intelligent. From we conclude that highly intellectual thought is a property of unhighly organized matter, but a property of a highly organized soul. Animals and humans are able to pose and solve problems. Computers are inanimate devices.They are humanized by programmers and machines simply execute instructions

[32] Although the government and schools place great importance on incorporating artificial intelligence into teaching business English, most of the ideas are implemented at a professional level. The main reason is that when universities formulate talent training programs, training in artificial intelligence awareness and skills has not really been integrated into vocational training, which has influenced the development of objects training of professional talents. If the training target for artificial intelligence is not included in the vocational training plan, education for innovation and entrepreneurship will struggle to run smoothly. At present, some colleges and universities have not fully understood the importance of student innovation and entrepreneurship training and usually only give a few lectures to cultivate the skills and awareness of students. AI students and rarely integrate artificial intelligence education into the system of the professional curriculum. In most professional business English colleges, teaching artificial intelligence consists of creating a few courses related to artificial intelligence based on the original business English courses. In general, these courses have very little to do with professional courses, and actually are two independent courses, there is no penetration and good integration. "Artificial intelligence education is only a superficial form, which is not conducive to the development of artificial intelligence training thinking", is something someone said.

[33] For engineers and mathematicians dedicated to the development of artificial intelligence, the brain is "nothing more than a computer system that can be characterized and imitated by another system". This assumption led software developers to emulate common sense, of which humans are good at, but they were unable to mimic other variables that also to a large extent justify the decision-making process of human beings, which may not be the way to think about.

Conclusion

AI is an important branch of science and computers that has proved to surpass almost all human limitations and perform the expected tasks across all domains pretty well. Its definition changed from time to time, but the core concept remains the same. We could also see that AI has already been playing a major role in India, especially in the domains of healthcare appliances,

manufacturing and production, security and surveillance and in education. The other side of the coin probably looked not convincing, but the advantages surely do. Looking it from a point in future, AI looks to hold a very nice position in terms of support to humans, across all fields, which surely is a promise to see fulfilled in the time to come.

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ARTIFICIAL INTELLIGENCE

SURI SHANMUKH
M.Tech VLSI Design
Email ID: suri.shanmukh2021@vitstudent.ac.in

Introduction

Artificial intelligence (AI) is one of the burgeoning and developing computing technologies that will have a significant impact on the computing world. The practice of creating intelligent devices, particularly intellectual system software, is referred to as AI. It's analogous to the problem of using computers to comprehend human intellect, but AI doesn't have to limit itself to physiologically observable ways. AI is a mixture of two words: artificial and intelligence. Artificial refers to objects that have been created by humans. Intelligence refers to the ability to think. Artificial intelligence is an area of computer science that deals with the development of intellectual machines that can think, behave, and make decisions like humans. These smart devices may make judgments based on a logic programme stored in its memory.Artificial intelligence is concerned with changing machines that, like people, look for and find solutions to real-life challenging issues. AI assists humans in their work and is quite beneficial. AI minimises manpower by completing tasks quickly and efficiently. Artificial intelligence is now applied in a wide range of industries, including healthcare, education, surveillance, self-driving cars, the military, and transportation. AI allows robots to reason and make decisions according to a set of rules, making even the most difficult tasks simple.Computer programmes have a lot of speed and memory, but their capabilities are limited by the intellectual mechanisms that programmers are familiar enough with to include in their creations. Some talents that children often do not acquire until they are adolescents may be in, while others that two-year-olds possess are still out. The situation is even more problematic by the fact that cognitive scientists have yet to figure out exactly what human capacities are. It's quite likely that the organisation of AI's intellectual mechanisms will differ from that of humans. When people outperform computers at a task or when computers take a lot of computation to perform as well as people, it shows that the programmers have a poor knowledge of the cognitive mechanisms required to complete the activity efficiently.

What is Artificial Intelligence

[1] AI is a study of making intelligent machines, particularly intelligent computer programs which aims for understanding the human intelligence to mimic it. It is not limited to a single domain but has a wide range of scope for its utilization in the industry and real life to make the process easy. [2] It is a significant technological advancement that supports daily social and economic activity.It is the art and science of creating intellectual machines, particularly clever software. It's analogous to usage of software's to study human intellect, but AI doesn't have to be limited to physiologically observable ways. Intelligence is the computational component of a person's capacity to accomplish goals in the real world. People, many animals, and some machines all have varying levels of intellect.The issue is that we can't yet define what kinds of computational methods we wish to term intelligent in general.Some intelligence systems are well understood, whereas others are not. Mechanisms are involved in intelligence, and AI research has uncovered how to have machines

perform some of them while ignoring others. When just well-understood mechanisms are required to complete a task, computer programmes can deliver quite spectacular results. These types of programmes should be regarded as "fairly intelligent."

History of AI

[3] The complexity of human undertakings is infinite. As a result, writing history necessitates the adoption of a viewpoint that allows for simplification and standardisation. The usual framework for understanding science history is in terms of significant scientific events and discoveries, as well as the people who were responsible for them.[4] Both human minds and modern digital computers, according to Herbert Simon and Allen Newell, acts as same species, can be termed as symbolic information processing systems that take information in symbolic representation as input, change them according to the rules, so that they can solve problems with judgements and accurate decisions. Whether or not we ever fully comprehend 'intelligence,' we face a tremendous challenge in bringing software's and people together in ways that improve people's lives. While some see this difficulty as a prelude to the development of artificial intelligence, others see it as the birth of a new discipline of engineering. This new field, like civil and chemical engineering in the past, aspires to harness the power of a few fundamental ideas, providing new capitals and competences to people while remaining safe.

AI in India

[29] Technology is advancing at a breakneck pace these days. Indians are much ahead of the game when it comes to commercial technology. Education and the digital economy are both growing at a rapid pace. Indians employ AI in their daily lives, whether consciously or unconsciously, and reap the benefits of AI. Many Indian internet firms, such as Amazon, Netflix, and Flipkart, learn from their customers' preferences and make informed judgments to improve their offerings. However, India is trailing behind in the use of AI in the public sector, national intelligence, and the military. AI is primarily employed by businesses in India. The use of AI in public research, labs, and education is proving tough. Policymakers should implement the necessary policies to improve AI implementation in government. [30] The Indian government is now enacting a number of rules to improve AI's use in a variety of areas in order to make things easier. Many government schemes to reduce corruption are available online. To improve AI utilization in India, the central government allocates more cash to research and talent development. Whereas civil and chemical engineering were founded on the principles of physics and chemistry, this new engineering field will be founded on concepts like as information, algorithm, data, uncertainty, computation, inference, and optimization, which were developed throughout the previous century. Furthermore, because much of the new course's attention will be focused for mimicking theculture and habits of humans, viewpoints from the habitat will be necessary for its growth.

Various Places Where AI is Used

[31] In this Covid-19 pandemic situation, Artificial intelligence is used a lot to track and screen the present and future patients in a particular location. AI is used in many places like Healthcare, Military, National security, Education, Industries, etc. Mainly AI is used in places where huge manpower is required and to solve difficult problems easily. [32] Artificial intelligence is used in the Gaming industry, Heavy industries, Weather forecasting, Expert systems, Data mining, and

Knowledge representation. Artificial intelligence can be used in satellites to study the planets. [5] The business world has been transformed by AI and big data.[6] Incorporating artificial intelligence in the planning system with accurate strategies will incorporate for the development of crisis-free national economic reproduction, whereas easing with respect to quantity or other new measures can result in overaccumulation of capital in the real sector, inflation of financial sectors,SEZ, and so on.

AI in Healthcare Appliances

[7] With the application of computing technologies, the health care sector, public and private health sectors, has seen a great positive shift from already existing approach to full pledgedimprovements in overall health precautionary and safety goals. Artificial intelligence has proven to be a powerful helping tool with progressive analysis methodologies in the existing healthcare area, thanks to its enabled cognitive understanding. [8] AI assists doctors in assessing a patient's health risk and then applying intelligence to not only improve the quality of care, but also to monitor and advise patients on the adverse effects of specific medications. [9] The use of micro and nano devices in point-of-care diagnosis and distant care employing AI is also examined. The existing clustering algorithms have the drawback of inefficient data transfer recovery. For health-care security, the Internet of Things can be combined with Artificial Intelligence. IoT technology is used to create wireless sensor networks. The Internet of Things (IoT) network connects the physical and digital worlds. IoT-AIS is used to encrypt and monitor the patient's data. To keep the patient data accessible from afar, the encrypted data is stored in the cloud. With user access for each and every individual, the Combined technology enables an individualised user experience for individual patients to retain their records. [8] Artificial intelligence is slowly changing medical practise. AI applications are gaining traction in a variety of industries. Healthcare appliances is one of them. Artificial intelligence has come a long way. The legal, social, and economic consequences of AI in healthcare are summarised in this report on AI technology and their biological applications. AI has transformed and reinforced healthcare. In current healthcare, AI systems can forecast, learn, and act in response to the scenario. Minor patterns that humans might overlook can be discovered by AI. The study focused on three areas of AI-assisted healthcare.[9] Clinical studies, patient care, and drug recovery are the three. Pharmaceutical businesses have learned and profited from using automation to speed up their medication recovery process. By managing vast amounts of data, AI-assisted clinical trials provide reliable outcomes. Medical AI businesses' systems may help patients in a variety of ways to enhance their overall quality of life.

AI in Manufacturing and Production

[10] Many amenities like Smart cities, medical care, transportation, logistics, robots, self-driving vehicles, smart-phones, toys, communities, and economies have been incorporated with AI, makes everything technology specific. [11]Characteristics such as skills required, firm size, and Research and developmentcapability appear to have the most impact on adoption of artificial intelligence in manufacturing. [12] We can depict, because of the growing use of computers, dealing with industrial issues has become much easier. However, the challenges' intricacy highlights the difficulties in finding solutions. To enable the growth of really Smart Factories, additive manufacturing and data-driven maintenance are becoming increasingly important. Works to establish a foundation for a cyber additive manufacturing system are being carried out. To assist the dynamic allocation of

digital designs to different additive manufacturing processes, three artificial neural network algorithms are suggested and implemented in a two-stage model. Works are being done to provide findings from an experimental investigation on strategies for detecting interferences in additive manufacturing in real time and thereby improving product quality. Their technology is practical and depends on sensor data as well as approaches like feature selection and machine learning to achieve extremely high detection rates. Belief propagation in restricted fuzzy networks under Bayesian logic can be used to make optimum maintenance choices in a risk-based environment with fuzzy parameters. They develop a method for dealing with the inference problem based on a max-min programming paradigm. Their framework has been tested on an issue with gas compressor maintenance.

AI in Security and Surveillance

[13] Recent trends in artificial intelligence shows that this coming technology will have a great impact on border forces strength, competition, and politics. [14] We use this technology for smart cities. Only a handful cities across the world are truly "smart," with the majority of them still in the planning stages. Thus, we can conclude that artificial intelligence technologies like ML, NLP, and robotics may become handy in solvingmany of the issues in many applications.[15] Including blockchain technology, when combined with AI and machine learning, creates a decentralised network that aids in the elimination of security issues, making the way for easy and useful transportation in a smart city with a surveillance system, thus making the life easier.The building elements are in place, but the concepts for putting them together are not, therefore the blocks are now being assembled haphazardly. As a result, in the same way that people-built buildings and bridges before civil engineering, people are now developing societal-scale inference-and-decision-making systems that include technology, humans, and the environment. Many of our early societal-scale inference-and-decision-making systems had substantial conceptual flaws, much as early buildings and bridges occasionally collapsed in unanticipated ways, resulting in fatalities.

AI in Education

[16] There are two types of AI classifications namely general AI and domain specific AI. General Ai is different from the other as the main concept of it is to be used in any application or domain. [17] AI in education can be described as three stages transmission, study and negotiation. Each has its own importance to be covered under application of Ai in the scope of education. The main problem occurs when any of the stages are not exercised by any of the student. [18] Interaction between the professors and the listeners have to be achieved in such a way that the indulging of AI should not be making the core values of teaching to be deviating. Unfortunately, we aren't particularly adept at predicting what will be the next major defect to emerge. What we lack is an engineering discipline based on analysis and design principles. The word AI is frequently used in current public debates regarding these concerns as an intellectual wildcard, making it harder to reason about the extent and effects of evolving technologies. AI is applied in a variety of areas of society, including the military, the business, and education. For elementary pupils, it is difficult to comprehend. To comprehend the concepts of AI at each level, several approaches must be devised. Twenty different strategies were designed and implemented for this. Students' creative thinking and comprehension improve as a result of this. Every day, the importance and demand for AI in numerous industries grows. There is

little doubt that AI will have a significant impact on education in the future. Various methods for educating students about AI subjects are being developed.

Advantages of AI

[19] The first and foremost advantage is that the result will be depending on the facts but not on the emotions. [20] It has a very great achievements in medical applications by providing the accurate data of the disease constraints required for the doctors to treat.[21] The work progress would be continued without any intervention as it doesn't require any sleep like humans.[22] The time taken for the same work reduces and has a greater impact when compared with time taken by humans. [23] It has a great role of providing realistic gaming experience for the gamers. The AI machine's rate of repetition is really high. They are employed in the research and development of novel pharmaceuticals and medicines. By assessing the circumstances and making proper judgments faster, AI is being utilised to operate automobiles without drivers. Teachers' basic thinking and intelligence have improved as a result of AI. Teachers in traditional schools are primarily concerned with imparting knowledge. They are unable to comprehend the kids due to a lack of time. Students in modern schools, on the other hand, learn things thanks to the use of artificial intelligence in the classroom. Teachers must now comprehend the kids. [21] AI has made inroads into a wide range of industries, bringing fast change to all of them. AI has made its way into the military, making life easier for officers. For cargo delivery in hilly terrain, the military employs a large number of robots. They serve as a form of security. We can utilise robots to fight battles instead of soldiers. So that we can lessen the number of people killed in conflicts. The amount and type of technology we utilise will determine our chances of winning the battle. In the future, the conflict will be won mostly by countries who use advanced technology. Accuracy and efficiency are enhanced thanks to AI machines. Using AI robots instead of humans can save money and time. Everything will be at your fingers in no time. Workload will be reduced, allowing more time to focus on vital issues.

Challenges or Dis-Advantages of AI

[24] The main challenge of AI is to meet the initial cost and its maintenance.[25] It is also very important that there will be a risk factor that needs to tackled with respect to the AI usage with respect to their domains. When it comes to trading there is a lot of risk than advantages as one mistake in the algorithm would lead to a big loss.[26] Human jobs are affected when there is a machine interference in the work to be done.[27] Human error is most common as even the AI machine is being worked on by a human. So the efficiency totally depends on the creativity of the programmer.[28] In the modern world the importance of data privacy is very high and it needs to be maintained to cope up with the competitors standards. Therefore, usage of AI might make a risk of data breach as it can be programmed as required.I may be able to progress to the point that humans are no longer able to control it. This could "mean the end of the human race," as physicist Stephen Hawking puts it. According to philosopher Nick Bostrom, sufficiently competent AI will exhibit convergent behaviour such as accumulating resources or preventing itself from being shut down if it selects actions based on accomplishing some objective. If this AI's aims do not fully reflect those of humanity, it may be forced to damage humanity in order to obtain more resources or avoid being shut down, thereby allowing it to achieve its purpose more effectively. He believes that AI, no matter how modest or "friendly" its claimed intentions may be, constitutes a threat to

humanity.Humans should not anticipate that machines or robots would treat humans well since there is no reason to suppose they will share our moral framework.

Conclusion

[33] Till today, there isn't a clear storey behind inculcating artificial intelligence. The human himself was formerly the guide and inspiration for artificial intelligence research in its upgraded versions, has largely been displaced, as have certain ideas on what we are supposed to know and accomplish with intelligent computers. The art of new technologies like AI will make the work easier and compatible. However, every technology has its own benefits and drawbacks, considering the application of the such an emerging technology under various trends make it to be outstanding. It can be concluded that the AI is a very important technology that needs to be admired and used in all the applications and make the standard of life higher and nature of work easier.

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ARTIFICIAL INTELLIGENCE

LIKHITHKUMAR C.G

Email ID: Likhithkumar.cg2021@vitstudent.ac.in

Introduction

[1] Artificial Intelligence(AI) is Related about the Modelling a Expert or intelligent system which can execute the Tasks as like as humans by interpreting the nature of human intelligence.the progress in technology will always cause some opportunities and challenges.The AI is in favour to bring a good economy growth.It is estimated that there is chances of loss of jobs due to automation for less skilled and semi skilledpeople.therefore,it is very required to frame a proper laws and policy.It is the one of the hot topic for students and researchers.

What is Artificial Intelligence

[2]Artificial intelligence will define the ability of the Machine learning where using the mimics of human brain forming a Artificial nueralnetwork,making the system to make its on decisions.

[]The market for AI is darsctically increasing day by day.As AI can be used in any field of Techonology which makes system more efficient.Example–AI used in robotics, AI used in Autonomous vehicles.It is the field of Computer science that explicitly programmed where how system or AI model will copy the Intelligence of human beings.from past 10 years the definition of AI become

Relatively about the digitalised and automatic.the contrast between the AI and normal software is that the AI can make its own decisions based on the past experience.

Historyof AI

[3] The term Artificial intelligence is coined ny John McCarty in 1956 and also proposed it.The Idea behind this Can machines think like human??.this become an hot topic for scientist for research and Mathematician Alunturing showed that there is possibility for to learn and think like human.He gave an test for this which is called Turing test,by this it is feasible to enable machines to think and learn from their the past experience and respond to the stimulus.[4]In The past technology started with Dartmouth as project for his summer at his college.it started in early 1950s,Later Alunturing find out test for machines to think which is Turing test.Later in past 90s the chess computer has developed by IBM,which is 1st system to win against Humans(world champion Garry kasparov).It gained the lot of public attention.

Growth of AI

[5] The AI techonology is booming now a days it is the hot topic for research,the developments in the various domains has helped the society.from 90s to late 20s the AI has grown to the next level. the various subsets of AI are DATASCIENCE, MACHINE LEARNING, DEEP LEARNING. this will increases the jobs for skilled youth.The usage of robots has been increased. [6] The implementation of AI in various fields like manufacturing,medical,War field, automobile etc.has increased drastically.this makes our lives better in all aspects of our daily life.The growth of AI will contribute to economy of the country.The global AI market is expected to grow at a compound annual growth rate of 40.2% from 2021 to 2028 to reach USD 997.77 billion by 2028.

Artificial Intelligence Revenue, World Markets: 2016-2025

Source: Tractica
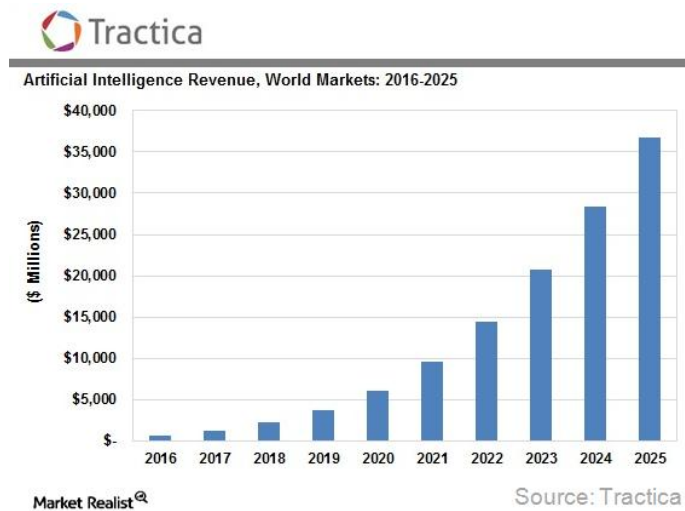
AI in India

[7] As per the records of the paper India is considered as one of the prominent player in AI realted to research and development.It is ranked at 4th for producing AI related scholarly papers and has top rank in AI patents.AI gives hopes to india as it increases the development and remove the traditional obstacles such as poor infrastructure and bureaucracy. [8] AI applications can be made in almost every sectors like healthcare,finance,lawenforcement,agriculture,transportation,education.But it is difficult for India in its implementation of AI in every sector. example: Autonomous cars where indian road maps are not that much accurate car might unable to reach location.and In education system is not that technologically advanced to use Augemented reality and virtual reality.Still the proper infrastructure is required to implement AI in india.

Various Places Where AI Used

- [8] Manufacturing and Supply Chain Management
- Public Health and Safety
- Banking and Financial Services
- Education
- gribusiness
- [9] Marketing and Customer Care
- Energy sector
- Defence and National Security
- AI Enabled Assistive Technology for Physically Challenged
- General utility services

AI in Health Care Appliances

[10] AI Is enabling the appliances in the healthcare and making them efficient such as fitbits etc.it can even also makes specific decision like doctor and gives prescription for patient.the number of devices already in use by humans will make the life better. [11] the smart devices like monitoring heart beat,temperature,steps travelled etc.the doctor monitor patient remotely by these smart devices and gives guidance. THE IOT will makes the health care industry more efficient by using AI and

increase model efficeiny and transperancy.By AI we can predict the disease based on the certain datasets.likecancer,diabetes,etc. [12] AI can play a crucial role in global public health as a tool for combatting epidemics and pandemics.example:duringcovid pandemic situation many data scientists predicted the number cases increased per day.

AI in Manufacturing and Production

[13] Introduction of AI in manufacturing industry has maken the environment data driven,it will accelerates the development of smart manufacturing.IT increase the quality inspection and process quality control.supply chain and intelligent logistics,Predictive maintenance of equipment.[14]AI will predict the useful life of industrial equipment and it will diagonise the faults in the system.Machine learning based models will do feature exraction,classification,selection of data etc.The impact of AI in manfucturing industry is game changing.It decreased the workload,lostsales,forecasting errors.[15] AI tools can process and interpret large amount of data from the production floor to spot patterns,analyse and predict consumer behaviour,detect the anamolies in production process in real time.AI powered systems can also learn,adapt,and improve continuously.

AI in Security and Survelliance

[16] Using AI in the cameras we can detect thye objects using Image processing techniques.it is used in various fields and devices like Drones,CC cameras etc.It will increase the safety and survelliance

[17] The various algorthims are used in this like CNN,RNNetc.the applications are detection like example mask detection,object detection etc.use of AI in security will be the future trend.Positon tracking is done is office and Wars etc.[18]The traditional CCTV surveillance method is always reactive as it only aids when an incident occurs. Whereas, the AI in security helps with intelligent analysis of how a threat can occur. Besides, it can predict who can involve in theft while monitoring the people moving around in a retail store. It can also come up with solutions to detect unattended objects and bags in public places and airports. Hence, video analytics can help taking action before it's too late.

AI in Education

[19] AI is becoming an prominent technology that is changing educational tools and Organizations.Education is an area where the Existence of Tecahers is Mandatory which is considered to be finest educational practice The teachers can be Altered by the arrival of AI in education system. [20] Machine learning,deep learning are the subsets of AI which are used in its

applications.The Augmented reality and virtual reality with AI in education makes the student to learn effectively.AI will reduce the teachers work load and students excellent learning.[21]AI has combination number of applications in Educatiinarea.personalized learning programs will adapted to each students ability and goals.On-demand tutoring via AI chatbots and software-driven tutors.

Advantages of AI

[22] there are the remarkable benefits in AI,which makes us to Apply the AI in any field .

The major Advantages are:

More effiecient than Human

- It will be all at point of time like (24*7).
- The errors and defects which will occur will be very less.
- [23] Applications of AI in various fields like Education,health,defence,Marketing etc….
- AI is considered as boon to the marketing domain as it will make their job easy and provides good service to the customers based on their interests.
- Technologies of AI is used in fraud detection,detection of fake news etc
- [24] Natural language processing which is one of the technology of AI making the searching of words easy.
- AI used in detection of diseases like Cancer,chances of heart attack and diabetis.
- [25] AI makes accurate and speedy decisions.
- Less space, less size,
- [26] Discover unexplored things. i.e. outer space
- Using AI can decrease conduct ime and precise handling of situationin medical emergency.

Disadvantages of AI

[27] As like as advanatges AI have some disadvanatges like

- AI is unable to displace humans as intelligence of human is god gifted and it cant be done artificially(emotions,ethics,morals).
- [28] due to AI the jobs of the less skilled and semi skilled people will be lost we will face an issue of unemployment.
- The AI weapons don't have any principles of humanity which allows for more destruction.
- [29] AI weapons like robots can be hacked by enemy and made to attack on us.
- AI doctor in medical can provide good medicine or description for the patient but it cant give the mental strength to the patient (fearless).
- [30] While implementation of AI in education system it costs more
- It doesnt improve with expierence.
- [31] Creativity is depend upon programmer.
- It is not easy to develop the systems as they are expensive.

Conclusion

It seems Artificial intelligence is becoming an promninent technology which can be used in every sector.and It is playing important role in advancement of technology and development of a nation.It is used mainly for the data driven systems where the data flood which occurs in the world by AI technology it is easy to make decisions.In the Implementation of AI needs a proper law and policy

so it cant be misused by humans.It also needs a good infrastructure for its implementation.It is used in various applications like smart devices of monitoring patient in health care,used for detection of target in cameras,AI in robots etc.IT has both advanatages and disadvanatges.It makes the human lives easier and comfortable.In other words it will become an threat to human life like when the AI weapons are used there is more chances of misuses and cause more causalties.AI in cars will also suffer from this issues.AI cant replace humans where the intelligence(ethics,moral,emotions) cant be efficiently implemented in it.Due to AI there is loss of jobs in various domains of less skilled and semi skilledpeople.but we reduce it by implementing proper policy and infrastructure.In healthcare it will play an important role by giving prescription to patient as like doctor.we can call Artificial intelligence as BOON and CURSE to the society based on its applications where it is using.and more research should is needed in this field in Implementation and also the discussion among the various domains specialists.

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DimaMaharikaDinama∗QurrotaA'yun†, AchmadDahlanSyahroni‡IndraAdjiSulistijono§, AnharRisnumawan¶

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Ku.Chhaya A. Khanzode,Librarian, Institute of Pharmacy & Research, Badnera- Amravati, India

Dr.Ravindra D. Sarode,Assistant Professor, Department of Library & Information Science, SantGadge Baba Amravati University, Amra

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Authors:KristinaKaličanin,MilicaČolović,AngelinaNjeguš,VladimirMitic ,Singidunum University

Key Advantages and Risks of Implementing Artificial Intelligence in the Activities of Professional Communicators

Liudmila Azarova1, Maria Kudryavtseva2, Larisa Sharakhina3

Faculty of Humanitarian Sciences; Public Relations Department

Saint-Petersburg Electrotechnical University "LETI"

Saint Petersburg, Russia

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Advantages And Disadvantages Of Artificial IntellegenceMr. Sachin Bhbosale1 , Mr.Vinayak
Pujari2,Mr.Zameer Multani3.

ARTIFICIAL INTELLIGENCE

K. ARUL RASIKA

M.Tech Construction Technology and Management
Email ID: arulrasika.k2021@vitstudent.ac.in

What is AI?

Artificial intelligence is a science and technology that processes the understanding of computation, also known as intelligent behaviour, and creates artifacts that demonstrate such behaviour. AI is highly regarded in computer science because it enriches human life in a variety of ways. The term AI is used to describe technology that simulates human-like intelligent behaviour and critical thinking. Herbert Simon and Allen Newell developed the concept of the human mind. Modern digital computers are a "species of the same genus", an iconic information processing system. Accepts input and works according to formal rules.

History of AI

In short, the concept of AI was born of friction and imagination, and the invention of technology and other elements also influenced the development of AI. Some milestones included problem-solving tasks such as knowledge representation, reasoning, language and comprehension demonstration programs, translations, basic learning tasks, proof of theorem, associative memory, and knowledge-based systems. AI captured multiple flavours in the field during this era. This is a clear part of the field paradigm or research program in a particular area. Intellectual topics have certain sharpness that make writing and speaking fun. The rapid development of AI is much debated today. AI is a breakthrough technology that is changing every aspect of human life and creating great expectations. Many even suspect that AI poses a threat to human existence. AI has definitely come a long way since its inception, but we are no longer aware that AI has become a part of our daily lives. The latest developments include the concepts of machine learning, supervised learning, reinforcement learning, and unsupervised learning. The biological neural networks in our brain were the inspiration for artificial neural networks that helped machines understand patterns from specific input data to predict future datasets. Recently, a multi-layered artificial neural network, also known as a deep neural network, has been implemented to improve accuracy. Some AI applications, such as Deepfake and AI bots, have fake accounts that can be counterfeited.

AI in India

According to the survey, the annual economic growth rate of 12 industrialized countries is expected to double by 2035. On the other hand, there is also the threat of unemployment. According to available reports, the unemployment rate for the next 1020 is estimated to be 47% in the United States, 35% in the United Kingdom, 49% in Japan, 40% in Australia and 54% in the EU. In the age of globalization, no country can escape the effects of technological progress. However, you can maximize the benefits and minimize losses by setting the required infrastructure and policies. Several countries have completed their AI strategy, but India has not yet developed it.

Various Places Where AI is Used

Recent developments in interactive storytelling technology have not yet generated widespread interest in the traditional storytelling community. Part of the explanation lies in the lack of maturity in formalism and the creation of technology. In this post, we will consider some basic questions in the light of our own experience in developing interactive storytelling techniques. Introducing various elements of story generation and presentation in an interactive storytelling system. Describes the relationship between the AI formats used in interactive storytelling systems and the formats used in narrative analysis, and the impact of these formats on interactive storytelling. Several applications are currently being developed or are under development that could significantly improve quality of life. Few other places where AI is used are as follows; Marketing: Artificial intelligence enables marketers to better understand consumers and prospects by enabling them to deliver information at the right time. With the AI solution, marketers can improve their campaigns and strategies.Agriculture: AI technology can be used to detect crops, pests, and malnourished plant diseases. With the help of AI, farmers can analyse weather conditions, temperatures, water consumption, and soil conditions. Banking: You can use AI solutions to detect fraud. AI Bot, Digital Payment Advisor Can Create High-Quality Services. Healthcare: Artificial Intelligence can go beyond human perception in the analysis, diagnosis, and complication of complex medical data.

AI in Healthcare Appliances

AI is a growing science in which it has applications in different fields. According to studies the AI is significantly developing in the market in the field of healthcare. It has a large variety of applications in this field such as Treatment design, Drug creation, Digital consultation, detecting malignant diseases and assessing the effectiveness of chemotherapy in cancer patients, Management of diabetes, detecting mental conditions, Recognition of facial symptoms, Robot-assisted surgery, etc. There are some proven pieces of evidence, that medical AI can play a vital role in helping doctors and patients to obtain healthcare much more professionally in the 21st century. Though the concept of AI and robotics began as science fiction, AI robot plays vital roles in our modern life. Surgical robotic AI is promised to play a more integral role in the years to come.

AI in Manufacturing and Production

The modern manufacturing and logistics systems are supported by computing networks., a huge amount of data is continuously being generated by sensors, machines, systems, smart devices, and people within those networks. Together with rising computational capabilities, this Big Data is being analysed faster, more broadly, and more deeply than ever before. These advancements have redefined the value of AI technologies and also have opened a new age which is known as Industry 4.0 or the Smart Factory. Smart manufacturing is the new version of intelligent manufacturing, which reflects on the magnitude and impact of smart technologies such as the Internet of Things, Cloud Computing, Cyber-Physical Systems, and Big Data on Industry 4.0.

AI in Security and Surveillance

AI technology was once just friction, but now it became a part of our daily life. It overpowers us through our smartphones, it creates a playlist for us based on our preference, it even controls our social media feeds. The most notable aspect of AI is indeed its sudden ubiquity. Even the advanced

democracies are struggling to balance security systems with public liberties protections. In the United States, the increase in the number of cities that have adopted advanced surveillance systems. For example, secretly deployed aerial drones were sent out daily to surveillance over the city's residents by the Baltimore police, it was revealed in 2016 an investigation carried out by Axios's Kim Hart. Deep learning in the segment of AI, is involved with imitation of the learning approach, which is utilized by human beings to get some different types of knowledge. Analysing videos is a part of deep learning, it is one of the most basic problems of computer vision and multi-media content which have been analysed for at least 20 years.

Artificial Intelligence in Education

[1] According to the review of the AIED conference students who have AI facilitated are said to be in control of their own learning very firmly. Students' interaction with the computer is also included. AIED also states that the field is innovative and at the same time it is also derivative. For example, it brings new theories and methodologies, at the same time it also brings in the largest problems in the world. AI in education involves 2 main stands tools that helps in developing AI and tools which are used to understand. Even though the new technology finds a solution for all the questions and problems, new questions and problems have been emerging. In order to mould the students, the teachers have to learn the process and check the working so the students do not find any difficulties. AIED tools might not be available in the future, which a book does not include and be even thought by an AI to the students. [2] As we are already aware of the fact that AI is a booming technology, it is a domain that has the power to change the future for the worse or for the better. Some call AI a luxury and say as a necessity, it is in fact a mixture of both. Ai has established a new target after taking over social media, and that is the educational system. Through AI the new system of education through mobile has been introduced to the world. [3] Ever since the field of AIED has developed, so did the goals. The goals have evolved to theories and practices of education. They also cause rapid transfer of information, and technology, shifting of information, and accessibility. The goals of educations have moved from workforce preparation to building knowledge in favour of students and building tools to understand. The face of having a mobile and another portable computer-like device means having factual knowledge at the tip of the fingers or tong. Schools also develop a curriculum that focuses on the practical application of the theories.

Advantages of AI

AI is used to simulate human intelligence by making a decision and problem-solving. It even provides reliability, cost-effectiveness, and permanency. They are used in a variety of disciplines such as engineering, business, linguistics, law, manufacturing, and medicine, and is used in a variety of modelling, forecasting, decision support, and control applications. One of the most promising applications for AI was its consistent use on the Internet. For example, search engine-specific AI tools. An example of AI technology currently in use is the conversion of traffic sensors into intelligent agents that can automatically detect and report traffic accidents and predict traffic conditions. The most promising application of AI has been the search engine on the internet.In the transportation industry, AI has been demonstrated and significant research has also been conducted.AI is found to be more reliable and useful in predicting and controlling traffic.They do not need and sleep or don't have any tiredness like humans.It's said to be that AI can find a solution

to a particular problem.There are different types of robots that can be used for space exploration.One of the main benefits of artificial intelligence is; Error reduction, AI provides the ability to achieve accuracy with higher accuracy, thus minimizing human error. In fact, cognitive errors are extremely rare compared to human errors. In health care, AI is used to optimize clinical processes. Medical professionals usually write prescriptions based on interviews and regular examinations.

Disadvantages of AI

One of the main drawbacks of artificial intelligence is the cost of maintenance and repair. Software must be kept up to date to meet changing requirements. In the event of a failure, repair costs can be very high. The big minus is wrong. Keep in mind that any machine can fail with many complex artificial intelligence tasks. Small calculation errors can lead to many consecutive problems. It can also result in the loss of important data being processed by the device. If robots begin to replace humans in all areas of activity, it can lead to unemployment. In addition, it reduces the need for intelligence, abnormal thinking, and multitasking that can affect a person's mental abilities. It depends on the machine. If a military robot falls into the hands of a malicious person, it will be destroyed. Machines don't think before they work. In addition to all these disadvantages, we are afraid that robots will replace humans. Artificial intelligence can enslave us and begin to rule the world. Here are some other disadvantages of AI, development is not easy because the equipment is expensive. [1] Building, rebuilding, and repairing can be very costly and time-consuming. Robotic repairs can be done to save time and people want to repair them, but that costs extra money and resources. [2] Robots that replace jobs can cause serious unemployment unless AI corrects job unemployment that cannot be done or seriously turns the government into communism. [3] If the machine falls into the hands of a malicious person, it can easily be destroyed. It is to minimize the fear of different people. [4] AI makes people lazy because applications automate most of the work. People tend to push themselves into these inventions, which can weigh on future generations.

Conclusion

Our modern life is mainly based on computers. Life without a computer is almost impossible. Everything you use in your daily life requires a computer. Therefore, making computers intelligent is very important to make our lives easier. Artificial intelligence is the theory and development of computers that mimic human intelligence and sensations, including B. Visual, speech recognition, decision making, translation between languages. Artificial intelligence has revolutionized the world of technology.Artificial intelligence will revolutionize human history. Human civilization prospers by strengthening human intelligence through artificial intelligence, as long as we can use technology.

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ARTIFICIAL INTELLIGENCE

AABASH .A
MTech.Embedded Systems
Email ID: Aabash.a2021@vitstudent.ac.in

Introduction
What is Artificial Intelligence?

[1] The science of making intelligent machines work similar to human brain by computer programs without including the biological operations is called Artificial Intelligence. [2] There are many definitions for Artificial Intelligence.Historically,making machines with intelligence is called Artificial Intelligence.Making machines with environmental acceptability is also called Artificial Intelligence. [3] The term Artificial Intelligence was introduced by John McCarthy in 1956.However the idea of turning machines to have human behaviour was developed earlier by Alan Turing.The evolution of Artificial Intelligence started after the idea proposed by Alan Turing.[4]Problems that are solvable by Artificial Intelligence are classified into five categories:Search,Pattern-Recognition,Learning,planning and induction.Normally Artificial Intelligence based machines develop a model to solve the particular problem.When a problem is detected first the machine searches through the large set of solutions.This process is made more efficient by using pattern recognition techniques.Then the machine starts learning the situation which is called Deep Learning technique.Model construction is done in Artificial Intelligence by using induction process.

History of Artificial Intelligence

[5] If we trace the history of Artificial Intelligence we can find philosophy and fiction.Lots of imagination is also included in many areas of Artificial Intelligence.Early inventions in different disciplines of engineering have paved the way for the development of Artificial Intelligence.Such inventions include works in problem solving techniques,language understanding problems and translation techniques and knowledge based systems.[6]In some cases Artificial Intelligence is also complementary to the history in terms of the evolutionary content of science.Hence the picture provided by history for Artificial Intelligence in history proves interesting to us.[7]The term Artificial Intelligence was coined in 1950.But the widespread knowledge of Artificial Intelligence was prevented due to certain limitations and various reasons.These limitations were later overcome by the introduction of deep learning techniques.[8]Nowadays Artificial Intelligence systems are more capable of analyzing even complex algorithms in much easier way.In recent days Artificial Intelligence is trying to imitate intelligence with computer programs,which is not an easy task actually.[9]Now Artificial Intelligence is ruling the world by making machines work like humans with the help of some programming languages.By having advanced algorithm techniques and massive data storage features Artificial Intelligence has entered into our lives rapidly by solving many problems.[10]Artificial Intelligence based systems are concerned not only with thoughts but also with action.It is an important requirement for any intelligent systems in a real world environment to solve any kind of problems.

Artificial Intelligence in India

[11] Nowadays Artificial Intelligence is focused more in the policy development of India.Even the existing policies encourages the development of Artificial Intelligence.But the limitiations and risks of Artificial Intelligence are still retrorespective considerations for development of Artificial Intelligence based applications.[12]Today every service based companies requires Information and Communication Technology(ICT) for efficient performance of resources.The global chatbot market is going to develop rapidly in the next decade.The chatbot market is developing rapidly due to increased demands on smart phones and other technologies.[13]As Artificial Intelligence entered each and everyone's life hence the Artificial Intelligence has to be given considerable importance.In India Artificial Intelligence is used in many places to accelerate the process.[14]Artificial Intelligence is also likely to transform our lifestyle.Due to its hugh growth and power it is included in Industrial Revolution 4.0.Studies show that Artificial Intelligence is likely to double the economy of 12 developed countries by the end of 2035.Though many countries have formulated strategy on Artificial Intelligence,India has not yet decided.

Used In

[15] In future intelligent machines will replace human workload in many fields.Artificial Intelligence is the popular field in areas involving computer science.It also improved human life in many areas.The areas using the Artificial Intelligence technology have not only improved efficiency but also the quality.Any complex problems in any field of technology is easily solvable using Artificial Intelligence technology.Nowadays Artificial Intelligence based systems are also used in Power systems,in networking in the area of medicines,image processing also in healthcare industry.[16]Artificial Intelligence technology not only supports technology but also helps the day to day life and socioeconomic activities.Japan economy is hugely dependent on Artificial Intelligence technology which solves most of their problems.In developed nations like USA,China,Japan Artificial Intelligence is used along with Information Communication Technology(ICT) and Robot technology(RT) to solve various problems.

Growth of Artificial Intelligence

[17]The growth of Artificial Intelligence affects the economy in a positive way in a large amount.The role of robotics and Artificial Intelligence increased the productivity in a large amount.The industries which use Artificial Intelligence have much more efficiency while the others experience labour market upheaval. [18]At the same time the employees are also affected with Robotization.Thus inappropriate labour policies affect the positive impacts on Artificial Intelligence.[19]Eventhough Artificial Intelligence focuses on economic growth,but it occurs at the cost of human labour.Additionally,Artificial Intelligence also increased the high income employment.Artificial Intelligence can be seen as the latest form of Automation and hence it is included in industry 4.0.

Artificial Intelligence in Healthcare Industry

[20]The growth of Artificial Intelligence in healthcare industry is a huge.Studies are going where Artificial Intelligence can replace human doctors and also the people's opinion in it.[21] A software is also been developed for doctors to make decisions without consulting the specialists.Aritificial Intelligence is accepted as a new technology in Computer Science.[22]The use of Artificial

Intelligence in dermentalogy is inevitable.Dermentalogists make use of the various imaging techniques in Artificial Intelligence.Each technique has its own advantages and disadvantages too.[23]The future of Artificial Intelligence focuses on the prediction of preterm labour and birth.It is made possible with the help of different machine learning approaches with optimal types of data.Some tools used are artificial neural network,logistic regression and random forest for numeric data.[24]Artificial Intelligence is also used for bioethical implementation of medicine and ophthalmology.Artificial Intelligence is defined as the simulation of machine with human behavior.The increased power in computation,huge storage capacity helped the Artificial Intelligence enter into medical industry.The food and drug administration approved the Artificial Intelligence based systems to work on ophthalmology.Artificial Intelligence based systems are also used in retinopathy.

Artificial Intelligence in Manufacturing and Production

[25]Rapid development in manufacturing industries occurred only due to the development of Artificial Intelligence.Artificial Intelligence proposed the new models ans techniques to the improvement of manufacturing.[26]Logistics systems also highly uses Artificial Intelligence and computer networks.When Big Data Analytics also came into the scene it opened up a new age called industry 4.0.[27]The main features of a smart factory are computing,communication and control. Studies are going on to improve such features in manufacturing industries using 4.0.[28]With the advancement of Artificial Intelligence the manufacturing of processes become more flexible.Plenty of oppurtunities are made using Artificial Intelligence.With the help of Artificial Intelligence an industry can be looked like an organism of cells that can be arranged in any way.Artificial Intelligence also helps in the movement and configuration of cells.It can be done both internally and externally.[29]Recent developments in Sensor and actuator technologies had led to the introduction of Manufacturing System wide Balanced Random Survival Forest (MBRSF). [30]The rapid advancement in information technology is forcing us to make some changes in our business.Our focus should not only on the factory level but also the process the factory goes through. Such process includes order process cycle, marketing, manufacturing, distribution and field service.

Security and Survillence

[31]CCTV cameras nowadays have a widerange uses in traffic systems,healthcare industries and security needs.A new algorithm is been introduced for adjusting the orientation of cameras.[32]National security missions which contains large amount of data are also using Artificial Intelligence technology along with security informatics.[33]Latest developments in hardware technology and Artificial Intelligence paved the way to develop autonomous monitoring systems,especially in secure site.[34]The traditional household locking systems had a lot of drawbacks.In order to improve the security level the Artificial Intelligence based systems used CNN(Convolutional Neural Network) algorithms to improve the security level.This system measures any activity near the door by using Ultrasonic sensor.Whenever a burgler tries to access the door warning triggering message will be immediately sent.[35]In recent pandemic times Artificial Intelligence based systems are also used to track the widespread of COVID-19 and helps to provide care.The Artificial Intelligence based surveillance also helps us to gather data about covid patients.Though these systems were not explicitly designed for pandemic,these Artificial

Intelligence based systems can be easily adapted to any situations and hence adaptability is the most important feature of Artificial Intelligence based systems.

Education

[36] Web intelligence along with Artificial Intelligence and Information is extremely beneficial in the field of Artificial Intelligence in Education(Artificial IntelligenceED).Artificial IntelligenceED uses some of the technologies of Web Inteligence based on the challenges.[37]Artificial Intelligence technology also helps to improve the equality and quality in education in the developing world.Education Management Information Systems(EMIS) is one of the excellent advancement in education systems.[38]Artificial IntelligenceED delivers mainly through computers and devices that are designed for business.The future is Artificial Intelligencemed at creating a platform by combining robotics and sensor technologies.Artificial Intelligence can also be used as a tool to connect the core of teaching and learning.[39]Techniques such as Neural networks are used to make computers work like humans without any intervention.Data scientists also make use of Deep Learning approach to predict educational performance.

Advantages of Artificial Intelligence

[40] Artificial Intelligence provides a cost effective system by solving a problem at high speed.Artificial Intelligence is also more reliable.Artificial Intelligence can also be applied for various fields of engineering,manufacturing,medicine for decision taking and modeling purposes.One of the most prominent feature of Artificial Intelligence in Internet is Search Engine.[41]Artificial Intelligence integrates Computer science and physiology intelligence to achieve goals in the world.Artificial Intelligence brings the innovation of some traditional concept methods.Artificial Intelligence is much essential for rapid development of web based systems.[42]A new product development requires high level of knowledge and complex procedures.Construction Ontology based New product development Process recommendation Smart system(ONPS) assists us to maintain and built up the body of the knowledge very easily.It also builts a Graphical User Interface for building our knowledge.[43]Due to rich application services the Internet Of Vehicles has struggled to handle it.The Mobile Edge Computing (MEC) technology helps solving this problem in a very efficient manner by using idle computing.

Disadvantages of Artificial Intelligence

[44] The main disadvantage of Artificial Intelligence is that it leads to mass scale destruction.Programming mismatches may occur and it also leads to unemployment problems.It also makes the younger generation lazy.[45]Artificial Intelligence is also expensive to built the equipments.Repairing also costs a lot.Machines causes destruction easily if it is put into wrong hands.Eventhough machines replaces the repetitive tasks done by humans,it cannot replace the team connection formed by humans. [46]Eventhough Artificial Intelligence helps a lot in the field of education,but it have not fully realized the advantage of student innovation.[47]Bugs are the greatest disadvantage of Artificial Intelligence.Loss of data is the common mistake in any Artificial Intelligence based machine.In future Artificial Intelligence can even enslave us and begin to rule the world.[48]The greatest challenge faced by multi national industries is that it becomes very difficult for the engineers to reprogram it.

Conclusion

The benefits of Artificial Intelligence can be very helpful. If we build a co-working relationship with Artificial Intelligence, we will definitely have an intelligence explosion. Within weeks the Artificial Intelligence can do think-work that would take us millions of years.No matter if Artificial Intelligence turns out good or bad, it will be the last challenge we will ever face.Artificial Intelligence helps us in doing our daily activities.It will increase our knowledge in all type of science and technology.It will save our time and money but at the same it also kick out humans from their jobs and make them unemployed.We can never change or decide the future but we can at least make alternative like if this happens how we can stop it and how to prevent it and how to recover from it.

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ARTIFICIAL INTELLIGENCE

ACHYUTA JANAGOND
M.Tech. Embedded System
Email ID: achyuta.janagond2021@vitstudent.ac.in

Introduction

What is Artificial Intelligence

[1] Artificial intelligence is associated with the concept to perform different tasks as thinking like human beings. Advantages of AI are that it does not have any limit for observations.

AI involves in solving the problems of real world. [2] AI is the branch of computer science which is very vast, where it helps to solve the real world problems which learn and mimic human intelligence. One thing that we can learn through artificial intelligence (AI) is we can prepare the machine to tackle the challenges by learning from others and adopt some novel methods. I am the other thing is artificial intelligence is mostly about learning challenges in the world and provide full methods to face them which is not possible by humans or many more things that the humans cannot do.

AI is already one of the key technologies in our economy. It will bring changes similar to the introduction of the steam engine or electricity. However, concerns about potential loss of control in the Human-AI relationship are growing. Issues such as autonomous driving and the unclear decision making of the vehicle, for example, in extreme cases shortly before an accident collision, have long been the subject of public debate. The same goes for the question of the extent to which AI can or should support medical decisions or even make them itself AI is already one of the key technologies in our economy. It will bring changes similar to the introduction of the steam engine or electricity. However, concerns about potential loss of control in the Human-AI relationship are growing. Issues such as autonomous driving and the unclear decision making of the vehicle, for example, in extreme cases shortly before an accident collision, have long been the subject of public debate. The same goes for the question of the extent to which AI can or should support medical decisions or even make them itself AI is already one of the key technologies in our economy. It will bring changes similar to the introduction of the steam engine or electricity. However, concerns about potential loss of control in the Human-AI relationship are growing. Issues such as autonomous driving and the unclear decision making of the vehicle, for example, in extreme cases shortly before an accident collision, have long been the subject of public debate. The same goes for the question of the extent to which AI can or should support medical decisions or even make them itself AI is already one of the key technologies in our economy. It will bring changes similar to the introduction of the steam engine or electricity. However, concerns about potential loss of control in the Human-AI relationship are growing. Issues such as autonomous driving and the unclear decision making of the vehicle, for example, in extreme cases shortly before an accident collision, have long been the subject of public debate. The same goes for the question of the extent to which AI can or should support medical decisions or even make them itself.

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History of AI

[3] History of AI traces back to the philosophy, imaginary tale and thoughts. Where the influence of AI can be seen in the many branches like electronics engineering etc. [4] In our discussion about the history of AI, the considerable moment is that the art evolved into science, the wishes and desire were fulfilled certainly. Although we are studying about "The History of Artificial Intelligence", but we are mainly bothered about one simple and highly important aspect in that history, that aspect is when art was transformed into science to transform desires into existence. We will come t know that the transformation occurred at many different levels during early to medieval 1950s and computer is the most impressive way to realize that is the creation of human beings.

AI in India

[5] In India, defense organization DRDO is doing research on AI and Robotics for defense within CAIR (Center of AI and Robotics). CAIR focus on AI neural networks, judgment about battleground based on data. CAIR helps in applications like machines that can play chess by making use of engine based on artificial intelligence. [6] India can play key role to become a hub for enterprises and global industry to develop artificial intelligence solutions for the world. Developing countries and emerging economies can make use of AI solutions to reach their goals faster. AI has most suitable research and development destination in India.

India has to perform experiments on different types of innovative instrument that are proposed by Kaplan in order to promote India to stay strong against the challenges from the economy that is totally dependent on artificial intelligence in the near time. Even though this model is the only way to efficiently and appropriately utilize the human capital. By adopting this kinds of models we will

be able to effectively tackle the problems and challenges caused by artificial intelligence (AI) to Indian economy in future.

Various Place Where AI is Used

[7] IOT and AI are key components in the future of assistance systems. While IOT devices collect data using sensor devices, the AI processes them using AI techniques and solve the assistance problems. Patient assistance and patient care in healthcare sectors are few of the examples in which IOT with AI is used.

Internet of things (IoT) applied with Artificial Intelligence is utilized in Healthcare to know the accurate information about patients health like fitness tracker, SpO2 level, pulse rate, body weight, body temperature and other medical reports in order to provide treatment. Now a day there are plenty of apps available to acquire complete patients details. This data shared with cloud storage can be accessed by doctors and healthcare workers in order to provide optimized treatment. [8] AI technologies must be improved in order to tackle global pandemics. Police officials can be deployed more efficiently and public safety can be increased with help of AI. Country's economic growth can be improved by integrating AI to increase working condition in factories.

AI in Healthcare Appliances

[9] AI has a prominent role in healthcare as it finds its application to prevent, detect & cure many diseases like cancer, diabetes, heart & skin related diseases. Artificial Intelligence has its application in many fields. Likely the Artificial Intelligence has many important advantages for doctors, patients and healthcare workers. Because of the capacity of AI to capture and analyze enormous different kinds of data and provide faster and precise analysis of that data.

[10] Applications of AI in healthcare system to reduce the work load on human in primary healthcare center. Different types of AI are already being used in companies. [11] The AI which has been introduced in the healthcare system has made a big impact in this field, the progress of AI in the technical fields such as machine learning, robotics and information processing algorithms etc.
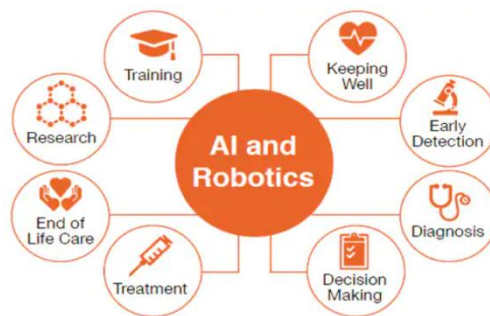
AI in Manufacturing and Production

[12] Currently many factories are expected to encourage the production of many new varieties of small batches of products, for this reason AI is essential as it accelerates manufacturing with high accuracy by assimilation of information & manufacturing communication techniques. [13]AI is now being applied in many different areas which have shown potential roles in the automated driving or

intelligent personal assistants and also with the latest trend of industry 4.0, the applications of AI are also now making their way into manufacturing industries also. [14]In the future decades, area where we will be working and production systems will change a lot that we won't be able to indentify & AI is the major cause for this change. So, it is necessary for us to prepare ourselves for the future ruled by AI.

AI in Security and Surveillance

[15] The induction of AI applications into urban areas for developing smart cities by inclusion of sensors and Big Data with Internet of Things (IoT). With the incorporation of these in the design and management of urban areas helps in bringing new changes which can contribute to the urban development. [16]Technical advancement in sensors, cameras and robotics are useful as security instruments and later on their greater use can be found in protection of house, factories and public places. These security equipments identify the faces and biometrics of the people in house and workplaces by using their high resolution cameras and built in AI. [17] AI has the ability to learn, act and think by utilizing the information they acquire. It has the capability of identifying and isolating the risks immediately and also to give instant response strategy. The applications of AI can be found in the security management of information, prediction of breaches etc.

AI in Education

[18]Currently the research is going on in AI which will direct us to use of computers in schools, colleges, universities and other educational institutions. Now we are at such a critical position that we need exactly prepare for ourselves the basic goals and ideologies for the use of AI in schools. To use AI in education we need to adopt humanitarian, sympathetic and good ideologies. [19] Artificial intelligence should also reach many learners who are able to apply this technology in their future. Scientists will be having many opportunities with artificial intelligence to evaluate enormous data extracted from various databases which encloses basics of learning. [20] From the last 10 years we are working closely among the educators and scientists of computer at the universities to picturize the future of the education in the perspective of AI. Disappointed with the last generation which is of digital learning, our aim here should be to propose new alternative and explore the one's own learning.

Advantages of AI

[21] AI technology is used to reproduce the human thinking in the way of finding the solution to a problem or come to the conclusion. AI also helps us with the advantage of trustworthiness and also addresses the ambiguity and rapidity in finding the solution to a problem or come to the conclusion.

[22] Few fields of artificial intelligence applies to statistical methods for E.g. designing and finding algorithms in particular standards and ML technologies are tested with available resources, though considering few applied fields like learning statistical tools and user designing are uncommon.

[23] Inherited development of agricultural essential varieties and control of illness are significant to the achievement of feasible agricultural food factories. AI is significant factor which is contributing to the development of animal production. [24] AI and ML plays important part in planning and computerizing the important safety measures which are not in favor of varied and series of threats. AI and ML have shown productivity in many areas for categorization, recognition and industrialization with at most precision.

[25] Public media networks such as whatsapp, instagram, telegram includes millions of accounts, and these accounts should be saved and controlled in an appropriate way. Artificial intelligence can control huge amount of information. AI considers lot of data to mark the latest trends.

Challenges or Disadvantages of AI

[26] The main drawback of AI is that it can't think process and communicate as humans. But currently there are many curious people working in this regard and achieved many dynamic developments.

[27] The major application of AI is in robotics. A single robot can replace many workers as it can perform many activities leading to serious unemployment problems. Artificial intelligence is also making humans idle and reducing their thinking capabilities.

[28] The word artificial intelligence implies to the initiative of machines being used to work like humans. The subdivision of artificial intelligence is machine learning that grasps basic arithmetic data and ultimately shed its predictions on unknown data.

[29] The prime study in artificial intelligence is that it has both opportunities and risks which may have serious effects that take large time to clear them. With perfect plan and execution artificial intelligence (AI) can help fast growth of India's future in technology and science.

[30] The main aim is to search and understand what are all challenges faced by many companies and banks to adopt artificial intelligence (AI) and give instructions to solve these challenges.

Conclusion

The world is going to get lot of benefit from Artificial intelligence. The target of artificial intelligence is to develop smart computers with the concept to perform different tasks as thinking like human beings. The contribution of AI to World economy is massive. AI gives fast response to real time applications because of their architecture. Machine learning made the machines self sufficient and independent computing. AI techniques are used in healthcare appliances, manufacture and production, security and surveillance, education etc. Currently AI is extensively used by many national & multinational companies because it is the main reason for increase in competition among

them. The contribution of AI to World economy is massive & it should not be restricted to only companies. AI by using big data changed the industries globally. AI replicates human intelligence, think and behave like human beings and it is also known as 4th industrial revolution in the world.

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ARTIFICIAL INTELLIGENCE

SALONI VIJAY CHUKEKAR
M.Tech Computer Science
Email ID: jkarthikeyan@vit.ac.in

What is Artificial Intelligence?

Research on artificial intelligence in the last two decades has greatly improved performance of both manufacturing and service systems. Currently, there is a dire need for an article that presents a holistic literature survey of worldwide, theoretical frameworks and practical experiences in the field of artificial intelligence. This paper reports the state of the art on artificial intelligence in an integrated, concise, and elegantly distilled manner to show the experiences in the field. In particular, this paper provides a broad review of recent developments within the field of artificial intelligence (AI) and its applications. The work is targeted at new entrants to the artificial intelligence field. It also reminds the experienced researchers about some of the issue they have known.

There has been a recent resurgence in the area of explainable artificial intelligence as researchers and practitioners seek to provide more transparency to their algorithms. Much of this research is focused on explicitly explaining decisions or actions to a human observer, and it should not be controversial to say that looking at how humans explain to each other can serve as a useful starting point for explanation in artificial intelligence. However, it is fair to say that most work in explainable artificial intelligence uses only the researchers' intuition of what constitutes a 'good' explanation. There exist vast and valuable bodies of research in philosophy, psychology, and cognitive science of how people define, generate, select, evaluate, and present explanations, which argues that people employ certain cognitive biases and social expectations to the explanation process. This paper argues that the field of explainable artificial intelligence can build on this existing research, and reviews relevant papers from philosophy, cognitive psychology/science, and social psychology, which study these topics. It draws out some important findings, and discusses ways that these can be infused with work on explainable artificial intelligence.

History of Artificial Intelligence

In this brief history, the beginnings of artificial intelligence are traced to philosophy, fiction, and imagination. Early inventions in electronics, engineering, and many other disciplines have influenced AI. Some early milestones include work in problems solving which included basic work in learning, knowledge representation, and inference as well as demonstration programs in language understanding, translation, theorem proving, associative memory, and knowledge-based systems. The article ends with a brief examination of influential organizations and current issues facing the field.

This introduction to this special issue discusses artificial intelligence (AI), commonly defined as "a system's ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation." It summarizes seven articles published in this special issue that present a wide variety of perspectives on AI, authored by several of the world's leading experts and specialists in AI. It concludes by offering a comprehensive outlook on the future of AI, drawing on micro-, meso-, and macro-perspectives.

Artificial Intelligence in India

Artificial Intelligence (AI) is considered to be the fourth industrial revolution. Artificial Intelligence with the help of big data has transformed all industries around the world Artificial intelligence refers to the simulation of human or animal intelligence in computational systems so that they are programmed to think like Intelligent beings and mimic the actions of intelligent entities. Computational systems which have programmed intelligence can solve different real-world problems far more accurately and efficiently than computational systems that are deterministic and hardcoded. Since many problems in business and business analytics cannot be solved by deterministic systems, AI plays a major role in tackling problems in the business world Machine learning and deep learning which are subsets of the field of AI is widely used to solve and optimize many problems in business such as marketing, credit card fraud detection, algorithmic trading, customer service, portfolio management, product recommendation according to the needs of customers, insurance underwriting. AI and big data have revolutionized the business world and this paper discusses some AI and big data technologies that are currently being used to accelerate business growth.

The potential for continued economic growth comes from the vast search space that we can explore. The curse of dimensionality is, for economic purposes, a remarkable blessing. To appreciate the potential for discovery, one need only consider the possibility that an extremely small fraction of the large number of potential mixtures may be valuable. (Romer 1993, 68– 69)Deep learning is making major advances in solving problems that have resisted the best attempts of the artificial intelligence community for years. It has turned out to be very good at discovering intricate structure in high- dimensional data and is therefore applicable to many domains of science, business, and government. (LeCun, Bengio, and Hinton 2015, 436)

Artificial Intelligence in Healthcare Appliances

Artificial intelligence (AI) is gradually changing medical practice. With recent progress in digitized data acquisition, machine learning and computing infrastructure, AI applications are expanding into areas that were previously thought to be only the province of human experts. In this Review Article, we outline recent breakthroughs in AI technologies and their biomedical applications, identify the challenges for further progress in medical AI systems, and summarize the economic, legal and social implications of AI in healthcare.

Artificial intelligence (AI) aims to mimic human cognitive functions. It is bringing a paradigm shift to healthcare, powered by increasing availability of healthcare data and rapid progress of analytics techniques. We survey the current status of AI applications in healthcare and discuss its future. AI can be applied to various types of healthcare data (structured and unstructured). Popular AI techniques include machine learning methods for structured data, such as the classical support vector machine and neural network, and the modern deep learning, as well as natural language processing for unstructured data. Major disease areas that use AI tools include cancer, neurology and cardiology. We then review in more details the AI applications in stroke, in the three major areas of early detection and diagnosis, treatment, as well as outcome prediction and prognosis evaluation. We conclude with discussion about pioneer AI systems, such as IBM Watson, and hurdles for real-life deployment of AI.

The increased awareness of the importance of global healthcare which has formed an inseparable relationship with the quality of human life has led researchers to pay attention to trends in the development of the healthcare industry. This study identifies eight potential development trends designed to provide the healthcare industry with appropriate development strategy recommendations. The modified Z-numbers decision-making trial and evaluation laboratory (called the modified Z-DEMATEL) technique is adapted to construct the mutual influential relationships and prioritize these trends. The Z-number method optimizes the conventional fuzzy numbers and increases the reliability of expert evaluations to reflect the confidence of the evaluation environment under uncertainty. The modified Z-DEMATEL provides a complete linguistic evaluation and its membership functions, and generates a set of influence weights of the criteria. Real healthcare development trends in Taiwan are taken as an example to demonstrate the effectiveness of the proposed model. The results show that the internet of things and telemedicine are important future trends in Taiwan. This paper provides useful and reliable management suggestions to help the healthcare industry promote innovative technologies.

AI in Manufacturing and Production

Based on research into the applications of artificial intelligence (AI) technology in the manufacturing industry in recent years, we analyze the rapid development of core technologies in the new era of 'Internet plus AI', which is triggering a great change in the models, means, and ecosystems of the manufacturing industry, as well as in the development of AI. We then propose new models, means, and forms of intelligent manufacturing, intelligent manufacturing system architecture, and intelligent manufacturing technology system, based on the integration of AI technology with information communications, manufacturing, and related product technology. Moreover, from the perspectives of intelligent manufacturing application technology, industry, and application demonstration, the current development in intelligent manufacturing is discussed. Finally, suggestions for the application of AI in intelligent manufacturing in China are presented.

Smart manufacturing (SM) is emerging as a new version of intelligent manufacturing (IM), reflecting the magnitude and impact of smart technologies such the Internet of Things, Cloud Computing, Cyber-Physical Systems and Big Data on Industry 4.0. This paper addresses how IM evolves to SM along with artificial intelligence (AI) evolution. To this end, this study first summarizes how the symbolic AI (called AI 1.0) characterized by structured contents and centralized control structures evolves into the next-generation AI (called AI 2.0) characterized by unstructured contents, decentralized control structures and machine learning (especially deep learning), and explain show IM enabled by AI 1.0 evolves into SM by AI 2.0 accordingly. Then, the comparison of IM and SM is discussed in detail. Finally, the further development of smart manufacturing for Industry 4.0 is given.

Over the past few decades, intelligentization, supported by artificial intelligence (AI) technologies, has become an important trend for industrial manufacturing, accelerating the development of smart manufacturing. In modern industries, standard AI has been endowed with

additional attributes, yielding the so-called industrial artificial intelligence (IAI) that has become the technical core of smart manufacturing. AI-powered manufacturing brings remarkable improvements in many aspects of closed-loop production chains from manufacturing processes to end product logistics. In particular, IAI incorporating domain knowledge has benefited the area of production monitoring considerably. Advanced AI methods such as deep neural networks, adversarial training, and transfer learning have been widely used to support both diagnostics and predictive maintenance of the entire production process. It is generally believed that IAI is the critical technologies needed to drive the future evolution of industrial manufacturing. This article offers a comprehensive overview of AI-powered manufacturing and its applications in monitoring. More specifically, it summarizes the key technologies of IAI and discusses their typical application scenarios with respect to three major aspects of production monitoring: fault diagnosis, remaining useful life prediction, and quality inspection. In addition, the existing problems and future research directions of IAI are also discussed. This article further introduces the papers in this focused section on AI-based monitoring in smart manufacturing by weaving them into the overview, highlighting how they contribute to and extend the body of literature in this area.

AI in Security and Surveillance

Code-driven systems have extent to more than half of the world's populations in ambient data and connectivity, offering formerly unimagined opportunities and unexpected threats. Evolutions in Artificial Intelligence (AI) are seen increasing day by day especially in industrial builds. The unconventional technique of AI in cyber-attacks seems to be quite daunting. The idea of a machine growing its own knowledge through self-learning becomes sophisticated to attack things is a fretful problem to the cyber world. Most of the time, these AI enabled cyber-attacks are performed using advanced malwares which incorporates advanced evasion techniques to evade security perimeters. Traditional cyber security methods fail to cope with these attacks. In order to address these issues, robust traffic classification system using Principal Component Analysis (PCA) and Artificial Neural Network (ANN) is proposed for providing extreme surveillance. Further, these proposed method aims to expose various AI based cyber-attacks with their present-day impact, and their fortune in the future. Simulation is carried out using a self-developed autonomous agent which learns by itself. Experimental results confirm that the proposed schemes are efficient to classify the attack traffic with 99% of accuracy when compared to the state of the art methods.

Tactile edge technology that focuses on 5G or beyond 5G reveals an exciting approach to control infectious diseases such as COVID-19 internationally. The control of epidemics such as COVID-19 can be managed effectively by exploiting edge computation through the 5G wireless connectivity network. The implementation of a hierarchical edge computing system provides many advantages, such as low latency, scalability, and the protection of application and training model data, enabling COVID-19 to be evaluated by a dependable local edge server. In addition, many deep learning (DL) algorithms suffer from two crucial disadvantages: first, training requires a large COVID-19 dataset consisting of various aspects, which will pose challenges for local councils; second, to acknowledge the outcome, the findings of deep learning require ethical acceptance and clarification by the health care sector, as well as other contributors. In this article, we propose a B5G framework that utilizes the 5G network's low-latency, high-bandwidth functionality to detect COVID-19 using chest X-ray or CT scan images, and to develop a mass surveillance system to

monitor social distancing, mask wearing, and body temperature. Three DL models, ResNet50, Deep tree, and Inception v3, are investigated in the proposed framework. Furthermore, block-chain technology is also used to ensure the security of healthcare data.

Deep learning is the segment of artificial intelligence which is involved with imitating the learning approach that human beings utilize to get some different types of knowledge. Analyzing videos, a part of deep learning is one of the most basic problems of computer vision and multi-media content analysis for at least 20 years. The job is very challenging as the video contains a lot of information with large differences and difficulties. Human supervision is still required in all surveillance systems. New advancement in computer vision which are observed as an important trend in video surveillance leads to dramatic efficiency gains. We propose a CCTV based theft detection along with tracking of thieves. We use image processing to detect theft and motion of thieves in CCTV footage, without the use of sensors. This system concentrates on object detection. The security personnel can be notified about the suspicious individual committing burglary using Real-time analysis of the movement of any human from CCTV footage and thus gives a chance to avert the same.

Artificial Intelligence in Education

Research on artificial intelligence in the last two decades has greatly improved performance of both manufacturing and service systems. Currently, there is a dire need for an article that presents a holistic literature survey of worldwide, theoretical frameworks and practical experiences in the field of artificial intelligence. This paper reports the state of the art on artificial intelligence in an integrated, concise, and elegantly distilled manner to show the experiences in the field. In particular, this paper provides a broad review of recent developments within the field of artificial intelligence (AI) and its applications. The work is targeted at new entrants to the artificial intelligence field. It also reminds the experienced researchers about some of the issue they have known.

There has been a recent resurgence in the area of explainable artificial intelligence as researchers and practitioners seek to provide more transparency to their algorithms. Much of this research is focused on explicitly explaining decisions or actions to a human observer, and it should not be controversial to say that looking at how humans explain to each other can serve as a useful starting point for explanation in artificial intelligence. However, it is fair to say that most work in explainable artificial intelligence uses only the researchers' intuition of what constitutes a 'good' explanation. There exist vast and valuable bodies of research in philosophy, psychology, and cognitive science of how people define, generate, select, evaluate, and present explanations, which argues that people employ certain cognitive biases and social expectations to the explanation process. This paper argues that the field of explainable artificial intelligence can build on this existing research, and reviews relevant papers from philosophy, cognitive psychology/science, and social psychology, which study these topics. It draws out some important findings, and discusses ways that these can be infused with work on explainable artificial intelligence.

Intelligent tutoring systems have been shown to be highly effective in increasing student motivation and learning. In designing these systems, it is useful to view them as being composed of five components: the student model, the pedagogical module, the domain knowledge, the communications module, and the expert model. Research has been done on each of these modules,

but only a few are very well understood. Specifically, incorporating multiple teaching strategies in the pedagogical module is a large open research question.

In addition to the continuing work on these components, one important research issue is reducing the time and cost to develop such systems. Current strategies for doing this include the development of authoring tools and creating systems in a modular fashion. Solving this problem will be an enormous breakthrough in ITS research, since more systems could be constructed and thus more research into the effectiveness of computer based instruction could be performed.

Advantages of Artificial Intelligence

Artificial intelligence (AI) applications are utilized to simulate human intelligence for either solving a problem or making a decision. AI provides the advantages of permanency, reliability, and cost-effectiveness while also addressing uncertainty and speed in either solving a problem or reaching a decision. AI has been applied in such diverse realms as engineering, economics, linguistics, law, manufacturing and medicine, and for a variety of modeling, prediction, and decision support and control applications

1. One of the most promising applications of AI has been its rigorous use in the Internet such as in search engines
2. Although the efficacies of AI are significant, as with any application they are limited in both capability and functionality.

These limitations will be presented later in this article. Before describing AI's limitations, this article will briefly survey some of AI's advantages. In an organization in which human intelligence is tied to a particular person or a group of people, AI applications can provide permanency that prevents the knowledge from being lost when the individual or the group members retire or are no longer available to the organization. The life of the knowledge encapsulated in an AI framework could be as long as the relevance of the problems and decision scenarios remain unchanged.

1. AI also enables the development of a learning capability which can be utilized to further prolong the life and relevance of the application. Learning from real-world success and failure is an enabling feature of AI tools known as "reinforcement learning" and is advantageous in that it increases the reliability of the tools with their increased use in applications
2. The broad application of any tool only occurs when its reliability has been established, and AI has already proven to be quite reliable in many different applications because of its ability to simulate human intelligence in a reasoning process. Like many automations, AI supports cost minimization as it enables reduction on the need of personnel time. An agency can reduce significant staff time by adopting appropriate AI applications in the decision-making process, thus reducing operational costs. As decisions must often be made under obvious uncertainties (i.e., with incomplete and uncertain knowledge), AI methods are suitable when a direct mathematical relationship cannot be established between cause and effect. AI models capture the uncertainty between real-life cause and effect scenarios by incorporating available knowledge with probabilities and probability inference computations
3. AI methods are also capable of dealing with both qualitative as well as quantitative data, a feature that most strictly analytical methods lack. Depending upon the computational time in terms of algorithmic complexity and processor capacity, AI tools can facilitate faster

decision making by automating the decisionmaking process. Through data gathering and screening, processing, and decision making, AI can support faster solutions to complex problems.

Challenges or Disadvantages of Artificial Intelligence

The research agendas of artificial intelligence and real-time systems are converging as AI methods move toward domains that require real-time responses, and real-time systems move toward complex applications that require intelligent behavior. They meet at the crossroads in an exciting new subfield commonly called "real-time AI." This subfield is still being defined, and the precise goals for various real-time AI systems are in flux. Our goal is to identify promising areas for future research in both real-time and AI techniques. We describe an organizing conceptual structure for current real-time AI research, exploring the meanings this term has acquired. We then identify the goals of real-time AI research and specify some necessary steps for reaching them.

The information technology industry, nonexistent 50 years ago, has grown to be over 10% of the GNP and is responsible for over 570 of the total employment in the country. Although AI has not played a substantial role in this growth (except for expert system technology), it may be poised on the threshold of a number of important applications that could have a major impact on society.

The technical grand challenges presented here are primarily conceptual or curiosity-driven and hold out no promise of immediate return on investment. But the deeper understanding of the nature of reasoning, problem solving, and intelligent behavior resulting from the solution of these problems is bound to lead to significant advances in technology.

Machine learning not only does it offer a remunerative career, it promises to solve problems and also benefit companies and non-profit organizations by making predictions and helping them make better decisions. To know clearly where it will be used and where not, it is necessary to identify advantages and disadvantages of machine learning.

Some of the main disadvantages of Artificial Intelligence (AI) in our daily lives are as follows. Some time it can be misused leading to mass scale destruction,

1. Programme mismatch sometime done opposite to the command,
2. Human jobs affected,
3. Unemployment problem increased,
4. Creativity is depend upon programmer,
5. Lacks the human touch,
6. Younger generation becomes lazy,
7. Require a lot of time and money, and
8. Technological dependency increased.

Conclusion

AI is at the centre of a new enterprise to build computational models of intelligence. The main assumption is that intelligence (human or otherwise) can be represented in terms of symbol structures and symbolic operations which can be programmed in a digital computer. There is much debate as to whether such an appropriately programmed computer would be a mind, or would merely simulate one, but AI researchers need not wait for the conclusion to that debate, nor for the hypothetical computer that could model all of human intelligence. Aspects of intelligent behavior,

such as solving problems, making inferences, learning, and understanding language, have already been coded as computer programs, and within very limited domains, such as identifying diseases of soybean plants, AI programs can outperform human experts. Now the great challenge of AI is to find ways of representing the commonsense knowledge and experience that enable people to carry out everyday activities such as holding a wide-ranging conversation, or finding their way along a busy street. Conventional digital computers may be capable of running such programs, or we may need to develop new machines that can support the complexity of human thought.

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Department of Computer Sclenee, C'arnegle Mellon Uruuersltv, Pittsburgh. PA 15213 (Raj-Reddy@cs.cn;u. edu)

Explainable AI and Mass Surveillance System-Based Healthcare Framework to Combat COVID-I9 Like Pandemics

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Explanation in artificial intelligence: Insights from the social sciences

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From Intelligent Manufacturing to Smart Manufacturing for Industry 4.0 Driven by Next Generation Artificial Intelligence and Further On

Kacper Sokol and Peter Flach Intelligent Systems Laboratory University of Bristol, UK {K.Sokol, Peter.Flach}@bristol.ac.u

Malware traffic classification using principal component analysis and artificial neural network for extreme surveillance

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State of AI-Based Monitoring in Smart Manufacturing and Introduction to Focused Section

ARTIFICIAL INTELLIGENCE

NILOTPAL GURE

M.Tech Computer Science spl. Information Security
Email ID: nilotpal.gure2021@vitstudent.ac.in

What is AI?

[1] Artificial intelligence is that subject whose definition describes very tough. Because, there are two problems- one is that whose subject is natural intelligence and special property this is different from artificial things. Second isthat, it is a product made by human mind creation. So, no doubt, there is no outcome for natural result. artificial intelligence is such type of subject that collects data from human and makes the decision whose depends on human works.

History of AI

[2] In today's worldartificial intelligence uses in every smart field like self-driving car, image recognition, speakers, smartphones etc. From 1950s over the half century, artificial intelligence made his scientific area and limited in practical data. But today's world, improving computing power and big data, it has entered also in different business and public demonstration. In today's world there is huge improvement in technology fields that helps indirectly in other fields. Around 1999 -2000-year Artificial intelligence growth is exponential. Whenartificial intelligence improves then automatically improves in big data, machine learning, image processing, natural language processingfields. Artificial intelligence uses with this trending technologies. Scientists and researchers openevery day a new side that is like unstoppable. In twenty decades,Artificial intelligence expands exponentially that human does not thinks. [3] For knowing history of Artificial intelligence requires simplification and homogenization. When any scientists discoveredthe science item and speaks the presentation. So other scientist can work with this item and improves or adds some new features or new sides. Thescientistspublish the paper in the famous international papers or presents in any international science conference. Some scientists work in this topic, some scientists already finished their research projects. The upcoming scientists will study the paper and will try to find something new. If they will successful then it will publish in any paper or seminar. The research cycle is continuing through all time.

AI in India

[4] artificial intelligence increases the no of tasks that is solved by humans and it impacts economic growth. Artificial intelligence increases his self-learning process that automated most of process. It can also use complex problem that takes huge times. It also changes the thinking process of human how they create new idea, technology, innovation. For coming Artificial intelligence in India there is lots of changes in human life. Like changes in human thinking power, Artificial intelligence reduces the human power and completes the lots of work in the short time. But if there is one problem that Artificial intelligence takes jobs from lots of sectors, many peoples lose their work, it transfers the automation in real life. For India it is blissful as well as dangerous. [5] It impacts huge effects in national economy like in large businesses build only targeted indicators, optimises monetary system, balance with demand and supply, extended free time, decrease man power. India is one of the top industrial's countries in the world. For implementing Artificial intelligence in industries there is

huge changes. Everything will happen the automation, reduce the labour cost,for businessman it is great but nor mal common people it is very dangerous, anytime they lose their works.

Various Place Where AI is Used

Now Artificial intelligence is used in different sectors like gaming, fire stations etc. Fires take places I different places like residential buildings, markets, shopping complex, school-colleges etc. in some places fire systems may be already. But it is not advanced. It doesn't detect the fire automatically so after some time the fire spreads in a big area. If Artificial intelligence is there it protects already.Artificial intelligence uses inretail, fashion shopping stores., in retail stores artificial intelligence uses for payment that firsts the movement of payments. If anyone is taking the things then it automatically identifies the things and after at last when time of payment it tells the whole costs of all the staffs.For payment there no need for men, for entering or existing there is also uses Artificial intelligence. [6]. One most parts of every human is psychology. In field of psychology there is a lot of chances for improving field of using Artificial intelligence. There is a lot of students who are studying in schools and colleges, take the data from them and collects the solid data's using Artificial intelligence, after analysis the result is come out. It is helpful for taking any decision.Artificial intelligence takes the data from any websites or any servers, then makes the model for analysis. The analysts use the data to find any decision and makes the decisions. Depends of decision the officials take the decision.Artificial intelligence helps a lot of helps in psychology, like if any people is feeling lonely then Artificial intelligence talks with him, counselling's what is right or wrong. ForcounsellingArtificial intelligence identifies the problem and then provide the doctors suggestion. [7].

AI in Healthcare Appliances

[8] for coming Artificial intelligence there are advanced technologies that is done human life easily. Artificial intelligence uses in dermatology, radiology, primary cares, disease s diagnosis, screening, drug interactions, telemedicine's, psychiatry etc. in dermatology, with tie up deep learning and image processing the images of skin tissues are taken and the skin cancer is detected. In radiology there is huge effects of Artificial intelligence. With computer magnetic resonance Artificial intelligence identify the diseases.Artificial intelligence regularly checks the anomality's and monitors in time to time. Some scientists make the algorithms based upon in Artificial intelligence to detect pneumonia in patients. [9] Now increasing big data, cloud technologies, Artificial intelligence automatically increase computational resources. For screening artificial intelligence with deep learning identifies the skin cancer. On average doctors detects 86% of skin cancer but the machine detects the 95% of cancer. Researchers based on Deep mind made an algorithm to suppressing breast cancer.in primary care unit Artificial intelligence develops a lot. In India there is many hospitals where primary cares are not proper for treatment. If their little bits improves then it helps a lot. Through Artificial intelligence decision making, predicates model and business models. It gives the benefits to general practitioners and they focus on other works. For diagnosis disease Artificial intelligencehelps. It supports vector machines, neural networks, decision trees etc. In telemedicine Artificial intelligence monitors the patient's status.

AI in Manufacturing and Production

[10] Now advancing technologies are causing main changes in manufacturing. most of the works in manufacturing is basis of paper work. A lot of process is happened like marketing, sales, ordering, packing, administration, distribution etc. So in that case Artificial intelligence helps a lot like manufacture automatically, design product with help of customer data, automate distribute system, etc. [11] the main goal of Artificial intelligence is to create machine understandable language and generate problem solving method. For Artificial intelligence automatically decrease production cost, The system has made expatriation to tackle the production in every situation, and produce a big no of products that's create a lot of profits. Through the last ten years, ,various companies are digitalized their user plants and super visory controlling systems and some of cases the advanced control system is also changed.. Whilethis type of inventions are good for operator visualization then most of the companies who are connected with heavy products are advancing in analytics and the solution of decision making applied for artificial intelligence. . manually At the identical time, they have to troubleshoot and run tests and trials, to call just some of the tasks that strain the boundaries of their human capacity. As a ending moment, many operators take shortcuts process and necessary basis sports that type of things is not needed . This heavy reliance on enjoy makes it very enjoy ful to change one another a highly skilled operator at time of retire. Due to the fact that versions in operators' qualifications can affect not simplest performance but additionally income, AI's capacity to hold, enhance, and standardize expertise is all the extra critical. moreover, considering that it may make complex operational set-point decisions on its personal, AI is prepared to reliably supply predictable and consistent output in markets that have issue attracting and retaining operator expertise. With relevance operational development and dynamic adaptability, computing can outperform traditional choice-help technologies. also, because of new, excessive-overall performance software tools, processing electricity, and reasonably-priced reminiscence, AI permits corporations to cost-efficiently create and maintain their very own algorithms and assets in-residence, which is cheaper, extra flexible, and greater adaptive to constantly changing gadget and marketplace conditionsArtificial intelligence fully transforms the complex tasks for market demandemend.For them it will rrewwuired for man power, and it is equally important that when management revised thee whole manufacturing process and plants then it is very easy . [12] for past decades, artificial intelligence rapidly accelerate industrial productions. Artificial intelligence improves closed loop chain production from manufacturing to delivery. Using of deep neural networks, adversary training, transfer learning the production process automatically moves to futuristic.

AI in Security and Surveillance

[13] Information security industries grabbed Artificial intelligence-based technology. To prevent Ddos attack, phishing, intrusion, vulnerabilities, malware artificial intelligence is used. another side someone use artificial intelligence for fun and profit. To build advanced artificial intelligence (vulnerability protected) it will automatically make a new vulnerability. Adversaries exploit this type of vulnerabilities to modifyartificial intelligence system to serve the ending malicious chapter. In some security system artificial intelligence [14] there is volume for threat information. For security analyst the system is required that easily detected the threat intelligence. For managing end to end pipeline grounded in cyber security domain using multiple knowledge [15] Security

deployment has become the primary design consideration for large-scale Internet of Things (IoT) systems because of its critical role in supporting various vertical applications by connecting devices, machines, and industrial processes. IoT security challenges due to its reliance on both static digital mechanisms and computational complexity to improve the level of security. For accessing any website the authentication is needed. Through authentication it is understood that the website is real or fake. At this time artificial intelligence secures the authentication system. For accessing there is lots of process. Like fingerprint, face recognition, captcha etc. The artificial intelligence changes this type of methods. AI at first detects it is genuine or not then it gives the permission. Another use of ai, detection method. Like threat or malware is very dangerous for any government or schools or private organisations or NGO's. Ai detects the harmful threat or dangerous malware and prevents from the system. In scanning system, artificial intelligence checks the whole computer or laptop and checks theirany threats or not. If their any vulnerable things is present the ai sytem deletes the files automatically.

AI in Education

In Education field artificial intelligence changes a lotartificial intelligence solves the long-term problems like mentoring every student, maintaining every student's data etc. artificial intelligence provide mentor system for every student. If any student faces any problem, then it solves problems quickly. For artificial intelligence every student can access the global classroom and get twenty-one centuries' skills [16]. With artificial intelligence machine learning and neural networks are also come that is very helpful in education fields. Specially data scientists with deep learning predicts new aspects in education world. They analysis the flawed data, methods of teaching, etc. [17]. And when talking about artificial intelligence then practical artificial intelligence is implemented in education. The researcher applies artificial intelligence in electronic page turners, drill-practice monitors etc, so that problems are solved for the students,in major changes in few decades, artificialintelligence makes changes how colleges start curriculum in lockdown and interacts withperspective students and teachers. from taking admission to choosing the courses through their marks intelligence system helps a lot. Data mining systems and artificial intelligence jointly controls the todays higher-education. In schools' artificial intelligence are already started for smart classes and smart studies. The training is also given to the teachers for habituating artificial intelligence systems. The schools are improved very fast in a short time in the lockdown. trial and error methodare a common in Indianeducation.trial and error system may be very crucial for many poor Indians students. Some teacher try to implement the trial error methods in the whole class but it fails al ltime. .Somepronblems are occurred that teacher don't give their place to authority and that's why big problem is occurred. .Anintelligents system designmed for special brilliant student to avoid the time trial error systems. In Computer classes artificial intelligence gives the solution of trial error system.[18].

Advantages of AI

The main advantages of artificial intelligence are to reduce the human error. Human make mistakes time to time. But with the help of artificial intelligence the decision is made from the previous data or gathered information. Especiallyartificial intelligence robots reduce risks in human works like mining coal, defusing bomb, using any disasters [19]. When artificial intelligence techniques use in real scenario empirical method uses mandatory. On the other hand, for any estimations or efficiency

the usability of empirical method applies. When artificial intelligence uses in vehicle then one system is made In-vehicle Information's Systems. It focuses on how the performance models works with simulations and other is that for drivers' computational model how based upon future tool the procedure work [20].artificial intelligence is also used in medical profession. Like detection of cancer, effectiveness of medicine, detection of diseases, maintaining of patient's records. For detection of cancer still now it is very difficult task. So nowartificial intelligence with advanced technologies like ML, deep learning, nlp also uses in medical sciences. Tissue biomarkers collects the information and writes is the tissue and sends to the pathology. In pathology the scientists recognizes the specific components of patient's diseases and after then diagnoses the diseases. . The advancement of artificial intelligence opens a new side in medical pathology department for discovering the new medicine.[21].

Challenges or Dis-advantages of AI

Artificial intelligence develops nowadays a lot such as ML, speech recognition, image classification, info retrieval etc. but in real life case artificial intelligence should more advanced. When the effective actions are implemented in real life incomplete knowledge of artificial intelligence may be a little bit problem. To implement next generation artificial intelligence,it can perform deep neural reasoning, instead of brute-force shallow computation. artificial intelligence learns with data driven models that is come from experience [22].Artificial intelligences takes huge task of human. Researchers say that after few years the ai system dominates the every running system. Human can create the system but not take care or run smoothly but ai can take it , the system runs very fast. While artificial intelligence uses in online trading system, it creates a lot of customer data and stores the customer datas. It helps a lot for detect the future trading and helps to decide the new way.[23]. artificial intelligence uses a lot in automotive industries. There is some technologies uses for traffic analysis as well as driver status, which mainly focus on lane changing intension on highways. But if there the driver is not cautious then artificial intelligence does not work. The driver intention interface (DII) works in separate modules like traffic detection awareness, driver situation monitoring, and dynamic measurement modules. The most challenging part of artificial intelligence is the uses of artificial intelligence, its policy, ideology, character, identity and effects of human. In social media many peoples are attacking to female. Like in twitter there is tradition that if they became a subject of Twitter commentary, were attacked on issues of character and identity that were not raised for their male counterparts.[24].

Conclusion

At last I would say that artificial intelligence opens the new door in every fields, industries. If anyone is facing the real time problem or challenging the new one artificial intelligence solves most of the problem. We consider that artificial intelligencesolves everything but that's not true, artificial intelligence is just transferable of human thoughts in way of the technology. There is so much debate about artificial intelligence, but scientists don't stop of researching artificial intelligence. they use humanintelligence. After understanding complex problems, Aspects of intelligent behaviour, such as problem solving, inference, learning, and language comprehension, have already been implemented as computer programmes, and artificial intelligence algorithms can beat human specialists in very narrow domains, such as recognising illnesses of soybean plants. The big problem

for artificial intelligence now is to figure out how to represent the common-sense knowledge and experience that allows individuals to do things like have a wide-ranging discussion or navigate a congested street. Traditional digital computers may be able to execute such programmes, or new machines may be required to accommodate the complexity of human thought.

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ARTIFICIAL INTELLIGENCE

UDIT SHARMA

M.Tech. Computer Science spec. in Information Security
Email ID: udit.sharma2021@vitstudent.ac.in

What is AI?

Artificial Intelligence is a wide range field of engineering in which we are creating a device or a machine which will be more elegant with the help of contemporary science, designing and automation. It is avail oneself of electronic component to investigate human's brain power. Intelligence isn't about capability, it's around how effectively and swiftly you determine new things. Although no Artificial Intelligence led technology can accomplish different range of jobs that a human can do but still there are some specialized fields in which these technologies can compete us.

History of AI

Artificial Intelligence is a very ancient technology. There are short stories of automated human in ancient Greek and Egyptian belief.Numerous mathematicians considered mechanical courses, calculating devices& integer system in between of 380 BC to 1900 all of which in the course of time led towards the approach of mechanized human acknowledgement in non-living individuals.The rate of Artificial Intelligence invention accelerated dramatically after the 1900s arrived.The first robot manufactured in Japan was manufactured by Japanese scientist and professor Makoto Nishimura in 1929. In 1939 John Vincent Atanasoff along with his assistant manufactured a computer which at that can solve 29 linear equations simultaneously. In 1950's many research work related to AI happened. A Claude Shannon named scientist manufactured a computer for playing chess. In 1960 first computer has been made up which work on general motors assembly line. In 1977, a movie released which consist of a robot who can speak in seven million form of communication. In 1997 IBM manufactured a chess machine who won against reigning world champion. In 1999, Sony manufactured a dog robot which learn from it's environment. From 2010 onwards, AI playing a very important role in human's day to day life. Siri is a very good example of it.

AI in India

From 2020 to 2021 there is a 22% rise in market size in India as the market is valued at $7.8 Bn. Near about 109000 professionals working on AI in India across different industries or organization. The highest median pay in AI is given in Maharashtra i.e. 1.73 Million Indian rupees. Different enterprises consisting of Software and Hardware based technology and semiconductor has the one of the biggest market share and size. In India there are more than 14500 seats vacants which need to be filled up in Artificial Intelligence. Bengaluru is the city which have one of the most vacancies in India in AI. The covid second wave had a very major brunt in Artificial Intelligence while many e-commerce websites are moving towards contactless delivery, the work is still going on here and very soon the good result will came out which will help India in booming there infrastructure in Artificial Intelligence.

Many India firms like TCS, Capgemini among remains have started providing different services to their national and international clients. Microsoft is one of the firm which had biggest movement

in India. Nvidia, Qualcomm like firms had started developing Artificial Technologies for Mobile Phones, Chips and other sensor-driven technic.

Various Places where AI is used

In Virtual Assistance

Virtual assistants such as Bixby, Siri, and Google Assistant are most common examples, at the same time AI-based chatbots that answer client request are an example of high-performing chatbots. Chatbots utilize artificial intelligence (AI) to make customer support and assistance more adequate and trouble-free. Chatbots may help your business grow by providing a collection of benefits while still protecting the client-customer relationship.

AI in Agriculture

Self-governing Tractors and drones which are based on AI are being engaged in cultivation to boost field yield and crop amount. In these field, robots and computerized appliance are also engaged to audit crop well being and accumulation. With enhanced plant well being and weather examiningdevices, Artificial Intelligence can benefit agriculture in expandingyieldamount while accomplishing the unified process more danger-free. Moreover, input is captured in plan to further trackalike models for benefit in horticultural or farming-analogous territory.

AI in Automotive

Tesla have launched self driving vehicles which is one of the case of Artificial Intelligence which is absolutely integrated into such an arrangement to grant the automobile to operate autonomously while affectionate the surrounding environment and real-world scenario. Face recognition and biometric technologies based on Artificial Intelligence are benefiting to record public and offer a protected habitat for them to alive in. To keep metropolis and terrainprotected, surveillance cameras and other examining gadgets are frequently engaged. Automobile constructors are using computerized assembly lines to produce more goods. Over a period Artificial Intelligence is guiding to construct automobile propulsive safer and effortless with semi-automatic services that advise or benefit drivers, using computer perception-based ADAS technology.

AI in E-Commerce

Computerized warehousing and supply chain authority mechanized by e-commerce is sliding personnel and assisting repositoryinstitution in accordingly administering and funding large chunk of goods or stockpile. This machinery also aids the e-commerce business in operatingextraskillfully and boostingrevenuelimit. Customers online investing experiences are being enhanced by Artificial Intelligence-based computerized warehouse administratingstructure. Computerized robots are supervisingstockpile and completing plentifultiresome activities extraskillfully, granting people to engage in judgement-making chores in procedure to enhance the long-termstockpile-string and logistics administration. This machinery also grant firms with customer observation through sentiment study, granting them to correctly figuring out their understanding and administer them better goods and maintenance in structure to boost market contribution in the region.

AI in Healthcare Appliances

Correspondingly, Artificial Intelligence in the healthcare corporation is benefiting appliance in investigating, reasoning, and anticipatingdifferentconditions, as well as auditing the well-being of inmate. It also aids physicist in their exploration into unfamiliar medication revelation and medicine formation, granting personals to get improvedquickly and evadewell-beingcomplication later in life. In radiology, Artificial Intelligence is benefiting to disclosing many forms of severe diseases with

the immenseamount of efficiency, pacing up the therapeuticdetermining and operating procedure. Artificial Intelligenceinterests humans in a diversity of ways, comprising making their lives more computerized and providing them correctly access to and dominating over diverse aspects of their lives. Nonetheless, Artificial Intelligence into these element is only attainable when a miniature has been well-skilled utilizing the convenient machine learning training data and approach to make it entirelyworking in its various disciplines.AI training information is substantiallypossible for computer perception training via impression annotation for label data formation. The initialtarget of impression annotation is to build AI models for numerous domains.

AI in Manufacturing and Production

Defect Detection

Many assembly channelnowin absence the procedures and automationimperative to detect defectsall over the production process. Even those that may earlierremain are quite elemental, needing skillful engineers to build and hard-code algorithms to differentiate between working and faulty components. The amount of these structure are currently not able to determine or consolidate new data, subsequent in a broad number of bogus positives that must be manually reviewed by an on-site person. Manufacturers may save endless hours by dramatically lowering false-positives and the hours essential for quality control by imbuing this system with artificial intelligence and self-learning capabilities.

Quality Assurance

Manufacturing constrain meticulous consideration to fact, which is profound in the electronics industry. Quality assurance has habitually been a standard procedure that needed a highly trained engineer to scrutiny that electronics and microprocessors were built correctly and that all of their circuits were accordingly set. Image processing algorithms can now naturallyauthenticate if an element has been made to excellence. This sorting may be done naturally and in real time by establishing cameras at strategic locations over the production floor.

Assembly Line Integration

Today, plenty of the manufacturing equipment broadcast a broad portion of data to the cloud. Sadly, this statistics is generallysecluded and does not play well with new. Prevailing a all-inclusiveaspect of your business necessitates the use of many control panels and the backing of a subject matter expert to make sense of it all. You may encourage that you're receiving a God-like perception of the business by mapping an integrated app that tie data from the breadth of IoT-connected devices you handle.

Assembly Line Optimization

Moreover, by assorting Artificial Intelligence into your IoT environment, you may automate a range of processes. Administrator, for example, are notified when apparatus operators show indications of weariness. When a chunks of apparatusbreak down, the system can begineventually planning or other rearrangement actions naturally.

Generative Design

In extension to ease the manufacturing process, AI can benefit organizations design products. Here's how it performs: a designer or an engineer inputs layoutambition into generative design algorithms. These algorithms then analyze all the imaginable permutations of a solution and achieve design alternatives. Finally, it uses machine learning to analyze all iteration and improve upon it.

AI in Security and Surveillance

Now fast advancements in security and surveillance machineries are driven by the interest for embellished monitoring and protection. According to data, comprehensive spending on information security solutions outer-perform $114 billion last year. Machine-based learning and algorithms are used in Artificial Intelligence for video surveillance and security to audit and consider the pictures, videos, and data captured by video vigilance cameras. AI can employ machine perception to evaluate stored data and deliver alarms when the system does not remember the person, suggesting trespassing.

The scope of AI to count on hazards before they crop up is much more captivating. Artificial Intelligence can detect even the tiniest irregularity in a network's regular activity and bypass feasible assaults using algorithms and deep learning.

There are two forms of AI security that have been identified:

Rule-based: This is a more extensivelyidentified type of AI security. Programmers feed pre-designed rules onto this set of system. The video surveillance cameras you see around you, are controlled by a rule-based AI system.

Behavioral analytics: It is a almost new variety of AI security. As hostile to the previous rule-based Artificial Intelligence security, there are no pre-coded program required. Behavioral analytics is a self-learning program that naturallyobserve, learns, and examines typical human nature as well as the workings of the world over him. The system then classify the data and releases an alert if any abrupt action is detected.

AI in Education

Students now have a tailored approach to review program thanks to Artificial Intelligence, which is based on their own exclusive experiences and interests. To assure that students get the most out of their education, Artificial Intelligence can adapt to their level of proficiency, learning speed, and expected goals. Moreover, AI-powered systems can audit students past learning histories, detect shortcomings, and prescribe courses that will help them develop, allowing for a highly custom made learning experience.

Teachers spend a lot of time on administrative tasks like giving grades and assessing worksheets.

The application of artificial intelligence (AI) in education can aid in the automated grading and interpretation of tasks such as multiple choice questions, fill-ups, multiple statement questions and other similar activities.

Preparing student report cards is another disagreeable and time-consuming burden for instructors. Artificial intelligence in education may also be able to assist with this.Artificial intelligence is being used in education to assist students overcome geographical hindrance to learning.Through the application of AI in education, students from all over the world may study from the greatest teachers.

Advantages of AI

People make aberration from time to time, the term "human error" was coined. Machinery, on the other hand, do not make these glitched if they are correctly programmed. Artificial intelligence

makes decision based on formerlycaptured data and a set of algorithms. As a result, aberration are decreased, and the anticipation of accomplishing better precision and efficiency is increased.

One of the most significant advantages of artificial intelligence is this. By manufacturing an Artificial Intelligence Robot that can do the dangerous tasks for us, we can overstep many of humanity's delicatebarrier. It can be practice efficiently in every type of ordinary or man-made disaster, whether it is wandering to Mars, deactivating a bomb, exploring the inmost territory of the oceans, mining for coal and oil.

We will be doing a lot of redundant labor in our day-to-day job, such as writing thank-you emails, double-checking papers for bugs, and so on. We can use artificial intelligence to efficiently automate these tedious operations and even phaseout "boring" jobs from humans timetable, allowing them to be more inventive.

Digital assistants are used by some of the most contemporaryfirm to employ with people, reducing the concern for human personnel. Many websites now employ digital assistants to hand over items that buyer want. We can discuss what we're searching for with them.

Challenges or Dis-Advantage of AI

Because Artificial Intelligence is evolving on a daily basis, hardware and software must be enhanced on a legitimate basis to keep up with the ongoingprerequisite. Machines require repair and maintenance, both of which acquire significant expenditures. Because they are awfully complicated machinery, their manufacturing necessitates exorbitant prices.

Human intervention is expanding less as AI replaces the bulk of repetitive activities and other duties with robots, causing a enormousintimidation in employment standards. Every company is seeking to take-over from minimal-accomplished employees with AI robots that can perform comparable tasks more skillfully.

Machines are indisputable more adequate when it happens to working, but they cannot replace the human connection that binds a team together. Machines are incapable to form bonds with people, which is a morecrucial characteristic in team management.

Machines can only take care of the tasks for which they were created or programmed; anything else causes them to crash or produce extraneousresult, which may be a big interference.

Conclusion

According to some Artificial Intelligence scientists, AI will be competent to achieve everything humans can do, but better. This is a debatable presumption, yet Artificial Intelligence will assuredly outrun humans in certain areas. The first example was a chess computer takeover the world chess champion. If AI develops to the mark where it can do lot exceptional than humans, it will be able to excel in science and technology as well. It may determine that developing a particular field of study is no longer profitable, or that space flight is a waste of time as long as humans on Earth live in starvation and more than a billion people inadequacy to safe drinking water. The majority of future Artificial Intelligence situations are hypothetical, however AI raises experiential concerns. It demonstrates that philosophy and spirituality begin where science ends.

Artificial Intelligence planning is done so that businesses may create objectives based on their needs, and there can be an effect of efficient production and systems. There is mathematical analysis and learning algorithms focused on planning for planning, but developmental robotics is not one of

them. Intelligent robots, or AI, are extremely efficient since they perform better than humans, and they can recycle a large amount of natural resources. Since a result, there are firms that have AI that is superior to human intelligence, and so, robot safety should be prioritised, as they can be helpful in the event of an accident or exhibit dangerous characteristics.

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ARTIFICIAL INTELLIGENCE

RAJDEEP BORUAH
M.Tech. Computer Science
Email ID: rajdeep.boruah2021@vitstudent.ac.in

Introduction

Artificial intelligence is the knowledge of machines and the part of computer science that aims to create it. It studies the computational requirements for tasks such as perception, reasoning, and learning and develops systems to perform those tasks. AI works with pattern matching methods that attempt to describe events, processes, or objects in terms of their qualitative features and computational and logical relationship.

What is AI?

[1] The production of intelligent machines by utilizing science and engineering is termed as Artificial Intelligence (AI). AI works to recognize the human intelligence with the help of computers. However, biologically visible methods are need not to be confined by AI. [2] In other words, AI uses computer to design human intelligent actions with least human interference. AI is for the most accepted as having begun with the creation of robots. The term gets from the Czech word robota, which means biosynthetic machines utilized as constrained work. In this field, Leonardo Da Vinci's enduring legacy is the present thriving utilization of automated helped surgery, named after him, for complex urologic and gynecologic techniques. Da Vinci's sketchbooks of robots helped set up for this advancement. Artificial intelligence, depicted as making intelligent machines through science and engineering, was authoritatively brought into the world in 1956.

History of AI

[1] The evolution of intelligent machines started after the WWII when Alan Turing, a mathematician in 1947, concluded that evaluation of AI by programming computers was best in comparing to building machines and became the first one to give a lecture on it. [3] AI emerged at the time when several attempts were made to form logical analysis in other to minimize the human interpretation. Therefore, the history of AI depicts the changing of human intelligence with several human attempts to replace the static concept of human analysis. [4] Earlier, the usage of AI technologies were basically in theorem proving and were based on administrative procedures. With the advancement of planning, robotics etc., has increased of AI applications and in the recent times, AI has concentrated on complicated and demanding areas of the legal domain.

AI in India

[5] The prime minister of india made a clear call to everyone to come together and assist with building an AI environment in India to bring a quantum jump into the AI-driven future. [6] As the AI revolution moves throughout societies and enters day to day existence, its part in molding India's growth and development will undoubtedly be considerable. For India, AI helps in boosting up the progress, while giving mechanisms to jump conventional obstacles like poor infrastructure and administration. [7] The current review analyzes the output of research of India in the field of AI

utilizing scientometricanalysis procedures. The information were gathered manually utilizing the Scopus database towards the end of July 2015.From 1968 to 2014 a total of 6,529 papers were found to be published during that time period in the field of AI in India.

Various Place Where AI is Used

[8] Over the years, AI has aimed at minimizing the mechanical effort of human from various operations and evaluated several methods to improvise the welding operations as well as its quality. Some of the approaches based on AI includes design of experiment (DoE) techniques and algorithms and conventional regression analysis. It also includes the use of computational networks, including neural networks and fuzzy logic.These approaches are applied in welding technology to optimize various parameters.However, researchers have considered neutral networks as a black box approach out of all the alternatives that are available for optimization. It is tough to discover how the algorithm comes to a conclusion, signifying the knowledge of human welders and the progress of welding techniques and technologies in future. [9] The recent growth of aggregate productivity has shown a specious contradiction. There are various examples of new potentially transformative technologies that could boost productivity and economic welfare as stated by Brynjolfsson and McAfee (2014). Even though there are some previous concrete evidences of these technologies, AI gives the most leading advance performance in the recent times. However, dramatic changes can be witnessed in the productivity growth in the last decade which has slowdown its performance. This significant slowdown has minimized the productivity growth by 50% or more. Moreover, this has occurred over the Organisation for Economic Co- operation and Development (OECD) and newly, among numerous large appearing economies (Syverson 2017). [10] AI plays a vital role in the field of medical as well. Various pressure sensors have been developed that are made of organic materials and specialized pressure-sensing receptors. Active sensing matrices are developed for the purpose of electronic skin applications. The advancement of AI analysis has also encouraged the development of human-machine reciprocation and artificial body parts applications.Pressure sensors are further utilized for biomonitoring in health care units as these sensors are composed of organic material and can be used to fill the niches in healthcare products without replacing the silicon-based appliances. [11] Unfortunately, most of the information in health record systems cannot be evaluated without viewing the information by human for machine learning. These information are recorded onpapers or text files. Human languages are complicated and therefore, healthcare units use natural language processing (NLP) tools to convert the unstructured data into an analyzable data. Further, NLP is used in medical machine learning to find a patient's information and to comprehend the clinical papers.

AI in Health Care Appliances

[12] Data management is the most widely used application of AI in healthcare. Investigating and compiling the data is done by data management by the application of AI and digital automation. Cardiology and radiology are the professions where data evaluation consumes time. 'Medical Sieve', an algorithm introduced by IBM, used by radiologist and cardiologist in making clinical decisions. [13] It is seen that the elderly people often needs emergency medical facilities and therefore, cost effective solutions to monitor the health has been developed. A concept of "intelligent home" has been introduced where it use AI with home appliances creating an

environment of sensors. This technology helps the elderly people to get the immediate awareness and control over certain devices. A latest technology has been introduced by employing AI which consists of a voice recognition system to answer the orders given by the person. This technology is based on Raspberry Pi which interprets the data collected from the sensors to operate the home appliances. [14] In the recent years, flexible pressure sensors have been widely used in health care devices. These sensors are made of organic materials and are economical.

AI in Manufacturing and Production

[15] The advancement in AI technology has come so far that solutions to urban problems has to be handled smartly and this can be done by using ICT. This solution in AI has improved urban problems against safety and security. [16] The developing idea of "Smart Cities" reduces the problems of urban society, conservation and other urban problems by the implementation of sensors and following the concept of Big Data by Internet of Things (IoT). This data collected is used in the management of urban areas in terms of economic aspects. Moreover, this Big Data concept using AI is helping to address the problems related to cities and contributing greatly in its sustainability. [17] AI technologies also deal with the application of deep learning techniques for safety and security purpose in railway crossings. This application provides increasing safety in Intelligent Transportation Systems (ITS) and Internet of Vehicles (IoV). A system, "Artificial Intelligence-based Surveillance System for Railway Crossing Traffic (AISS4RCT)", has been designed based on observation and grouping methods to capture the crossing area of a railway crossing with the help of cameras that are appropriately placed. Furthermore, all the personal information, communication interfaces are protected by using privacy-by-design and security-by-design practices by the system architecture.

AI in Security and Surveillance

[18] Powerful evaluating networks have supported the growth of modern manufacturing and management systems. Oceans of information are created with the help of these networks. "Big Data" is examined more widely with the increasing of computational efficiencies. This has led to the introduction of "Smart Factory", which reevaluated the use of AI technologies.With the advancement of deep learning and computing techniques, the manufacturing technologies have started applications for robotic visual inspections, fault detection, and maintenance. In order to combine AI technology with conventional research approaches and technologies of Internet of Things (IoT), industries are looking for to transform real-time data into applicable decision seeking opportunities. [19] A new approach, Distributed Artificial Intelligence (DAI) has divided the entire production control system into different sub-tasks. "Intelligent agents" are the basic component of the DAI system which creates all the possible solutions. Then these solutions are estimated by the fuzzy coordination technique to find out the most suitable solution for shopfloor application, production plan, design data and CAD information. [20] Further, to understand the environmental cost of manufacturing enterprises, the decision tree algorithm of AI is used to design the environmental cost control system.

AI in Education

[21] To expand students' inspiration and understanding the intelligent systems of tutoring have been demonstrated to be exceptionally effective. While designing these systems it is helpful to see them

as being made out of five components: the student model, the academic module, the domain information, the communication module, and the master model. [22] A characterizing part of our advanced age is our determined faith in innovation in varying backgrounds, not least in education. It very well may be contended that this fixation on technology or 'techno-philia' in education has had a profound effect in the study hall changing the connection among educator and student, and also among students. [23] By inspecting the development of AI in education, it is expected to contribute both systemically and hypothetically to this developing body of work with a somewhat innovative methodology; the formation of a knowledge graph. Utilizing this, along with Bourdieusean theory, it is basically explored the field's logics and motivation, look at how changed partners in AI and edtech position themselves.

Advantages of AI

[24] Artificial intelligence gives the benefits of permanency, dependability, and cost-adequacy while also addressing to vulnerability and speed in either solving an issue or reaching at a choice. Artificial intelligence has been applied in assorted domains such as designing, economics, linguistics, law, producing. [25] In cybersecurity the detection pace of IDPS systems boosts up with the utilization of AI and Machine Learning strategies can mine data to distinguish botnets' sources. [26] Among every one of the systems, AI can adapt to a lot of clinical information and helps in quick and exact medical diagnosis. [27] It is also used as an innovative support for decision-making in clinical life. [28] In financial services, AI is used for permitting specific tasks to be automated and boosting logical limits compared with traditional strategies.

Challenges or Dis-advantages of AI

[29] The public sector's adoption of Artificial Intelligence (AI) is being judged in a variety of ways. However, while there is growing assumption about both its risks and benefits, there is little actual evidence to back them up. A scenario of IBM Watson adoption in public healthcare in China using the theoretical lens of framing to map and their challenges of AI adoption in the field has been examined. [30] Government and schools place a high priority on adopting artificial intelligence into business English education, the majority of ideas are executed at the professional level. The fundamental reason is that when universities create talent development programmes, artificial intelligence awareness and ability training are not fully integrated into vocational education, which has hampered the development of professional talent development objects. [31] Moreover, people will become considerably lazier, which is one of the bigger negatives that one can estimate on their own. People will no longer desire to conduct their own searches and other activities in order to complete assignments. AI's like Siri will eventually replace humans in the workplace or become entirely self-aware. [32] AI faces challenges in healthcare as well. These challenges include logistical problems in implementation, consideration of the barriers to assumption, in addition to the required sociocultural or pathway changes. [33] Smart manufacturing is essential for enhancing the process industry's quality. However, green manufacturing is currently experiencing major hurdles connected to safety management. Various technical challenges related to process safety have been arising such as knowledge acquisition and reasoning about scarce error data and early warning and aided decision-making.

Conclusion

The new venture to develop computational intelligence models can be represented by using symbol structures and symbolic processes. A lot of dispute has been seen over the years on whether such a properly programmed computer would be a mind or just simulate one.However, researchers don't have to answer to that question as problem solving, inference, learning, and language comprehension, have already been executed as computer programmes, and AI computers can defeat human specialists in very small domains.The current AI problem is to design techniues to indicate commonsense knowledge and experience that allow individuals to implement ordinary tasks like holding a wide-ranging conversation or navigating a busy street. This may give rise to design new machines to handle the complexity of human mind, or we may be able to implement such programmes on conventional digital computers.

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ARTIFICIAL INTELLIGENCE

ALPHONES R
M.Tech Computer Science
Email ID: alphones.r2021@vitstudent.ac.in

What is Artificial Intelligence?

[1]Artificial intelligence uses computers and technology to simulate the human mind's problem-solving and decision-making skills.[2]Artificial intelligence (AI) refers to intelligence shown by machines rather than natural intelligence produced by animals such as humans. Leading AI textbooks describe AI as the study of "intelligent agents," or systems that understand their surroundings and take actions that increase their chances of accomplishing their objectives. Machines that replicate "cognitive" activities that people identify with the human mind, such as "having to learn" and "solving problems," are referred to as "a.i." in some popular accounts.

History of AI

[3]The first patent for the telephone was issued in 1876, and AI was not introduced until considerably later.The subject of AI study was officially formed at a workshop conducted on the Dartmouth College campus in the summer of 1956.At the time, it was anticipated that in less than a generation, a machine as clever as a person will exist, and they were given millions to make this vision a reality.1950 — This is when it all began.So, while this notion has been around for decades, people were not aware of it until 1950. In the year 1955, John McCarthy, the pioneer of Artificial Intelligence, coined the phrase "Artificial Intelligence."McCarthy is regarded as one of AI's founding fathers, with Alan Turing, Allen Newell, Herbert A. Simon, and Marvin Minsky. Alan proposed that if people use accessible knowledge, as well as reason, to solve issues and make decisions, why can't robots do the same?Computers exploded in popularity in 1974!

With the passage of time, a wave of computers began to emerge. They grew quicker, more cheaper, and were capable of storing more data as time passed. The greatest aspect was that they were capable of thinking, recognise themselves, and do Natural Language Processing.

1980 was the year of artificial intelligence.With more funding and algorithmic tools, AI research resurfaced in 1980. The machine learnt from the user's experience using deep learning methods.

Landed at the Landmark in the 2000s.The technology was successfully developed after all of the failed efforts, but the milestone goals were not realised until the 2000s. Despite a dearth of government funding and public attention at the time, AI thrived.[4]During 1950, Alan Turing, a mathematical genius who deciphered the Nazi encryption system Enigma, posed the revolutionary question, "Can machines think?" The real study started in 1956 at a Dartmouth College meeting (a lot of the inventions have come into the picture, thanks to the Ivy League). The concept for AI Technology, as well as the moniker "Artificial Intelligence," came from a few of conference participants. However, because the concept was novel, many did not buy it, and funding for future study was withdrawn."AI Winter" lasted from the 1950s through the 1980s. But, in the early 1980s, Japan saw AI's potential and re-invested in the area. Because this was linked to electronics and computer science, there was a surge in those disciplines as well. The first AI system was unveiled to the public in 1997, when IBM's Deep Blue defeated Soviet grandmaster Garry Kasparov, making it

the first computer to defeat a chess champion. And with that, my dear readers, came the birth of a vast field known as "AI."

AI in India

[5]Artificial intelligence has had a significant impact on the corporate world. What started out as a principle automated system may now mimic human interaction. Artificial intelligence is not simply superior to human intelligence because of human capacities. A sophisticated AI algorithm outperforms human counterparts in terms of speed and performance at a fraction of the cost.[6]Media and news organisations are increasingly turning to AI systems to find data from a variety of sources and quickly condense it into contents or supporting analyses for their stories. Machine learning algorithms have been proven to be capable of recognising differences in textual input and extracting useful knowledge that accurately describes the information contained within. By applying these advanced algorithms to large volumes of data from press releases, tweets, articles, and other unstructured information, journalistic organisations can simply keep up with current events and generate content that properly reflects shifting conditions.[7]According to the BBN Times, artificial intelligence is capable of not just solving problems but also exhibiting empathy. Artificial intelligence has created natural emotions on its own. Cogito, developed by Joshua Fest and Dr. Sandy Pentland, combines machine learning with behavioural adaptability, backed by the latest behavioural science discoveries.The result may be surprising to people who expect AI to be a benign force ready to deal with dry facts, but it's extremely useful in high-volume customer service – and extremely hopeful when it comes to the future of AI and how it may continue to enhance human existence.India also has a vibrant startup ecosystem, with the bulk of venture capital funding currently going to AI-based projects like chatbots and other conversational interfaces, diagnostics screening, and databases for financial and healthcare customers. The electronics and healthcare industries account for the bulk of patent applications.

Various Place Where AI is Used

[8]Artificial intelligence (AI) is being utilised in technologies to assist individuals with impairments live more efficiently with their various talents. Huawei developed apps including StorySign, which aids deaf children in learning to read by translating text into sign language, and Track. AI is a low-cost technology that detects vision problems in youngsters before they become blinding.[9]Artificial intelligence monitors credit records and gives out notifications when something appears questionable. Client care chatbots are often run by AI computers that can swiftly resolve customer complaints or escalate them if required. There's a lot of AI power behind job applications, mortgage applications, and other situations where the AI assesses individuals to determine whether they should advance to the next step or be accepted for loans.[10]In the manufacturing industry, predictive and preventative maintenance technologies assist product producers avoid expensive downtime, while AI integration into quality control procedures improves output.Data-driven AI automates repeated learning and discovery. AI conducts regular, high-volume, automated activities rather than automating manual ones. And it does so consistently and without tiring. Humans still need to set up the system and ask the correct questions, of course.AI makes the most of information. When it comes to self-learning algorithms, the data is a valuable resource. The data has the answers. All you have to do now is use artificial intelligence to locate them. Because data is more crucial than

ever before, it may provide a competitive edge. Even though everyone uses similar approaches, if you have the greatest data in a competitive business, you will win.

AI in Healthcare Appliances

[11]In the field of healthcare, artificial intelligence (AI) is becoming a major player. AI-based healthcare solutions have progressed from proof-of-concept to rewriting our perceptions of what is achievable in the previous decade or so.Here are a few instances of what I'm talking about: Dermatology has utilised deep learning techniques to identify skin cancer, while radiology has used deep learning techniques to better understand CT images. Doctors use AI-enabled robotics, while pharmaceutical companies use convolution neural networks to find potential drug ideas.[12]Experts anticipate that artificial intelligence will enable the next generation of radiological instruments to be precise and comprehensive enough to eliminate the requirement for tissue samples in some situations."We want to bring together the diagnostic imaging team, the surgeon or interventionist radiologists, and the pathologists," said Alex Golby, MD, of Brigham & Women's Hospital's Image-Guided Neurosurgery (BWH). "Bringing diverse teams together as one and harmonising goals is a huge task."[13]Artificial intelligence (AI) has the ability to revolutionize the delivery of healthcare. A collaborative report with the European Union's EIT Health looks at how it may help with better treatment results, patient experience, and healthcare access. It has the potential to enhance care delivery efficiency and productivity, allowing healthcare organisations to provide more and better care to more people. AI can help healthcare providers have a better experience by allowing them to spend a lot more time on direct patient care and decreasing burnout.AI is becoming more sophisticated at doing what people do, but more effectively, faster, and for less money. Both AI and robots have enormous promise in healthcare. AI and robots are increasingly a component of our healthcare ecosystem, just as they are in our daily lives.

AI in Manufacturing and Production

[14]Manufacturing data is an excellent fit for AI/machine learning, which explains its growth. Manufacturing generates a lot of analytical data that machines can easily process. Hundreds of factors influence the manufacturing process, and while humans find it difficult to assess them, machine learning models can accurately anticipate the impact of individual factors in such complicated scenarios. Machines still operate below human skills in other areas involving language or emotions, delaying their acceptance.[15]In manufacturing, artificial intelligence (AI) is most often used to increase overall equipment efficiency (OEE) and first-pass yield. Manufacturers may utilise AI to enhance uptime, performance, and reliability across time, allowing for improved predictions.[16]The "Smart Manufacturing" transformation is already enabling manufacturers to achieve this aim more efficiently than ever before, and Industrial Artificial Intelligence is one of the key technologies driving this next wave of innovation.Data has become a very valuable resource, and capturing and storing it is now more affordable than ever. Thanks to Artificial Intelligence — specifically Machine Learning — more manufacturers than ever are utilising that data to dramatically enhance their bottom line.Artificial intelligence is a key component of the Industry revolution 4.0, and its applications aren't restricted to manufacturing. Artificial intelligence algorithms may also be used to optimise industrial supply chains, allowing businesses to predict

market shifts. This provides management a significant edge in transitioning from a reactionary/response to a strategic attitude.

AI in Security and Surveillance

[17]Machine-based learning and algorithms are used in AI for video surveillance and security to monitor and analyse the pictures, videos, and data captured by video surveillance. It can also recognise and analyse the movement of people, cars, and a variety of other things.

[15]Simple behaviours, such as leaving a bag on a park bench, have evolved through time to the point that they might now be viewed as a major threat needing quick response. Object detection technology has proven to be a useful tool in assisting security professionals in swiftly identifying these instances. Nevertheless, with AI at the helm, problems like these may now be identified automatically without the need for a person to manually design and teach the system to observe a specific region inside the camera's field of view in a VMS system.[18]Simple behaviours, such as leaving a bag on a park bench, have evolved through time to the point that they might now be viewed as a major threat needing quick response. Object detection technology has proven to be a useful tool in assisting security professionals in swiftly identifying these instances. Nevertheless, with AI at the helm, problems like these may now be identified automatically without the need for a person to manually design and teach the system to observe a specific region inside the camera's field of view in a VMS system.Artificial intelligence is described as computers that do "clever" or "intelligent" tasks without human intervention. As a result, AI security entails using AI to detect and counter cyber attacks with less human participation than is normally expected or required with traditional security methods.

When comparing the behaviour of entities throughout an environment to those in a comparable environment, AI security techniques are commonly used to distinguish "good" against "bad." This method allows the system to detect and flag changes automatically. This approach, also known as "pattern of life" learning or "unsupervised learning," produces a high number of false positives and negatives. higher-level.More advanced AI security solutions can go beyond merely recognising good or bad conduct by analysing large volumes of data and assisting in the piecing together of connected activities that may suggest suspicious behaviour. In this approach, AI security works in the same way as the greatest and most talented human analyst.

AI in Education

[19]AI is already being used in education, notably in the form of skill development tools and assessment systems. As AI educational solutions improve, it is hoped that AI will be able to help bridge gaps in teaching and learning, allowing schools and instructors to do more than ever before. AI may improve efficiency, personalisation, and administrative responsibilities, giving instructors more time and flexibility to focus on understanding and adaptability—human characteristics that robots lack. The objective for AI in education is for them to work together for the greatest outcome for children by using the finest features of machines and instructors. [20]Artificial intelligence techniques can assist in making global classrooms accessible to everybody, including individuals who speak several languages or have vision or hearing problems. Presentation Translator is a free PowerPoint plug-in that generates subtitles for what the speaker is saying in real time. This also opens up options for children who are unable to attend school due to an illness or who require

studying at a higher level or in a topic that is not offered at their current school. AI can assist in breaking down barriers between schools and traditional grade levels. [21]AI intelligence's effect as a powerful technology may be seen throughout a wide range of industries. This is true in the education business all across the world. Various schools around the country are utilising artificial intelligence in the classroom. Teachers, students, parents, and, of course, academic institutions have all gained a fresh perspective on education as a result of the application of AI in education.Not only can AI assist professors and students in designing courses that are tailored to their specific requirements, but it can also give feedback on the course's overall performance. AI systems are being used by some colleges, particularly those with online programmes, to track student progress and inform teachers when there may be a problem with their work. Students can obtain the help they need, and teachers can identify ways to enhance education for students who are struggling with the topic. These colleges' AI systems, on the other hand, don't merely provide course recommendations. Some are developing systems to aid students.

Advantages of AI

[22]Because people make mistakes from time to time, the term "human error" was coined. Computers, on the other hand, do not make these errors if they are correctly programmed. Artificial intelligence makes choices based on previously obtained data and a set of algorithms. As a result, mistakes are decreased, and the prospect of achieving better quality and reliability is increased. [23]One of the most significant advantages of artificial intelligence is this. By constructing an AI Robot that can do the dangerous tasks for us, we can transcend many of humanity's risky limits. It can be utilised efficiently in every type of natural or man-made disaster, whether it is travelling to Mars, defusing a bomb, exploring the deepest regions of the oceans, mining for coal and oil. [24]Without breaks, an average human will labour for 4–6 hours every day. Humans are created in such a manner that they can take time off to replenish themselves and prepare for a new day at work, and they even have weekly off days to keep their professional and home lives separate. But using AI we can make machines work 24x7 without any breaks and they don't even get bored, unlike humans.[25]We will be doing a lot of repetitive labour in our day-to-day job, such as writing thank-you emails, double-checking papers for flaws, and so on. We can use artificial intelligence to efficiently automate these monotonous operations and even eliminate "boring" duties from humans' schedules, allowing them to be more creative. [26]Digital assistants are used by some of the most modern enterprises to engage with people, reducing the requirement for human personnel. Many websites now utilise digital assistants to supply items that consumers seek. We can discuss what we're searching for with them. Some chatbots are created in such a manner that it's difficult to tell whether we're conversing with a machine or a person.Artificial intelligence makes choices based on previously obtained data and a set of algorithms. As a result, mistakes are decreased, and the prospect of achieving better quality and reliability is increased.

Dis-advantages of AI

[27]It takes a lot of skill to build a machine that can mimic human intelligence. It takes a lot of time and energy, and it may be quite expensive. AI also requires the most up-to-date gear and software to stay current and fulfil the most stringent criteria, making it highly pricey. [28]One of AI's major drawbacks is that it can't learn to think outside the box. AI can learn over time using pre-

programmed facts and previous experiences, but it cannot be creative in its approach. Quill, a machine that can create Forbes earnings reports, is a famous example. These reports only contain data and information that the bot already has. Although the ability of a bot to produce an essay on its own is amazing, it lacks the human touch found in other Forbes pieces. [29]One of the most serious drawbacks of artificial intelligence is that it is gradually replacing humans with bots for a variety of monotonous activities. Many career prospects have been lost as the necessity for human intervention has decreased. A simple example is the chatbot, which is beneficial to businesses but a pain for employees. According to a McKinsey report, AI will replace at least 30% of human labour by 2030. [12]The bulk of laborious and repetitive operations are automated by AI technologies. We use our brains less and less since we don't have to memorise stuff or solve riddles to get the job done. Future generations may face challenges as a result of this AI addiction. [13]Morality and ethics are crucial human characteristics that might be challenging to include into artificial intelligence. The fast advancement of AI has sparked fears that it could one day develop uncontrolled and finally wipe mankind entirely. The AI singularity is the term used to describe this point in time.

Conclusion

AI and technology are two aspects of life that never cease to fascinate and amaze us with new ideas, themes, discoveries, products, and so on. AI is still not implemented as shown in films (i.e. intelligent robots), but there are many key attempts to get to that level and compete in the market, such as the robots that are occasionally seen on television. Despite this, there are secret initiatives and developments in industrial companies.If artificial intelligence (AI) improves to the point where it can do everything better than humans, it will likewise improve in science and technology. It may determine that developing a particular field of study is no longer worthwhile, or that space flight is a waste of time as long as humans on Earth live in poverty and more than a billion people lack access to safe drinking water.

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ARTIFICIAL INTELLIGENCE

SHRIPAD PANDE
M. Tech-Embedded System
Email ID: shripad.pande2021@vitstudent.ac.in

What is AI?

[1] Artificial Intelligence Is Nothing But The Computer Programs Which Is Used For Making Machines Or Computer More Intelligent.The Complex Program Are Smart Enough to Make Decision by Its Own And Perform Particular Task.[2] AI Have Ability To Understand, Learn, Think, Analyse And Take Action Accordingly. Today Research Is Going On How The Human Intelligent Is Different From Artificial Intelligent. AI Uses Tools like Machine learning, Deep Learning for Analysis of The Problems. It is the project of Developing system with intellectual to learn from past and implement in present without any error. AI has mainly two types Artificial Narrow Intelligence (ANI) which is used in autonomous vehicles, Google home, amazon Alexa. Another one is Artificial General Intelligence (AGI) which is not practically used today but in future it will be in peck position of AI. According to researchers (AGI) will have ability to develop superhuman, computer assistant system etc.

History of AI

[3] The concept of artificial intelligent is first established in 1956 at Dartmouth College in the US. By the year of 1970 many research field including robotics, translation, control and automation, Gaming, mechanical industries used AI. The development in technology have led to development in industrialisation. The 60 years of development was not easy many and major three setbacks are happened in that years.

[4] In 1950 Researchers Define That Weather Computer Software Is Intelligent Enough To Understand Human Intellectual Or Not. The Software Is Intelligent When Human Don't Know They Are Chatting With Machine Or With Another Human. Science If Software Passes the Test Known As Intelligent.

AI in India

[5]In India there is tremendous growth in AI for accelerating the economy of the country. By providing new mechanism over traditional AI promises to develop nation worldwide. On other hand cost for implementing AI contains high risk factors for society. But for better future of industrialization it is necessary to implement AI based system.[6] Many start-ups in AI, machine learning And in big data attracts investors for the implementing the system in different domain like health care, financial services, education, customer services. There are many start-ups scheme which is run by Government of India. So many small start-ups giving competition to existing market to adopt new AI based technology. This all heads towards transforming Indian industries into industry 4.0.

Various Places Where AI is used

[7] There are many places which are using AI for transforming themselves towards digitization. The sectors like manufacturing and supply, power sector, healthcare sector, agribusiness, banking, education, tourism, marketing, Defence and safety using AI to enhance their product or service. It is also used in human assistance system like Google home, Alexa, SiRi to assist, help, entertain human.

AI in Healthcare Appliances

[8] In the recent years the demand for secure, better and safer lifestyle is increased. So the AI playing very important role in medical appliances. They are monitoring health condition of people by using some IoT sensors installed at home. By connecting this sensors to the network of AI, it is possible to give proper medicine to the people. The prediction of upcoming disease and telemedicine is also possible. [9] AI allow better detection and treatment of disease, AI uses tools for treatment of cancer, neurology, diabetes, heart related problems. Smart tools which are used to spot problem automatically and treat patient accordingly. So in healthcare the machine learning and AI is important for saving lives of Patient.[10] The major application of AI in healthcare is to maintain record of data called as electronic health record. Also uses dental robots for dental healthcare. By connecting camera to the AI network they are monitoring behaviour of patients, sanitization, face mask detection and many more.

AI in Manufacturing and Production

[11] The many companies are trying to implement AI in their production process for achieving the organizational goal. The factors like digitalization, research and development, adoption of new technology, services are essential in production.[12] For development of smart manufacturing the term AI is important in modern industries, that's term called as industrial artificial intelligence (IAI). The deep neural network, transfer learning, machine learning are widely used in industries for predict and solve the problem in entire production process like quality inspection, monitoring, fault diagnosis.[13] The high value product manufacturing can be achieved by integrating information communication technology, which include control, computation and communication. The main role of smart industries are operation optimization, intelligent decision making, business model, customized packaging.

AI in Security and Surveillance

[14] For analysing of video and to solve basic computer vision problem the deep learning tool is used. Hence it is a very challenging task. As video contain large amount of differences and difficulties some human intervention is needed in surveillance system. But the new advancement in tools has great efficiency which is used for CCTV based theft detection. Without using any sensor they detect theft by using some image processing algorithm.[15] The main focus of any organization is to secure and surveillance the area to protect from any kind of physical threat. But that tends to extra cost and infrastructure to develop. So by installing camera on UAV it is possible to surveillance the area. For that the predefined coordinates is send to the UAV which follows route. They can also manually control by using Analog transmitter and receiver. The recorded data is given to the AI software to detect any threats. [16] The main aspect of smart surveillance is to reduce

human intervention and make system more accurate, reliable. The iot and AI network is make to develop system more efficient and improve the performance of automated surveillance system.

AI in Education

[17] The continuous development of AI in the field of education is going from past 20 years. To improve human learning, teaching technique. In the engineering discipline the term 'intelligent tutoring system' is commonly used in current world. The computational model is used to explore more about the theory which directly improves the student behaviour, reasoning ability, interest towards subjects. [18] Recently many big tech company's invested millions of dollar to developed AI based products which are using for Smart teaching. In many schools they are introducing AI in their curriculum to enhance both students and teachers learning. The recent study says that by 2025 the AI in education market will reach worth 6 million dollar.[19]AI equipped computers and other devices improving the experience of learning of students from childhood. The CO -bots that is nothing but the colleague robots are used to teach routine task, spelling correction, pronunciation.

Advantages of AI

[20]The application of any tool is highly depends on reliability of that tool. AI is already have good reliability over a wider application because it has ability to simulate human intelligence in reasoning process. So it is widely used in industries to reduce cost of production and increase the time efficiency. AI can do faster decision making so complex problem can be easily solved within a short period of time. [21] For solving business problem many technologies and AI work with proper understanding which can help to implementing predicted vision into reality. They are considered as a main asset of the organization. [22] As we know AI can work faster than human some main advantages of AI is high success ratio, less no of errors, high efficiency, multitasking, and ability to work on complex functions.[23] The source code is responsible for digital mind, it can change the way of thinking. Thus AI is intentionally build to read and understand design documents, also to experiment large number of intervention that human cannot do. [24] Digital mind can be developed very quickly and has no extra cost than hardware implementing cost. So it's dominating the major and main part of economy, asthey works for low wages.

Challenges or Dis-advantages of AI.

[25] The main disadvantage of Adopting AI is caused increase in unemployment because of Automation in industries affect the human job. On other hand the new generation youth become lazy because of increase in automation technology. AI require lots of money and time to implement on a different system, which increase dependency on technology. [26]AI is specialized in some of the fields where non-complex repetitive task is provided, but for complex task it required critical thinking as human brain. Human can think using some complex neural network function and some chemical functions that any CPU chip cannot do. So there are many complex functions available which cannot solve by AI technology.[27] There are many challenges of AI in social implementation. For example in autonomous vehicle some time car will protect you by killing some other because they are designed to only protect you. So what will be use of that to kill people to protect yourself? This makes engineers and developer to think on developing system for a market requirement.[28] The security is a another main problem with AI as data can be stored in large

amount to train ML models, also high profile community privacy is an important issue in ML. the many global cyber-attack has done in past years on data centre. [29] Data challenges, developer challenges, implementation challenges and ethical challenges are some major challenges in AI. So it is necessary to use AI based system according to its application.

Conclusion

AI and ML are both product of science and myth. AI technology provide an alternative method to solve a problem. By adopting new technologies we can make a better world for us. There are still many places where AI is essential but not yet implemented. Scientist, researchers, engineers are continuously working on new technologies which can be implemented through AI. Also many start-ups companies are created very good platform for students to work with the current technologies. Which is directly beneficial for our future. Many countries are adopting AI technology to boost their economy also many jobs are created by start-ups.so it is important to go with the flow to adopt AI technology.

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ARTIFICIAL INTELLIGENCE

SHUBHAM JAISWAL

M.Tech. in CSE specialization with Information Security
Email ID: shubham.jaiswal2021@vitstudent.ac.in

Introduction

Artificial intelligence is made up two terms one is Artificial and second one is intelligence. AI has large applications and many approaches that are used with different technologies.

AI means Design or create a system intelligent as Human and can behave intelligently is best possible way.

What is Artificial Intelligence?

[1] Artificial Intelligence is study of science and engineering and it is concerned with designing of intelligence in machines or systems. AI is expected to behave intelligently as human and behave in best possible manner, behaviors are reasoning ability or thoughtprocess.

Artificial Intelligence is made up of two terms one is Artificial and second is Intelligence. In AI we learn how to design machines, solve problems using algorithms and dataset.

[2] AI is one of the important inventions of human. Some new revolution in technologies is artificial Intelligence, virtual reality, robotics etc. All these technologies are changing Human life; AI has a important role in development. AI systems are used in face recognition, robotics, and natural language processing, medical diagnosis and ingames.

History of AI

[3] In 1956, John McCarthy, Marvin L. Minsky (MIT), Nathaniel Rochester (IBM) and Claude Shannon (Bell Laboratories) worked on a summer research project on ArtificialIntelligence.

Artificial Intelligence is first time used by John McCarthy in research and project idea was designing a system with human intelligence. Before 1956, AI was used in 1955 in military computing. After 1956 research, researchers worked on AI and what can AI do? Searched later. Now AI is used in language processing, chess, mathematics etc.

[4] The founding father of AI is John McCarthy and AI is first time researched by McCarthy. After 1956 government started funding in this field. In AI machine learns from existingdata.

Growth of AI

Growth of Artificial intelligence in national economy system has broad range and it cannot be limited to use in specific companies. Firstly entire economy is scaled on and then searches optimal result of companies' balance sheet. In large business set target indicator, forecasting demand and supply, credit system etc. This way AI is used in National economy system.

These days no proper method to manage national economy. Artificial intelligence performsmany types of activities like prediction, classification by using different algorithms in variousfields of life. We target to find cervical vertebrae stages (CVS) using AI classifiers fordevelopment and growth and compare all algorithms.

In Orthodontic treatment AI's skeletal parameter affected by growth and development alsochanges transversal and sagittal in patients.

AI in India

[5] On large scale, AI based applications have been adopted by private sectors and focus in consumer goods. Indian government is trying to increase skills of all Indian so that they can get a job easily and can attract global manufacturing to India, mainly focuses on young generation through skill India initiative, and other program is digital India initiative to expand digital access. AI will have a direct impact on these two initiatives in future. AI should be taken seriously in upcoming technology in India and for national strategies.

India is taking maximum advantages from AI revolution. India should make a policy to drive AI innovation, adaption in sectors of consumer goods and information services. AI technologies have potential to change economy of India and national security future, in absence of governmentpolicy.

[6]AI has been taken on the list of top priorities by Indian Government; It makes life easier and make society more equal. Now Union Government also allocates funds in research, training and skills in emerging technologies like AI. India's Digital India scheme. Government started to work with AI technology in India and promoting Indian as a global manufacturinghub.

NITI Ayog is working to produce national AI policy with direct Government's effort.

In February 2018, setup four committees to prepare a roadmap for national AI programmed, and committee are- data platform, skilling, reskilling and R&D and legal, regulatory and cyber security.

Various Places Where AI is Used

[7] Artificial Intelligence is used in various fields some of arefollowing-

A. GamingIndustry

Gaming is one of the common application of AI and it uses in chess. Even these applications are not intelligent as human and use brute force algorithm and scans all possible positions every second So that can view all moves.

B. Heavyindustry

These days Robots are common in used heavy industries and do dangerous works that human cannot do. Robots also improve the efficiency and work without taking a rest.

C. WeatherForecasting

For predicting weather, neural networks are being used. On the basis of past data or experience, analyses the data for patterns and predicts the future weather.

D. ExpertSystems

Expert Systems are machines, trained to have expertise in specific areas of interest. Systems are designed to solve the problems. These systems use statistical analysis and data mining to solve problem.

Expert Systems are made up of 3 parts knowledge based – it stores all information and rules infer data and relationships that is needed by expert system and Inference engine takes information from infer knowledge with query analyses it and responds with solution .

E. Data Mining or KnowledgeExtraction

It is fast growing area. Data mining is part of Knowledge discovery in database. This process has some basic steps such as data selection, data cleaning, pre-processing of data and data transformation.

Data mining is basically use of algorithm to discover hidden pattern and relationship among elements in large data set.

AI in Healthcare Appliances

[8] In present time, Artificial Intelligence is used in many areas of healthcare and AI also provides all information to physicians to take decisions in healthcare and medicine. AI organizes patient treatment data and information.

1. Managing medical records and data- AI is used in data management in which data are gathered, stored, normalized, and access all previous records quickly.
2. AI analyzes all test reports, x-rays reports; ct scans reports, data entry and other tasks that are required for patient, with accurateresults.
3. Many Healthcare organizations use AI based surgery tools and treatment methods. AI also rapidly recognizes symptoms and sign in CT scans, medical images such as MRI, XRAYSetc.

[9]Artificial intelligence is mostly used by dentists for appointment booking, tele-assistance for dental emergency, clinical diagnosis and treatment planning. In dentistry online appointment booking and coordinating appointment as required by patients. Pop up notifications for checkup using AI. AI provides assistance, if patients have any dental emergency, a tele – assistance is always available

[10] For drug creation, machine learning algorithm area unit is used that is part of Artificial intelligence. This algorithm is used to decrease drug recovery time. Elements of drug recovery are cheaper and safe. It does not fully works in ending all stages of drug creation; it only assists with stages like-discovering new compounds that have a need ofmedication.

AI in Manufacturing and Production

[11] AI technology in the manufacturing and production recently started. In this we analyze development of core and new technologies. New models are proposed for intelligent manufacturing system architecture, manufacturing and product technology. Internet plus AI characterized upcoming automatic intelligence, shared service, data driven etc.

Recently developed technologies of AI are – new generation information technology, materialtechnology, bio technology.

[12] Future change in manufacturing system by robots. Robots perform all tasks like basic analysis, maths, and operations in industry, observe data reduce work load of employee as well as managers. Also classify and prioritizeinformation.

[13] Since few years robots with advance artificial intelligence work in industries. AI and robotics impacts on labor market and productivity. In press, academic circles also plays important role. In upcoming years robotics in industry will end manpower –work done by human and also will affect economy of anycountry.

AI in Security and Surveillance

[14] Security in used in two terms one for national security and another domestic security. National security is umbrella term in it we can discuss external state and non state. Domestic security is to stability risk that is inside nations. Cyber security was identified as a AI risk in national security, firewallattacks.

[15] AI in home security, devices and appliances are connected to communicate with each other. Voice control or commands are given using remote control orcomputer.

Applications are lightening, home security, home theatre etc. Security is important issue in smart home. Use automation technology to maintain security. For security use neural network to provide authentication, it validates system with user name and password. Only authorized person can access

[16] AI in national security includes cyber security, information security, economical and financial tools, defense, intelligence and development. Neural network techniques are used to generate malicious inputs and these inputs leads to discovery of securityvulnerabilities.

AI in Educations

[17] AIEd applications are made for universities and colleges and used in these. Many AIEd and educational data mining techniques in education system are used to track the student information like class attendance, assignment submission. AI researchers are working on novel interface like natural language processing, speech recognition, eye tracking, face detection and many other facial sensors, which is designed using both AIEd and non-AIEdsoftware.

AIEd provides personal tutor for learning as per learner requirement and most effective approach to learning and teaching, its cost is not affordable by normal people. Intelligent tutor system use AI techniques, human tutoring, delivering knowledge that matches with learner need and target.

ITS uses machine learning techniques, large data set and self trained algorithm for decision taking what and which type of learning content should be deliver toleaner.

[18] In 18th and 19th century, all have particular procedural skills about those skills a misconception in specific domain and main error, about domain viewpoints between learner and teacher. No matter how much success and knowledge acquisition, voice raised against these skills and heard questionslike

- Why do most of people always use well formalized procedural domain in spite of much harder conceptual knowledge?
- How many years old are ITS- tutor knows everything but learner's knowledge is assessed without informing learner.
- Which type of environment student gets himself in and all ongoing activities are socially embedded?

This was in 19thcentury, many researchers found a new method of AI and at Education and AIEd.

New technologies were researched and attracted educational researchers, technologies are- n/w communication, information database, multimedia applications. If we use new technologies many challenges will arise.AI used in developing, modeling science, applying and investigating formalized model, allowing derivation andfacts.

[19] AI in education system will grow day by day, In 2024, student as well as teachers wears gloves and perform a presentation in from of company employee or students. This setup is almost similar to today's system or practical environment for practice, they performs live project presentation and this system system is machine learning intelligence provides instant feedback and output in data visualizationform.

How to adopt body language, voice intonation and non- verbal behavior will be more effective and emotional relationship b/w student and teacher i.e. presenter. Instant feedback and digitalizing

multimedia and transferring through cloud with high speed network, processing them using sophisticated computationally intensive algorithm on GPU cluster, deep learning network trained to do similar presentation and feedback via mobile app installed on learner devices.

Advantages of AI

[20] AI applications are used to solving problems or making decisions. AI have advantages of Reliability, cost effective and high performance speed in solving problems or taking decisions.AI is used in many domain as engineering, economics , law , medical, educational, in different types of modeling, decision making, neural networkapplications.

AI is used in internet such as search engines and shows notification based on search or interest.

- AI is significant, with any application limited in both capability and functionality. In Organization, AI is worked with individuals or groups.AI prevents the knowledge from deletion or lost when data is no longer used in organization by group or individuals. In AI framework, life of knowledge encapsulated till the decisionsunchanged.

- After reliability establishment, application of tools occurs, AI is reliable with different applications, and AI also supports cost minimization and less personaltime.

- AI deals with quantitative as well as qualitative data, this feature has lack of analytical methods.AI tools has faster computational time in terms of space and time complexity and processor capacity by using decision making process. Data gathering and screening, processing, decision making AI provides fastersolutions.

- In recently research, researcher found that AI is more reliable in preventing, predicting and accessing traffic conditions, based on microscopic traffic data. AI is also used in transportationsecurity.

- AI tools are used for security purpose and in management and development of automated responses and control plans. Advantages and efficiencies of AI make useful in development and management of transportation system. AI is more useful in intelligent transportation system, real time sensing, response, detection ofsystems.

[21] AI empirical methods is useful in planning and searching algorithms and machine learning algorithms are applied with real tested data sets that is trained data set. If we talk about user modeling, empirical studies are rare and very few articles are published in user modeling and UMUAI.

Many systems include a simple evaluation study with small sample size and less statistical methods. In other case AI techniques are applied in real world scenarios are applied for estimation of effectiveness, the efficiency and the usability of system. User modeling techniques are based on human computer interaction which requires empirical evaluation.

[22] During 2020, CRC (Colorectal cancer) was second ranked worldwide type of cancer. Due to rapid development in technology, AI has been flourishing area in different fields mostly in medicines. In Gastroenterology , for diagnosis and to improve the assertiveness of automatic polyp detection and its classification for preventing methods of CRC, AI software included in computer aided systems are used.

This article is on recent research AI tool and their application in detection of CRC and adenomatous polyps.

AI methods have high performance in classification, object detection and in segmentation tasks. New AI based systems have a better polyp detection rate and suggest or work for preventing CRC by decisionmaking.

[23] Committee of scientist every five years checks development of AI, what are the changes and growth in AI and AItools.

AI is used to replace human work by machinery or robots and people can do easy task. Human feel more difficulty in programming, self writing, self modification etc. AI saves cost and time that's why call cheap labor and get fast work with profit. Machinery can work without refreshment or taking rest, once programmed can work for long times but human take breaks and feel tired. These days' robots are also working in mining and in fuel exploration process.

Using AI we can save human life and human can make new robots but robots cannot make human. Robots in programming or in other tasks don't make mistakes or errors if they programmed properly.

[24] AI gives less chances of error and high accuracy, AI finds application in space exploration. Different types of robots can be used in space exploration because robots not afraid of space environment and they can easily survive in atmosphere of different planets. Other planets don't affect robot's physical and functionalstate.

Robots with AI are also used in geo-information to study depth of earth and depth of ocean to extract fuels and resources that are required by people. Smart phones are examples of AI. Maps, GPS are application of AI which provide shortest path. AI can perform dangerous tasks for human health and life such as saving people from flood, fire etc.

Disadvantages / Challenges in AI

[25] Many challenges are in AI, some are–

- Tools that are used in AI are so expensive so development is noteasy.
- Incomplete task of robots which is done by human charges extra time, resources and money.
- AI cannot change governmentcommunism.
- AI is making human lazy with its automatic application andinvention.
- In organization, they look for minimum qualified human with AI robots because robots do similar task with moreefficiency.
- Human creates a team to do any task but machinery never bonds withanyone.
- Machinery perform only programmed task nothing out of that.

[26] Challenge with traditional ML (ML is associated with AI) methodologies, need of human efforts for feature engineering in logistic regression and support vector machine methods. Feature engineering is getting higher level feature from raw patient features. Humans are essentials in designing appropriate DL modelarchitecture.

Clinical data and behavioral data is linked to health status. When using behavior data in health application faces some challenges, due to way of data collected and stored.

[27] AI is used in geo-science, in space research and in environmental pollution controls.Many no of AI approaches, maps nonlinear behavior or mapping between input and output in biological or chemical process predicts a model of optimization and control algorithm that study pollutant removal and optimization system, developed for environment cleaning. Challenges with these techniques are if software or machinery wrong programmed can do opposite actions and this

machinery clean up the environment if everything based on AI more and more production will be and that can polluteenvironment.

[28] Challenge in Governing artificial Intelligence is like ethical, legal and technical opportunities. Now AI works in every aspects of society from rural to urban infrastructure, law enforcement, banking, medical etc. AI with machine learning and robotics improve economic welfare, social welfare, and work for humanrights.

Same time AI can behave in unpredicted way or in harmful ways.AI in society as well as in government sector making everyone lazy and lack of security aspects.

[29] Main challenge with AI is cost of maintenance and repair. Software always updated and change requirements if event breaks then cost will be very high. When we do a lot of complex tasks to AI don't forget that your machine can fail anytime. Small error in calculation can cause a big mistake or many no of problems. This can lead to loss of necessary and important data which is processed bymachine.

If robots replaces a person in each activity field this may cause unemployment.

If Military robots fall into wrong hands, it will cause destruction because machines never think before acting. There is a fear that one day robot will replace people. AI making us slave and will one day rule over the world.

Conclusion

These days most of technologies are based on Artificial Intelligence. Computing word has needed to learn more and take a lot advantages from various AI approaches. Only AI has ability to learn from training dataset and provides flexibility and is more powerful. AI has already implemented algorithms to perform a task. AI is real time system due to parallel system gives fast response and fast computational time. Goal of AI is design to system as intelligent ashuman.

Some problems are in AI but researchers are trying to solve these and also working in many AI approaches.

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ARTIFICIAL INTELLIGENCE

RITWIK PARWANI
M.Tech. of Embedded Systems
Email ID: Ritwikprakash.p2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Various processes like learning, reasoning, and self-correction which are human characteristics are computed with the computers to process into Artificial Intelligence. Learning, adapting, self-correction are some of the human intelligence which can be improved in the machines to perform and give better results. The stretch of human intelligence by utilizing computers, mechanical tools was used to extend physical powers in the past. By using new specialized programming, computers can be used more effectively.[2]AI does tasks that require human intelligence thinking performed by people by neglecting all human errors. It has various aspects such as psychology and cognitive science which is surrounded by computer terminologies.

History of AI

[3] The era of AI started with philosophy, fiction, and imagination where most of the inventions were motivated by AI. Goals were achieved in problem-solving that is in basic work in learning and knowledge representation. Some achieved events like basic problem-solving ability in learning, knowledge, representation, and inference also in translation programs in understanding, compiling, and associative memory and knowledge-based systems which made the base of the artificial intelligence technology strong support for the upcoming future.[4] Most of the Al-related research was established on the logic theory machine of chess playing program and general problem solver (GPS) by Newell, Shaw, and Simon's research in the mid-1950s. Their work is surrounded by symbolic processing, heuristic search, problem-solving, planning, learning, theorem proving, knowledge representation, and cognitive modeling which are still prominent areas. However, there was some debate over AI that its rapid popularity and bold forecasts AI quickly drew its critics and one of the most well-known was Hubert Dreyfus, who released his renowned critique of AI, Furthermore, the early promise of automatic machine translation of text from one language to another yielded only modest results and the goal of fully automated machine translation was abandoned in the early 1960s.

AI in India

[5] Various sectors with tremendous potential combined with AI like health, education, energy, and the environment have been taken into consideration by The National Science and Technology anchor of smart application, smart power generation, and distribution, smart management has given contribution to powerful IT infrastructure in India.[6]In India, steps are taken into consideration for artificial intelligence. The process of AI is mangled, so the government is slowly opting to invest their expenditure into upcoming technology like AI and revolutionize India into an automated society.

[7] A pursuit was made towards the artificial intelligence models to evaluate the timeline of the oilseed production of India by taking into account increasing demands, policy environment, slow

growth in domestic production, and import charges. India has great resources from oilseed production which makes it an important sector in Indian agriculture.[8]Few areas have surfaced in Indian businesses where AI is used for identifying issues in designing articles, retail shopping, online shopping, and developing conversational administrations.[9]Artificial intelligence (AI) is quickly becoming the go-to technology for industry all over the world looking to personalize the experience for individuals. The technology itself is improving and becoming smarter by the day, allowing more and more industries to adopt AI for a variety of application. The banking industry is becoming one of the early adopters of AI, and banks like other industries, are exploring and implementing the technology in a variety of ways. To increase the efficiency and engagement of customers, Indian banks have started using artificial intelligence. Its prime aim in the banking sector is to predict human behavior and opt for operational efficiency.

Various Places Where AI is Used

[10] Various AI applications are under process by our scientists into the health care sector to create a low-cost and quick diagnosis of COVID-19 patients. From this many lives can be saved, and a huge amount of data can be developed which helps them to take necessary precautions as early as possible. On the route to finding a cure for COVID-19, AI has been utilized extensively to uncover novel compounds. Many researchers are utilizing artificial intelligence to discover novel treatments and therapies for cures, with some computer scientists focused on detecting infectious individuals using medical image processing such as X-rays and CT scans.[11]In the Tourism sector, travel and hospitality service providers have also started using artificial intelligence in their business, according to the Tata Consultancy Services(TCS). In the coming future, digital travel sales will take a huge leap and large revenue will be generated by this industry. These findings, taken together, appear to point to a client preference for internet and self-service technology. These findings may persuade marketers to use Artificial Intelligence (AI) in the form of interactive and self-service technology to improve consumer experience. The results of these studies reveal not just the customers bias for technology.[12]A task like a measure and a monitor associated with financial risks, artificial intelligence is used to identify which also sometimes could be a problem if there is lack of data or in data security which lead to calculation errors.

AI in Healthcare Appliances

[13] Various developments in the healthcare sector using artificial intelligence like treatment strategy, up-gradation of techniques, and proctoring of treatments are dominating. AI can quickly and effectively detect the well-being of the patient through various signs and symptoms which eventually decrease the processing time of generation of patient reports such as MRI, CT scans, ultrasound, and x-rays from days to hours. Using AI using given techniques the patient is now capable of taking the treatment decision promptly.[14]Artificial Intelligence (AI) makes a remarkable decision with the information provided by the physicians which also helps in organizing patient routes and treatment procedures better in the field of healthcare and medicine. AI has now welcomed into some areas of healthcare which is just the beginning of the design of treatment and moving towards medicine management or drug development. Data management is the most visible application of artificial intelligence in healthcare. Getting it together, storing it, standardizing it, and tracking its lineage. It is the first step toward transforming available healthcare systems. Recently,

Google Deep Mind Health project, which mines medical statistics in order to incredibly good and timely health services. Data management used use of artificial intelligence and digital automation in health care since accumulating and evaluating data is a necessary step.[15]Managing diagnosis, customer relationship management, accurate treatment, and error detection in healthcare systems have a huge potential in Artificial Intelligence. Various applications of AI techniques in Breast cancer diagnosis, treatment, and prognosis have been taken into the study where the diagnosis has been taken into consideration i.e. differential diagnosis (DD) and Final/Provisional diagnosis (FD).

AI in Manufacturing and Production

[16] Integration of information technology, communication technology, product expertise, and AI with manufacturing technology has revolutionized manufacturing models, surroundings, and approaches. A swift advancement and combination of AI technology with the Internet of Things, current generation information technologies, new energy technologies, material technology, and biotechnology is an important part of this era which is going to be the adaptation of the application to the national economy, well-being and national security.[17] In present scenarios, Artificial management(AM) and Artificial intelligence(AI) are growing at a tremendous rate simultaneously in the manufacturing sector which helps them to scale the company.

[18]For manufacturing and problems above the work-cell level, DEC's internal strategy with the help of artificial intelligence (AI) is used, and also with this network, the current DEC's system processes the system which deals with the factories to maintain the items of the assignment in the computer system properly.

AI in Security and Surveillance

[19]A new surveillance system called the intelligent surveillance system (ISS) has a strong data analysis capability. Features of this intelligent surveillance system are to analyze the data that is to detect or track the behavior of objects of the upcoming events with the zero interruption of humans. This modern technology has various applications like traffic monitoring, home security, etc. with the help of artificial intelligence, sensing devices, and signal processing. Practical surveillance systems have been deployed in large numbers collecting sensing information from cameras.[20]In the field of national security, Artificial Intelligence is an emerging technology that is growing enormously into technological development. TheU.S. The Department of Defense (DOD) is promoting Artificial Intelligence which is enlarging worldwide with a tremendous rate in security for military purposes.

Various studies are under process in the areas of logistics, cyberspace operations, collection and analysis, command and control, and a variety of military autonomous vehicles. To increase the identification process of the target, various efficient algorithms are developed.[21]Artificial intelligence applications like surveillance recording systems have allowed us to repetitively analyze the video footage to minimize the risk by capturing unusual activity without any interruption and help society to reduce the criminal activity even before it occurs. These surveillance recording systems are continuously monitoring the video surveillance without any interruption. Earlier CCTVs were only used for security-driven programs but recently technology has been advanced in video monitoring arrangements.

AI in Education

[22] Precision education refers to the application of machine learning and analytics of Ai to improve teaching quality and learning effectiveness by addressing at-risk pupils and enabling timely interventions, as part of the change from a one size fits all to a precision approach. Teachers may be able to intervene in real-time to improve students' learning results if AI and other related technologies are used to assess learning problems. In terms of the move from technology to mankind, AI has the potential to boost human productivity.[23]In the past, Computers had been in the field of education, but with mediocre results. But now the scenario is changed, the current research within AI is being given very clear and firm results on the education applications. A computer is used in education resources like digital libraries and also used for maintaining the databases of students' data. These Computers/microcomputers are in comprehensive use of the educational system like teaching programming skills which currently is used in various roles in relevant sectors. A major consideration has been given to the education sector to use the computer using AI within the instructional role.

[24]The first is to employ an intelligent tutoring system (ITS), which calculates the best step-by-step learning path for a well-defined topic of structured knowledge, such as mathematics or physics. According to the nature of knowledge, ITS can be split into domain models, pedagogical models, and learner models. The domain model is concerned with subject knowledge for teaching, and the learner model is concerned with students' knowledge. These models are used by ITS to create a system, provide tailored activities, gather activity data from learners, analyze the data, and update the model.

Advantages of AI

[25] Mobile devices have progressively moved into AI day by day. Mobile Edge Computing (MEC) can store resources and utilize idle computing adequately at the edge of the network and reduce the network transmission delay.[26]By data gathering and screening, processing, and decision-making

- AI can make faster decision making by automating the data making process also depending on the computational time in terms of algorithmic complexity and processor capacity.
- AI can also deal with both qualitative and quantitative data which most of the methods fail which depend on the processing time including algorithmic complexity and processors capacity.
- AI models incorporate available information with probabilities and probability inference computations to describe the reality between real-life cause and effects scenarios.

[27]AI can revolutionize the fast food industry because unlike humans, Al can be programmed for long hours which soon affect the various aspects of dining. Customers can now enjoy nonstop service from the fast food industry thanks to the technological advancements in digital capability. Another example of AI is the automated teller machine, which can replace bank clerks working hours, and auto call centers, which can pick up your call at any time. We are undeniably on the path to rapid technological advancement and use of AI.[28]A bizarre healthcare situation that has infected millions of people with that is COVID-19 across the globe and increased the infrastructure, healthcare workers, and the economy to new limits. Fusing chest radiological imaging paired with artificial intelligence the diagnosis of coronavirus infected patients has a predominant advantage. By developing specialized models to converge on limited data various techniques are used for surpassing the problem of lack of relevant data.

[29] Merging Artificial intelligence with block chain data, an intelligent approach is developed to global water management. A decent multi-scale water resource management is established using this technology integration to gain the advantage over efficient water abundance and scarcity pattern identification. A distributed network approach to water resource management for multi-scale water challenges may thus be appropriate. Even though it is argued that inefficiencies and ethical issues exist if applied in science, using block chain technology for a fragmented incorruptible public water transaction record, as well as ensuring trust and involvement in its data fidelity, data security, and data verification, may be advantageous.

Challenges or Dis-advantages of AI

[30] Data of Medical and Dental are not easily available due to security and protection concerns of the patients. Due to this various data is secured and segregated under integralsystems which later become a hurdle with a limited amount of data in the AI realm. These data of the patients are very complicated, multidimensional, and sensitive with the help of validating them. For example, in medical and Dental data all the records are stored in electronic medical records may sometimes show low variable completeness which is not arranged systematically and not at random.

[31]The government and schools give utmost value to integrating artificial intelligence into business English education but all the designs are assembled at the professional level. The development of professional talent training objects has been affected hen universities develop talent training programs, the training of artificial intelligence alertness and ability has not been incorporated into basic education. Innovation and entrepreneurship education will be difficult to progress smoothly if the artificial intelligence goal is not fully incorporated with the plan. Currently, some colleges and universities do not fully recognize the importance of student innovations and enterprise education and they typically only hold a few lectures to cultivate students' artificial intelligence capabilities and alertness, and artificial intelligence education is rarely incorporated into the professional curriculum system.

[32] Every organization keeps on replacing humans with AI robots to do the same work with more efficiency which creates problems within the utilization standards.[33]One of the biggest challenges in AI

- Maintenance and Repair cost of the system
- System must be updated regularly which increase cost
- Less experienced programmers
- Complicated tasks error can also turn into loss of information
- Leads to unemployment
- High initial investments
- Makes human dependent

[34]The information of AI is open source, therefore the cybercriminals usually exploit malware to the systems created by the cyber security using AI. These criminals infiltrate the websites and organizations with AI-proof systems by creating malware most feasibly. Artificial intelligence is primarily on the rise as a result of data of data science and big data. As a result, experts in this field are almost inaccessible or difficult to find. Many businesses are at risk of overspending because there aren't many AI solutions for cyber security. Even if you add AI to your company, it doesn't

mean you will become immune to all risks. Viruses and malware are constantly improving, and AI systems necessitate ongoing overhaul, enhancement and maintenance.

Conclusion

Artificial intelligence has increased the understanding of the nature of intelligence and also its vast application in different sectors. AI is a field that is growing rapidly day-by-day which is making society live as simply as possible by making daily activity easier. Artificial intelligence (AI) has slowly but steadily infiltrated every aspects of our lives, from online shopping to TV viewing. In other words, AI is the study of computational devices and system. Currently, artificial intelligence has become a hot topic in every domain of the world. As this brisk rate of innovation, there also come some pros and cons of the technology. As per my given research AI has various applications in a variety of sectors like healthcare, agriculture, weather, business, transportation, construction, and so on. These applications make the human error zero and no interaction of humans is present during the process which eventually leads to cost reduction and fast computational power as high-end processors are involved. And also the major issue of artificial intelligence is that it creates unemployment but it can be solved over years as AI makes education available complementary which will increase the literacy rate. So, AI is very beneficial for our society and society must develop into a better tomorrow.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

NEHA R

M. Tech. Embedded Systems
Email ID: neha.r2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial Intelligence is understood as the ability of a deviceto replicateindividual cognitive approach and so making it a Technical product.[2] Artificial Intelligence is a subdomain of Computer Science, psychology, and Cognitive Sciences. It gives its attention on the event that arise when systems finish their tasks that would be viewed as brain-intensive if they were done by individuals.

History of AI

[3] In 1847, George Boole gave his formal approach in the area of logical reasoning. Then later in 1936, Alan M. Turing discovered the Turing-machine. Warren McCulloch and Walter Pitts in the year 1943 developed the artificial neuron model, while J. Neumann and O. Morgenstern developed the decision making concept a year later, which gave a detailed and elabotrate structure for expressing preferences. Marvin Minsky and Dean Edmonds developed the initial neural computer.Artificial intelligence (AI) was termed by John McCarthy in1956.The first generic issue solver was tested the following year, and McCarty, often recognised as the father of AI, revealed the LISP (List Processing) programming language for constructing AI software a year later. Within twenty years, machines will be capable of completing whatever work a man can do.

[4]AI was a mere science fiction in the 1920s. By the 1950s, Alan Turing proposed the Imitation Game to determine whether a machine is intelligent or not in a paper titled "Computing Machinery and Intelligence." The test is simple: if a human judge cannot dependably identify machine from human while interacting with a computer, the machine passes the test. Marvin Minsky, John McCarthy, Shannon and Nathan Rochester organised the "Dartmouth Conference" in 1956, which created the phrase "Artificial Intelligence" as a standardized scientific name.

AI in India

[5] AI has its ever-lasting benefits in the field of imparting knowledge and technical information to schools, colleges and various institutions. Many schools have adopted AI based educational practices alongwith smartphone advancements in India. Thus significantly improving the education system from conventional method to smart learning with improvised animations and techniques to attract the attention of students.[6] AI has led to many growth and advances in live-styles of people across the world especially in India, especially in education, banking sectors, medical and mobilization. Due to AI, various advancements have been evolved especially in the early detection of cancers in India. [7] In India, AI is used in various areas such as in shopping, map-reading, machinery, manpower, wellness maintenance and so on. It is expected that India's current gross increases by 15% by 2035.

[8]With entrepreuners and huge tech groups imparting AI answers for healthcare demanding situations using AI in healthcare in India is exponentially increasing.[9]Much of AI studies in India

has been pushed by the want to bring the language obstacles together in the india and additionally to allow deprived sections of the society to achieve the advantages of data technology.

Various Place Where AI is Used

AI has its growth in various disciplines such as Gaming, clinical areas, automation especially in Smart home automation, Cellular phones, regional forecast and in data mining. All these areas have been evolved drastically with AI playing a major role in it. [11]AI is used in various medical fields especially in the fast detection of Breast cancer as it is used in screening applications. Apart from this, AI is used in various applicances which makes medicinal field better and easy.[12]There are various AI tools such as Information-based machines, fuzzy technique, inductive approach, neural intelligence and various algorithms that solves various engineering problems easy, thus is used in various aspects in daily life.

AI in Healthcare Appliances

[13]Polysomnography remains to be the standard for objective sleep testing, and it leade to large volumes of electrical and physiological data that can be viewed using artificial intelligence (AI) technologies. AI is predicted to give new insights into the therapeutic care of sleep problems and increase our understanding of the critical function sleep plays in human health when combined with other sources of health data. AI has the ability to prioritize everyday operations, allowing the sleep disorders team to provide better direct patient care.[14]Artificial intelligence is publicized around the world as a high-impact, game-changing breakthrough in the field of Innovation of Intelligence. It is used in a variety of fields from automation to dentistry.

It is a salvation for dentistry, especially in the field of prosthodontics, as it aids in operating maxillofacial appliances and the design of prostheses. It also aids in the recording, diagnosis, planning the treatment procedure, and patient management processes, allowing oral health care professionals to work smarter rather than harder. [15] Artificial intelligence (AI) solutions for patient monitoring and treatment in the intensive care unit (ICU) are swiftly progressing from science fiction to reality. Computer science advancements, aided by improvements in CPU power and storage capability, have enabled the creation of complex and powerful algorithms for machine learning and AI.

The Clinical papers documenting approach is used in monitoring and caring for critically ill patients are becoming more common. Work on early detection of sepsis and acute Respiratory Distress Syndrome (ARDS, Prediction models on mortality, and algorithms to monitor alarm and analyze images are all part of these studies.

AI in Manufacturing and Production

[16] Manufacturing systems are getting more feasible, livelt, energetic and networked in current world. Due to the innumerable uncertainties and interdependencies that occur, manufacturing operations encounter difficulties in nonlinear and stochastic activity. Recent advances in artificial intelligence (AI), particularly Machine Learning (ML), have shown considerable promise in changing the manufacturing domain through enhanced analytics tools for analyzingdiverse volumes of industrial data known as Big Data.[17]The manufacturing industry relies mostly on transformation and discoveries. This progress should lead to new Technologies that enable

feasibleoutgrowth. Smart production demands worldwide viewpoints on smart production application technologies to improve sustainability.

Smart manufacturing systems necessitate creative ideas to upgrade the quality and long-term viability of manufacturing processes while lowering costs. Artificial intelligence (AI)-driven technologies, aided by I4.0 Key Enabling Technologies (e.g., IoT, sophisticated embedded systems, cloud computing), are equipped to create new industries in this setting.[18]Artificial Intelligence has revolved and progressed beyond its infancy, and businesses are actively involved in large-scale. Today, more machines – large and tiny – on the factory floor are provisioned with sensors that collect and communicate vast amounts of data and record a variety of behaviors. Manufacturers have begun to see the strategic value of big data analytics, and data is becoming a vital enabler for improving manufacturing competitiveness.

These innumerablemass of data, when analyzed in real time using AI's analytic capabilities, can upgrades the ability to make decisions and issue amplified intuition to business users – which is for bringing down asset downtime, enhancingthe efficiency of production, judging the necessity of production or increasing risk management. PHM is one of the most common uses of the technology, followed by forecast of demand, quality assurance, and robots.

AI in Security and Surveillance

[19]The use of Artificial Intelligence (AI)-based approaches in data-driven Intelligent Transportation Systems (ITS) and upcoming Internet of Vehicles (IoV) services has a lot of potential to increase safety and efficiency. The Surveillance System for Railway Crossing Traffic (AISS4RCT) is based on AI model and is a proposed system based on a union of perception and grouping methods that focuses on various image processing inputs that might include presence of a vehicle, presence of human, monitoring vehicle path, cautions for railway and signaling systems for light.The designed machine makes use of cameras which are certainly placed to seize a whole crossing location at a given railway crossing.

By using GPU upraised picture processing strategies and deep networks, the devicesspontaneoulsy captures volatile and threatening conditions at railway crossing in real-time. Also, these camera transmit the information to a centralized server for processing and also sends alerts to police or other emergency services.Furthermore, the machine structure employs privacy and security so one can capture all interfaces of communication, shield private data, and to increase personal privacy of pedestrians, drivers. Finally, the use of the YOLO tiny version approach we obtain a mean recall of 89%. The consequences suggest that our machine is sufficient for comparing the prevalence of objects and situations, and it's practicality to be used in railway crossings.

[20]With the refinements in Information Technology (IT), criminals are leveraging cyberspace to perpetrate countless cyber-crimes. Intrusions and other threats make cyber infrastructures extremely permitting. Devices and man intervention are insufficient for safeguarding these infrastructures; thus, more advanced cyber Defense approach are required. These systems must be flexible, adjustable and strong, as well as capable of capturing a wide range of threats and making decisions in real-time. Several bio-inspired computer technologies of Artificial Intelligence are increasingly being used to detect and prevent cybercrime.Each day, we are confronted with an increasing quantity and variety of cyber-crimes, since modern technology allows criminals to easily fulfil their objectives.

Infrastructures that are critical to society are particularly susceptible. Because AI techniques bring flexibility and learning capabilities to IDPS software, they are already being utilized to aid people in combatting cybercrime. Wide knowledge consumption in decision-making processes necessitates smart decision support in cyber protection, which can be accomplished successfully utilizing AI technologies.[21]The banking and financial industries are attempting to utilize artificial intelligence to combat cybercrime and cyber risks. AI approaches offer a variety of benefits to the banking sector, including increased prosperity and expansion. It is critical to maintain transparency and explainability in artificial intelligence in order to preserve trust. Artificial intelligence tools provide information on a customer's behavior and interests.

Robo-advice is a computerized platform that is managed by artificial intelligence. Artificial Intelligence is also used to safeguard personal information. Artificial Intelligence (AI) was created as a notion to replicate the human brain since AI can study a wide range of problems using a holistic human approach. Because of the rise of internet computers and complicated distribution, important problems about information privacy and security have arisen. Vulnerable invasion and other risks exist in the cyber infrastructure.

AI in Education

[22]Asensible software can automate a whole system of assessment and unburden the teacher, allowing them to consciousness on qualitative components of lessons. Since the performance of system getting to know will increase proportionately with the growth of the database, the assessment of college students from the quantitative element might now no longer be disputable. The feasible errors might be corrected via way of means of the instructor, and the sensible machine may want to use this to learn. The time that the instructor could advantage with the automatization of assessment may want to then be spent for interplay with students, getting ready for lessons, or profession development, nevertheless leaving her sufficient time to have a look at the correctness of the grades, and this will constitute the referred to fail-safe.

[23] Artificial Intelligence (AI) is very useful in our each day life (e.g. smart family home instrumentation like robotic vacuum cleaners or AI-primarily primarily based entirely programs like Google Maps, Google Now, Siri, Cortana,). The ideas of portable computer technological ability can be of sizeable significance for destiny careers in technological ability and engineering.

[24] Artificial Intelligence (AI) technology has created computer tools for doing a variety of activities, imitating humans' clever problem-solving abilities. In the subject of special education, AI techniques have also been regarded as one of the most valuable uses (SEN). These technologies are designed to improve how youngsters engage with their environment in order to encourage learning and enrich their daily lives. The diagnosis has been a key concern due to the implicit characteristics of special educational needs. At the same time, in order to be effective, intervention tactics must be highly personalised.

Advantages of AI

[25]The advantage of Artificial intelligence (AI) is in modelling human intelligence and so solve issues or make selections. Permanency, reliable, and efficient are all benefits of AI that additionally addresses ambiguity and speed. AI has been utilized in a spread of modelling, prediction, call support, and management applications in fields as numerous as engineering, economics,

linguistics, law, producing, and medication.[26]Using AI offers the very best accuracy and nearly zero probability of error. Robotic AI are often want to study the depths of the world and therefore the depths of the world's oceans, to extract the fuel and resources required by man. Smartphones are a superb example of computer science with AI. Thus, we tend to see that AI facilitates existence. AI are often effectively used once playing repetitive and long tasks.

[27] The idea of clever metropolis is taken into consideration as the brand new engine for financial and social growths. The basic technology of clever metropolis are: Artificial Intelligence and Internet of Things. These technology are used to enhance infrastructure, optimize resources, make certain public safety, etc.[28]The fields of artificial intelligence have a great impact on different areas of life, as it is extensively used today to find solutions to complicated problems in various fields such as Science, Medicine, Engineering, Business, and Weather Fore-casting. Areas of Use of Artificial Intelligence have an increased quality and efficiency.[29]The ability of AI is to identify Transmission events during epidemics or prediction of high-risk patients, thus the development of tailor-made IPC interventions. AI provides ways to improve diagnostics through Pattern Recognition.

Limitations / Dis-advantages of Artificial Intelligence

[30]   The algorithms of Artificial intelligence formulates rules and models from huge information to find the happenings of different outcome. AI has its fundamental role in Image-Recognition diagnosis and finding the happenings of outcome in the field of medicine. Though AI is well-advanced, it has its limitations in Automatic observability and sorting of fracture as it is not examined thoroughly. [31]Improvement in AI for diagnosing and treating Prostate, Renal and Bladder cancers has always been successful. However, in Urologic Oncology, AI faces its limitations when it combats with real-time data.[32] AI has its promising improvisations to the people's relationships and also to companies. Despite this, it is subjected to limitations of data that is linked to the path in which this data grows in the Ecosystem.

[33] The advances in AI has decreased the work opportunity, due to which doctors are afraid of. However machines can only enact Human Behaviour and not few traits such as Communication abilities, Emotions and creations.[34]In industrial applications, distributed AI System topologies are most advantageous. But the disadvantage is they are not safe and are explosive in nature, so they need huge investment in AI computers.

Conclusion

Artificial Intelligence is an upcoming Technology which is growing exponentially as it is playing a major role in day-today life of a humanbeing and a machine also. AI is used in many vital sectors as in health, banking, students education and it is making living very easy and smart to all. AI has made drastic changes to the world and thus it is one of the evolving fields which finds its place in almost all the industries and applications. As AI is also evolving gradually day after day, it will definitely enhance the living, technology, work opportunity, early detection in the field of Medicine and so on. With AI, World can become smarter and all the work can be done by machine with less time and more efficiency.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

SHREERANG MORE

M.Tech. Embedded Systems
Email ID: shreerangjitendra.m2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] Artificial intelligence is an intelligent computer program for making intelligent machines, which can understand human intelligence.but AI doesn't have to be limited to biologically observable methods.[2]The term artificial intelligence is mainly used to define future intelligent computational behavior of computers that they can be capable of thinking like a human being.

History of AI

[3]During 1950 Alan Turing proposed a concept to check the indigence of software. Software is said to be intelligent when human interacting with it and he or she won't know whether it is software or another person. That test was known as the Turing test, and if the test is passed by the software then it is called intelligent software. [4]The major problem in AI is to decide whether the constructed system is intelligent or not? The solution to this problem is proposed by Alan M. Turing in 1950 using an imitation game through which AI can be described in the following ways. The human evaluator has a conversation with human as well as computer at a time. Booth humans have to pass their statements to a computer screen. Human evaluator have to decide which one is given by human and which one is by computer. If human evaluator unable to give the decision then the intelligence of humans and computers are the same.

AI in India

[32] Due to the fourth industrial revolution, AI is transforming and adoption is changing the lifestyle. Challenges and opportunities also come it the picture as technology grows to the peak. The AI developed applications are developed so that to improve the lifestyle, also claimed by some countries that to double the annual income till 2035. But in other words, it is also predicted that there will be a reduction in jobs, some reports predict that within next 10 to 20 years 47 % of job reduction in the United States, around 35% in the UK, 49% in Japan, 54% in Europe and around 40% in Australia. In spite of this, every country in the world wants to become more and more advance in terms of technology. The downsides can be reduced by building a required infrastructure and by making policies so that benefits can be more. India has not formed any plan as of now like other countries already have their action plans for the AI.[33]A most recent trend in the health care sector is Artificial Intelligence, which will help doctors to predict as well as identify particular diaereses from which a patient is suffering. Artificial Intelligence and its applications are nowadays not only helping doctors and patients but also helpful in the medicine/drug industries, insurance sectors, and health sectors. In the medical sector for the applications like ECG, surgery, diagnosis process, angiography, etc application of AI is very helpful and it provides convenience to doctor as well as patients. AI gives clinical and medical reports of a patient and monitors the patient.

Growth of AI

[5] The existing economy is boosting up due to artificial intelligence. The process of Research and development can be reshaped by AI as it will serve new ideas for inventions in the area of robotics, machine learning, and deep learning as a method of the invention. [6] Marketing strategies and customer response will change to a great extent due to AI in the future. authors suggested a complex structure to understand the impact of AI including embedded robotics, intelligence level. Earlier research mainly shows a subset of these dimensions

AI in Healthcare Appliances

[7] The use of artificial intelligence and deep learning is increasing gradually in the healthcare sector as management as well as monitoring of health, diagnoses, and availability of virtual health professionals. High performance image processing, flexible and interactive software, and decrement in the cost with greater efficiency will be beneficial for the health care sector.[8]Artificial intelligence can be very useful in the medical field so that it can detect diseases like cancer. AI is nowadays capable of automatically finding the problems related to a patient's health. Some of the ongoing research presented their vision in health care that it can provide more accurate results than humans. The survey gives some idea that how AI and machine learning will help patients to save their life. [9] One of the root causes of death in the world is cardiac disease. Therefore it is important to improving the technology as well as the approach to deal with cardiac disease. Artificial intelligence plays the most important role to improve technology in the healthcare sector. It can very help full to monitor and manage diseases.Various research shows that AI can be useful to monitor and control cardiac disease.

AI in Manufacturing and Production

[10] Research in the area of artificial intelligence and its applications shows a gradual development in core technologies. Internet and AI is changing the vision of manufacturing with the development of artificial intelligence. [11]The concept of smart manufacturing is a new concept of intelligent manufacturing, illustrating the scope and influence of smart technologies such as the Internet of Things, Cloud Computing, Cyber-Physical Systems, and Big Data on Industry 4.0. [12]The area of self-acting design of manufacturing systems is neither researched nor explored by the industry. The automotive industry currently taking efforts to the manufacturing system because of complex products and variety. Engineers can focus on work that needs the skill set as intelligent methods can support repeated tasks

AI in Security and Surveillance

[13] To fight against criminal activities and threats to national security, the use of Artificial Intelligence is possible. AI can be advantageous in situations where high-speed decision-making is required in unknown conditions. A process like Intelligence, counterintelligence, forensic, etc are time taking processes, where AI increased the chances to detect, prevent, and reduce crime. [14]In smart manufacturing, the requirement for cameras for surveillance and monitoring is increased recently. Although problems increase with the requirement of more and more storage and data transmission. To process a large number of data stored by cameras, AI algorithms can help with the help of computer vision for the detection of abnormal activities or noticeable objects, thus reducing the manpower. [15]In AI and image processing sector, multiple researchers are focusing on

analogizing and understanding images and videos. In spite of their contribution, some challenges are there such as sturdy object tracking and segmentation technique, image feature extraction, etc. Thus more complex ideas should be addressed to resolve the issue.

AI in Education

[16] In the last 25 years, artificial intelligence put a huge impact on the education system. It changed the way practicals performed in the class, teachers and students collaboration and transforming technologies. The technology should be combined with the student's day-to-day life so that it will help them to gate practical knowledge as well as to achieve their goals. [17] Artificial intelligence is now a part of our day-to-day life including the education system although it was a dream a few years back. It is not completely evolved yet but in near future, AI will grow sky-high. In the future, AI will present in the background different applications like natural language processing, machine learning as well as deep learning.A social networking platforms are used to explain different AI concepts in terms of education. [18]In some previous years, computers are only used for busyness or personal use only and no one knows at that time that computers can be used for the educational field also. Artificial intelligence in the education system for teaching and learning process and monitoring of surroundings and actions with the help of sensors. This technology will be helpful for teachers in future classrooms for explaining the working in robotics. Artificial intelligence together with its embedded applications gives a vision of smart classrooms with the use of sensors for learning. [19] Conventional classrooms and traditional teaching methods are nowadays changing drastically and artificial intelligence is one of the key contributors to it. But even if this growth, some researchers believe that never celebrate too early, as it is a new technology and no one knows the consequences related to education, teachers, and the classrooms in the near future.[20] Researchers are working on the concept of smart classrooms i.e the future of classrooms and this concept is growing widely around the world as research goes into the areas like machine learning, artificial intelligence, information technology, the internet of things, etc. But according to some researchers perspectives, this is not a realistic solution for the development of smart classroom. [21] Research study shows that artificial intelligence is developing in the area of smart classrooms. The use of virtual reality will give an actual-like experience, feeling, and work experience to students. To improve the teaching-learning process through smart learning, it is important to understand that how to integrate this technology with the education system for a better teaching-learning process.

Advantages of AI

[22] For the development of new products, companies often go with projects. Teamwork, knowledge sharing take place in the process of product development, and because of this, companies try to implement new ways for the development of products, modeling procedures, Research, and development for continuous learning. This will not only help for continuous learning as well as for new project development and management activities. [23] The instruction-based learning process is traditionally used for many years. Artificial intelligence is taking place of the conventional teaching and learning process and revolutionizing the way of teaching and learning process. An attempt of making a computer-based teacher who can tech individual students based on their knowledge level. [24] Artificial intelligence has a huge impact in nearly every sector all over the world and it will be going to make a sharp change in the world in near future soon. The current research shows the

different scenarios of AI in the different fields of applications. [25]Artificial intelligence has the ability to deliver an out of box solutions for the problems so that it will be advantageous and also reduce the drawbacks of outgoing technology. [26]Video games are one of the ways of entertaining people, reducing stress, and getting relaxed from professional life. Artificial intelligence faces some challenges for designing video games like embedding natural human behaviour where decisions are not under human control. Here researchers trying to explore the concept of AI in video games by improving the GUI, API, decision-based story flow, and realistic human behavior. This will create an undetectable storyline of the game and will increase the excitement.

Challenges or Dis-Advantages of AI

[27] Continuous discussion going on the topic of AI in the health care sector, but the main point of interest is that is AI actually helping the patients? this is because of lack of proof no strong direction for actual goal. To get the notable impact of AI on patients life, so that it could support their day to day life and have a noticeable difference, it becomes important that first have to understand that patients and consumers really have that need of AI? and how this technology will going to improve their day to day life. [28] In public service, AI has the ability to serve as an interface between government and localities. However, there is no guarantee that AI will really be helpful here because of the lack of transparency and loop hols in the technology. For the integration of AI with the public sector, the government should first implement policies related to the exclusion, bias, etc, and to have insurance that there will not be any adverse effect in this sector. [29]India is the sixth most populated country in the world. Artificial intelligence is shaping the development and growth of India day by day. With some common problems like poor infrastructure in India, AI gives the promise to increase the growth and provide the techniques for the improvement. At the beginning stages of the development of AI, there is a risk factor that has to be considered before implementing and the long-term effects. [30] Artificial intelligence is a term related to humans that describes the understanding and problem-solving techniques inspired by human behaviour like decision making and emotions. Artificial intelligence is machine-based intelligence, but human intelligence is a natural one. Here researchers want to discover the challenges related to artificial intelligence in cyber security in the United States. [31] Computer vision, natural language processing, robotics, etc are some of the areas where AI showing a significant amount of growth in recent times. This will also open opportunities in the military sector like surveillance, threat evolution, underwater min warfare, cyber security, command and control, education, and training. As AI is a technology where there are some factors that should be considered before implementing it for example- AI should be transparent and there should come predictable risk factors. The second factor is the reliability and robustness of the military systems. As most military technologies are kept confidential and AI is a machine learning-based technology that needs a large amount of data for training purposes, so secrets should be maintained by the technology. In this research, the researcher presents possibilities for AI in military applications and the challenges regarding this technology.

Conclusion

In this paper, we are discussing that what is AI, its history, AI in India, growth of AI and role of AI in different sectors. So here we have refereed and studied multiple papers form different domains for this research to get an idea about what different researchers think about the topics mentioned above and what is their perspective and opinion related the to that topic. As Artificial intelligence is

advance upcoming technology which will going to helping humans in various sectors, and as time is proceeding, AI is becoming more and more stronger. Along with this to minimize the risk/limitations of AI, we have to build laws, rules and regulations and some standards to stop the miss use of AI technology.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

CHEPURU POORNA CHANDRA
M.Tech. Embedded Systems
Email ID: Poorna.chandra2021@vitstsudent.ac.in

Introduction

Artificial intelligence will help us to understand the concepts behind Artificial intelligence. We can also learn about the various topics such as history of AI, growth of AI, AI in India, applications of AI like manufacturing and production, security and surveillance etc. Nowadays, the technology is growing drastically, and we are getting introduced to different new technologies. In today's world thetechnology has been changing rapidly.The artificial intelligence has been helping us with various industrial applications such as self-driving cars, playing chess, proving theorems, playing music, painting etc. AI has a great scope in future and holds a tendency to cause a machine to work as a human. The various researches have been conducted on Artificial intelligence.

What is Artificial Intelligence?

[1] Artificial Intelligence is the art of science and technology of making smart machines specifically the intelligent machines tocomprehend human intelligence, but artificial intelligence doesn't limit itself to the ways that are biologically noticeable. [2] Artificial intelligence is the ability of the system to analyse the data from external resources and to learn from that data and use itto accomplish some specific tasks through flexible changes. This can be accomplished through machine learning. Artificial intelligence can also be categorized into the analytical, human inspired and humanized.

History of AI?

[3] The thought of using computers and systems to simulate the smart behaviour was first coined by Alan Turing in 1950. He conducted a simple experiment called as Turning test to find out computer and systems are capable of smart behaviour.Six years later i.e., in 1956 John McCarthy described the term called as Artificial Intelligence as the science and technology of making smart machines. The advancement of AI made the algorithm more and more complex to simulate the human behaviour. [4] The George Boole was the first person to define a language for logical reasoning in 1847. Later in 1943 the model of artificial neurons is created by Warren McCulloch and Walter Pitts. In 1944 the theory of decision is determined by J. Neumann and Morgenstern.

Growth of AI

[5] The electrical and electronic waste are being discarded every year without recycling it.The Artificial Intelligence is used in waste electronic and electrical equipment treatment. It analyses the previous year to year data and provide the best solution for recycling the e-waste without effecting the environment. Nowadays with the e-waste are being in constructions. [6] The robots can be controlled using audio communication interface with artificial intelligence and deep learning. The robot can detect voice commands with speech recognition and perform certain specified tasks given

by the user.It can also speak and when the right set of instructions are given to it. It can also be used as an infotainment unit.

AI in India

[7] AI is being used in chatbot to enhance student learning experience in learning. The AI chat botis a software program which can reply to the students without downloading any application through messaging platforms and websites using natural language. [8] The smart city is being built on AI in India which can control and monitor the transport by showing the entire segment to the public so that they can choose the path that they want to travel and it is also used to watch over the electrical systems such as using the smart meter. [9] The energy demand in India can be estimated using artificial immune system which is based on the input variables such as population, gross domestic product, gross domestic income. It can be modelled based on the previous year's data. The results are compared with the electric power survey of India. [10] The automation of cooking and baking can be done using artificial intelligence and IOT. The usage of robotic arm can easily reduce the work load of the workers and mass produce along with a constant taste. It can also provide an update on each work performed using IOT.[11]The AI based food ordering system has been developed so that people don't have to rush and wait for the food. The food can be delivered to the location using a third party.The AI can give food recommendations to the users which are popular among the other users.

Various Place Where AI is Used

[12] The AI is being used in health care which can save lives which is mostly related to IT such as better decision making, imaging, medical history of the patient, reduced duplication of the diagnosis, better reliability of medication and preventive health initiatives.[13] In tourism sector the AI is deployed for smarter customer experience management. It can be done by tracking their location through GPS and giving them suggestions based on the ratings given by the previous users who went to the same location.[14] The AI is being used in search engines for search recommendations. The AI will give us the various recommendations based on the previous search history of the users. The AI can also be used in various platforms like online shopping, social networking and digital marketing.

AI in Healthcare Appliances

[15] In pharmaceutical industry the AI is being used. The recording of the patient's prescription and checking his medical history every time is quite difficult for the pharmacist and sometimes the data will be lost. The AI is deployed here which instantly records and identifies the patient's medical history and provide more accurate medication.[16] In health care the Artificial Intelligence assisted system can support the patient during an emergency medical situation to process through his medical history and identify the early detection of serious diseases.By using the smart assistance system, we can generate the reports which is used to identify the diseases at early stages. [17] In many hi-tech hospitals the AI is used for the patients care. The AI can diagnosis the patient condition and provide the best suitable treatment which can save the patient's life. The right treatment can also save a lot of money by reducing the cost of it.

AI in Manufacturing and Production

[18] In order to increase the manufacturing raterapidly on the supply and demand basics the new method has been developed using AI called as cellular manufacturing by endocrine mechanism. In this method the machines will be divided into manageable unites with autonomy.The advantages of cellular mechanism are flow time reduction, cost reduction and performance improvement.[19] The AI can be used for smart manufacturing and 3D printing for inhouse appliances. It can be accomplished by AI cloud-based manufacturing. The 3D printer can print everything if right amount of data is provided.The 3D printer can print leather products, shoes and clothing items. It can be used for wooden furniture and other appliances. [20] The Artificial Intelligence is used in chemical monitoring and prediction system in semiconductor industry. The slit change in process can leads to equipment contamination. That's why this method is used to avoid such mistakes. It can be used to alert the manager when the limit exceeds. It can helpful to monitor, predict and alert the respective individual.

AI in Security and Surveillance

[21] The AI is being used in video surveillance where the drones are deployed for traffic monitoring, crowd monitoring, fire control, civil surveillance and border security. In traffic monitoringthe drones are used for traffic monitoring and to track the vehicles. It is used in crowd control where they are used to monitor the crowd and predict the pattern and progress for identification of illegal activities. In fire control where the drones deployed in fire supressing operations where the drones are used to gather information for firefighters. Recently used in Kansas. It is also used in civil surveillance where they are used in monitoring the streets for identification of crimes also to prevent the crimes from happening. In border security the drones are being used for surveillance the border lines. It is recently used in China. [22] The AI is used in intelligence and warning system which is a protocol to monitor, detect and avoid terrorist surprise attacks and also to protect critical infrastructure and key assets. It is recently deployed in USA. [23] The AI based surveillance is being used in banks for theft detection and tracking using deep learning. It is based on image processing and object detection. The suspicious activity will be reported to security personnel.

AI in Education

[24] Artificial intelligence is used in assessments of students and schools like adaptive learning methods and academic analytics. Grading and evaluation of paper and exams with image recognition, computer vision and prediction system. Personalize intelligent teaching with data mining, intelligent teaching systems and learning analytics. Online and mobile remote education with edge computing and real time analysis. [25] The Artificial intelligence will impact education by providing software's that are able to personalize the students learning experience that can identify their strengths and weakness and provide them a solution towards learning curve. [26] Artificial intelligence is being used in intelligence examination system for monitoring the students during the examinations to prevent malpractice. It can also be used in virtual reality which is a combination of multimedia and simulation technology.

Advantages of AI

[27] The Artificial intelligence can be used inn weather forecasting to predict the weather conditions. Previous data is provided to the AI which will analyse for patterns and predict the future

weather conditions. [28] The AI can complete complex tasks faster than humans which can also be used to discover unexplored things like the outer space and it can implement any tasks instructed by humans with less errors and defects. [29] The AI is used in medicine where predictions are important. It can diagnose the patient and make predictions based on the medical history of the patient which can be used to identify and treatthe diseases at earlier stages.[30] Artificial intelligence is used in data management. It is useful for gathering and analysing of large amount of data to improve efficiency of the algorithm. It's being deployed in healthcare industry.[31] AI can be used in fraud detection which can be done in banks to ensure security. The various techniques like deploying of cameras for facial detection in banks when they are closed which can detect the person and sent an alert notification to the police.

Challenges or Dis-Advantages of AI

[32] If a greater number of hidden layers are used in AI deep learning on one side it provides a deeper analytical method and on the other hand by adding multiple layers will increase the computational complexity. [33] One of the majorchallenges in usage of AI in cybersecurity is the security of the system which can be easily hackable. Nowadays in order to avoid and protect from cyber threats in real time many measures have been taken. [34] The main goal in AI is to automate everything. The major issue is to develop a method which exactly work like the human brain. Here the data is divided into smaller parts but the main problem is to handle large quantities of data. [35] The challenges in machine learning are the high dimensionality and need for programmability both will result in increase in computational and data movements. It will create a challenge for energy efficiency since data movements cost more than computation. [36] In forensics there are many challenges for the Artificial intelligence. The previous crime data has to be loaded to the AI so that it can analyse the previous cases and give us a clear view of the crime but nowadays every crime is different and the data will vary for every crime. It's becoming complex for the AI.

Conclusion

The AI has made a significance change in the wide range of areas with various application like agriculture, health care, surveillance, education, manufacturing, security. It completely changed our perspective towards the nature of intelligence. Nowadays the Artificial intelligence has been relacing the human intelligence. The complexity of the algorithm has been increased with further development of AI. This is not the end for AI there's more to come from it.

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ARTIFICIAL INTELLIGENCE

KANNEBOINA HAREESH
M.TechVlsi Design
Email ID: Kanneboina.hareesh2021@vitstudent.ac.in

Introduction

The Artificial Intelligence has gone through many phases of construction in theoretical and practical aspects since 1950s and is still being developed to meet the present world challenges. The AI is considered as a fiction and is used by writers and Authors to describe a most advanced equipment builtwith electronics that capable enough to process and propose solution to real-world scenarios, AI is being deployed into all sectors creating an industrial revolution, some of most commonly used Algorithms such as Linear regression (LR), Natural language processing (NLP) and few other in Health sectors, educational institutions, Government offices to thrive and make most of what's available in short span. AI induced Robotics are future as more sophisticated sensor are being developed to interact more effectively with nature and us.

What is Artificial Intelligence

[1] Artificial Intelligence is the ability of making computer to accomplish complex tasks that are processed by humans' intelligence in way how machines capable of performing it rather than approaching as humans without external control or instructions, but with help of data collected by enormous sensors. [2] In other terms AI comes under the field of Data Science & engineering which has huge computational understandingconsidered as intelligent behaviour and by presenting of artefacts that exhibit similar behaviour.

History of AI

[3] From mid 90s industry is started shifting towards digitalization of information, control and communications systems. There by starting with Internet is getting popular on large scale networks and its applications created the path for interconnections of smart things as sub network like a cluster. This led to collection of huge amounts of data resulting in evolution of Technologies like Big data, Internet and intranet for industry and for commercial use started in Mid 1990s.As current trend the Big-data, cloud Computing applications led to development of AI technology.

[4] AI history somewhat closer to the philosophy and fantasy, we can relate it to science fiction, After the invention of calculator many science fiction writers started imagine how human life could be with Robots and AI, created beings like golem in Jewish and marry Shelly's by some of famous science fictions inspired many AI researchers to think of bio-inspired robots and dolls. Then late electronics and machines are getting sophisticated and make the above things possible.

In 1997 the first major milestone was the deep blue program designed to play chess had won over the world chess champion (first program structure framed by Claude Elwood Shannon's 1950).After World war-2 there's rise of Computers development in Alan Turing's Laboratory, IBM and bell Laboratories. Though publics believed that robots as Intelligent Computes in 1940s computers that demonstrate calculating power are called as "Giant brains". By 1944 Herb Simon had proposed a definition of AI as Information-Processing and symbol manipulator of psychology.

We have got computational power to build and test small AI algorithms that involving experimental psychology, biology (neural networks by W. Ross Ashby and Warren McCulloch and Walter Pitts).American Association for Artificial intelligence (AAAI) was founded in 1980 to help the scientists and community members working on AI. It has a Digital Library having resources of all AI related research and professional content and many published papers. It also published magazine worldwide for 25 years called as "journal of record for Artificial Intelligence".

AI in India

[5] India have begun releasing national policy for AI as all other countries based on the requirements, they are tentative depending upon relations with other nations where OECD have launched to keep growth of AI on constant surveillance to make sureit's going as per policies.[6] For last five decades AI is in Vogue, now they're capable of controlling the information we view in social media with machine leaning and other algorithms. The influence of AI is great that it is being called by term 'new electricity'. As Government and Industry shifting towards using these technologies as they're capable of finding patterns or solutions using historical data thus giving more accurate results.The Union Government had provided funding for R & D, training and skill development in technologies such as AI, Data science etc in 2018. The Union Government's Digital India initiative is aimed at transforming India into a 'digitally empowered society and few other under cover of 'Digital India programme'.

[7]Artificial intelligence in India's healthcare sector, most contribution is from start-ups which are providing doctor consultation like personal healthcare system and it's not only confined to single area but is being induced in health services, drug industry and in few other areas. When coming doctor consultation till now it helping with ', echocardiography, screening retinal care, dermatology, diagnosis process, neurology, surgery etc. This will be filling the gap of demand for doctors partially and relaxing the health care works and system, as per WHO reports India require 2.3 million doctors by the end of 2030.

[8]The air pollutants in Delhi are alarmingly high compared to other metropolitan cities across the globe. This air pollutants such as CO_2, NO_2, SO_2, PM2.5, other particles combinedly effecting the quality of Air further lead cause to rise in respiratory disease and other cancers in public.The Particulate matter (PM) deciding the Air Quality Index which is being calculated hour to hour of past data to extract patterns, factors that could affect PM in air such as wind, rainfall, temperature, moisture content etc. An AI based on 'Neuro-Fuzzy' (NF) techniques are used and comparatively to other traditional methods this proven to be quite efficient in early detection and prediction regarding rise of AIR quality index.[9]The municipal 'waste management system' has integrated AI and forecasted the solid waste generation. Neuro-fuzzy and artificial neural network system combined with few other systems are used to predict the amount of solid waste is being generated as collection and management of solid waste in metropolitan cities is a touch nut due to limited resources. This study has been conducted in New Delhi to obtain the solid waste generated per day.

Various Place Where AI is Used

[10] AI in education applied primarily to fill the gap of teacher to student ratio where this can be achieved using three basic approaches which we will be discussing in applications, when it comes to library management with recent implementation of AI in Iran has seen a tremendous development in

Recommender system (RM) by make use of student or user log data & improved algorithms and less growth towards "Natural language processing" these are final conclusions stated by analysing through "Exploratory factor analysis (EFA)". [11] Health care sector is one the prime field where AI is rapidly evolving, current models are being trained with enormous amount of data where if they provideinadequate data will lead to wrong diagnoses results. [12]In this pandemic the government of China implemented AI to keep constant surveillancein public places by Deep learning face detection algorithm to observe and implementing covid norms by public. This also helped to detect early raise of covid cases with help of collected data and statistics.

Growth of AI

[3] From mid 1990s the development of AI technology took place where in recent two decades it seen a tremendous growth around the world creating new Industrial revolution as version 4.0. Developed nations such as United stated, Germany have developed their strategic plans and policies that promote the Partnership of Advances manufacturing techniques with help of AI, UK is currently developing UK Industry 2050 strategy, similarly France started its new industrial France program, Japan and Korea has society 5.0 and Innovative 3.0 programs respectively as part of their Integration of AI into public and industry sector. [4] AI have been undergoing lot of development from 1940s to present, first AI car won DARPA challenge in 2005 made it clear that AI is not restricted to branch of robotics, it had grown to stage that NASA's Mars rover is one of the Autonomous vehicles that is driven by itself on other planet by aware of its surroundings.

AI in Healthcare Appliances

[13] Cardiac vascular is the most common disease in present generation as increase in consumption of junk food, low grade street food which are leading to blood clots in artery which in turn causing cardiac disease and heart attacks. Treating a cardiac vascular patient involve in Artificial respiration which require regular monitoring that is achieved with help of integrating many devices such as Ventilator, ECO, ECG machine, Oxygen concentrator. The AI helps in monitoring and controlling the oxygen levels of patient on Ventilator with help of data provided by ECO and ECG machine, to do so the system initially make some assumptions of data and diagnose the patient, through this health unit can provide best health care to their patients. [14] In present generation with the advancement of technology from wrist bands to laptops are collecting lot of data such as heart rate, network usage and so on, in field of dentary the information and data of patients collected is also increase drastically, processing of such huge amount of data by Artificial Intelligence integrated software helping the dentists to Identify and treat the patients more accurately in less time by spending less time on analysis. The AI induced in smart devices also creating awareness in people regarding oral hygiene and other common dental diseases.

[15] Development of ultra-Sensitive Pressure sensors have its negative effects such as Recording of False values or inaccuracy while taking measuring. The rapid growth in electronics lead to development of Pressure sensor receptors that are capable of processing large area, consume less power and flexible which can detect pressures our human skin cannot detect. These are used in robotics, human assisting machines, biomimetic prosthesis, this also helped in advancement of AI. The Data processing by AI is making the idea of creating E-Skin possible with addition of

Temperature sensor in between the flexible pressure sensors that are arranged in matrix or array fashion.

AI in Manufacturing and Production

[16] The latest manufacturing methods and logistic systems are making use of concept of computer networking, hence resulted in generation of huge amount of data by different sensors and smart devices which are being analysed using big data techniques with enhanced capabilities of AI Algorithms. This led to new revolution in industry know to be industry 4.0, every Industry around is trying to integrate AI with IoT, to change the general methods of research approach. Hence Industry is planning to train the AI using the data collected by real-Time sensors and apply it in actual production to supervise and use fault detection systems.The industry experts have addressed 9 papers out of 61 special issues in production R&D community. All the papers can be categorised into three, they are, make use of AI in development of Semiconductor Industry, AI methods to improve the present manufacturing and maintenance, AI techniques to provide with new manufacturing techniques.

[17] The Machine learning is Subset of AI which is associated with collecting and processing of bigdata which helped in integration of methods such as Augmented Reality used for maintenance, Additive manufacturing to improve fault or defect analysis, IoT for Cyber-physical systems.[18]AI based Scheduler tool have seen a huge success in implementing in Industry by optimizing time for manufacturing and avoiding the human intelligence and labour in Research, Tech giants such as Intel and Texas Instruments have built their own system of AI based schedulers for solving scheduling problems in manufacturing engineers.

[35] A Smart factory at present era consists of numerous sensors dealing with numerous inputs and to calibrate the system at all levels to obtain a desired outcome is something challenging as we speak of sensors in hundreds of quantities. All the systems are fully connected and driven by a central system or an individual unit which are controlled using ML and AI algorithms to improve the quality and for time-cost efficient product with help of all raw sensor data.The addition of AI in industries is considered as 'Industrial Revolution 4.0' by Germans i.e., they stated digitalizing entire chain line/queue. These are not such easy task to come around and researches are still being going on to utilize, maintain and operate the system. This is long term process might take decades to get fully functional. The industrial revolution deeply connected to the rules that are framed while following a manufacturing process which decides the process flow and making the theoretical analysis come true.

AI in Security and Surveillance

[19] After the 9/11 incident the US government has decided to introduce the AI in security and early threat analysis to safeguard nation from terrorist threats and attacks. Any terrorist activity cannot be done without some financial aid, on-site information, every terrorist attack has patterns in it which can't be observed or seen by an individual or a system its time consuming and greater chances of human errors because of huge amount of data base. Every organization or every public data including all the travel information and other purchase information are feed to the AI, and it then analyse the data and try finding patterns in attacks and gives the clear picture on possible attacks, weak security areas. [20] Artificial intelligence is increasing rapidly from past decade all around the

world. AI is improved to a stage where it can create deep fake videos that it's hard to identify what's real, Algorithms advanced such that they can beat best player in multiplayer games. AI is used in city surveillance to monitor traffic, to capture photos of vehicles that violating traffic rules and government is capable of tracking and monitoring of individuals /systems.

[21] Emotional AI is being commonly used to gives the emotional state of a person as AI is now developed to state where it can detect general item, we commonly use every day now they moved a step ahead and made it recognise the emotions of people to improve the workplaces, Hospitals, classrooms and at other social event areas or in a community to understand the Audience more precisely. The AI is bound by the Strict privacy rules of use of data about emotions.[33] non-technical loss (NTLs) such as Less precise and less accurate system/meters, errors while billing and electricity theft are some of the NTLs. Artificial intelligence can be used to detect such NTLs, which will save economy of countries around anywhere between 20% to 40% of total distributed electricity. Some of the common reasons for NTLs are meter tampering, current bypassing, Connection with out a proper meter, broken or damaged meters and human errors that might result in fowl values. The AI is used when it comes to credit card frauds and other communications frauds as these also come under NTLs.

AI in Education

[22] In Education, AI is mostly concerned with methodologies for engineering systems that helpful for human teaching and learning. The research motive of AI in education is to build a powerful teaching system that can understand student behaviour and increase the efficiency of teaching by begin selective while picking a topic. There were three research goals set by research scholars, Use of AI and cognitive science techniques which is related to problem solving, second is teaching and learning domain involves in implementing innovative techniques and opting teaching based in mental grasp power of pupil and third involves in Analysis of students and to demonstrate their completeness and accuracy and suggest the areas to be improved. [23] From Past two decades the department of Information technology and computer science has seen a tremendous growth, with addition of AI the field of AIED (AI supported education) has begun back in 1980s and now with advancement in technology It can be implemented for problem solving, or can be used in EDA tools. [24] AI will make overcome the long-term goals possible in education. Mentor for everyone who's participating in learning, anyone can access global classrooms, getting experience on 21st century tools and skills.

[36] Education is being sorted into six fields for integration of AI they are 'knowledge base' which have all the resources a course might need, 'Real-time Analysis data' will have all the real-world applications related to that particular area, 'Natural Language processor' which is used to communicate with the student as well to understand the content available within knowledge base as most of them are Human read language. 'Intelligent teaching system' this will ensurethat the content is properly being delivered to the students or its being misled. 'Intelligent teaching system Authoring sheets' which ensures that there's no need of prior knowledge of any programming language to communicate with AI. The last system is 'Distributed Control' which ensures that everything is centralized.

Advantages of AI

[25] At present AI is not just that could able to project similar human intelligent but was able to apply complex behaviours system such as swarms, neural systems etc., used to solve problems that provide the advantage of process getting permanent, most cost-effectiveand efficient methods like AI is used in Internet search engines to provide better search results based on user search patterns.

[26] Artificial Intelligence can be used to save life with early predictions of any natural disasters that might occur in near future. In seismology with help of "short (long)-term prediction algorithms along with availability of past few centuries datarelated to earthquakes and their magnitude, focus and several other factors are helped to predict and forecast to avoid natural calamities.

[27] AI is Inter-disciplinary and now it's being applied everywhere possible to avoid hardworking of humans. This in turn helped in reductions of human errors by huge amount and time to finish a job is cut down with the automation using AI. The main goals of while building an AI to learn, think and problem-solving skill come in handy. In transportation, health sectors, social media and e-commerce by providing the customizes results.

[28] when it comes to Quality assurance there were several thousands of methods to make sure quality of item or product is being met. While building energy system, AI can be helpful to diagnosis and detect faults in it by developing FDD (fault detection and diagnosis) methods. All the methods are can be classified based on two categories,data-driven or knowledge driven. The data-driven approach is highly dependent upon the training data and experts' knowledge on how the data to be processed.

[29] AI can be addon advantage in health sector, it can help reduce the mortality rate of people by early detection of underlying problems. Time is crucial factor that decides everything in Fields like this, with advancement in current technology have pushed the boundaries of AI to early detection of a problem by training AI algorithms on huge training data. Like Colonoscopy for diagnosis of colon (CRC) (large intestine) and rectal diseases, speaking of mortality rate is a high at 12% out of 100000 people.

Challenges or Dis-Advantages of AI

[27] The use of AI might not be a good choice thought there will be increase in accuracy, time optimization and rise in standards of production, replacing the human labour/ staff with AI will lead to rise of unemployment in many industries leaving us no choice but to regulate the use of AI, also its not economic as the equipment is expensive to build, repair or to maintain. When come to management issues the machines cannot develop bond to participate in team management.

[30] The use of AI to filter out job applicants might not be a good choice as people abuse the system and company might find inefficient candidates can lose potential candidates. AI in field of medicine is helping countless people by providing better diagnosesthan a professional doctors in most cases yet if it fails the cost of failure to identify proper treatment is high and with advancement in AI such as facial recognition without proper regulations will put privacy of public at risk. The designed algorithm is not promised to be fair as it was begin designed by a programmer and also biased training data will lead to wrong interpretations.

[31] AI will be working with huge amount of data if it misleads that could lead to disastrous event. It totally dependent upon the programmer's creativity while designing Algorithm. The also making upcoming generations lazy as dependency on automation is being increased for working

professionals it might come handy making more out of something but for younger generation view on system might get limited dependent upon way one learns.

[32] It can be seen that AI is boom in the past decade, there are consequences of the use of robots that work with AI in daily life. As the technology is far advanced but not affordable makes the use of robots with AI everywhere in field of education looks like fantasy that might be achieved someday which is not near and many difficulties have been reported by experiment conducted in the Bogotá in Colombia by over 140 teachers on students doing their masters and concluded that its hazardous to use AI in education and as well in other fields. As the lack of emotional interactions robots thought they're build with AI might not be good at monitoring students individually as potential and emotional sensitivity of each student will vary.

[34] The AI are capable of diagnose cancer more precisely than ever compared to a professional, also capable of detecting breast cancers and can provide diagnosis report can be considered as second opinion. While till now its still evolving and the patient's privacy safety is not guaranteed as of now, while rigorous testing has to be done on large chunk of data to make sure the algorithm is trained properly.In accurate data provided by unexperienced user might led to wrong diagnosis will be a fatal failure of the system.

Conclusion

The Artificial intelligence technology is helpful in addressing the most common challenges to complex ones if designed considering all possible cases, the area of its applicationwill be decidedcombinedly dependent upon speed of Algorithm, environmental factors and available hardware (based on fact that the system is a budget friendly or the top-notch system). Though it designed perfectly there could be bias induced based on training data feed to system which can be filtered if identified else will lead to a disaster depending upon scale of implementation. In present day scenario with requirement of huge data processing AI is boon to programmers or any other communities working upon Big-data will be concentrating only upon shaping Algorithm to be more efficient.

The future is highly dependent upon AI as it is tool to achieve milestone in short span as of now there's enough data to identify key patterns, with development of devices with dedicated inbuilt AI and ML systems are being huge advantage in terms of performance and security concerns. This led to almost every sector which are being digitalized are shifting towards integrating AI into their system for better accuracy and efficient work flow in an industry.

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ARTIFICIAL INTELLIGENCE (AI)

ROHIT VAZE

M. Tech. Embedded Systems
Email ID: rohitpradeep.vaze2021@vitstudent.ac.in

What is Artificial Intelligence?

[1] ArtificialIntelligent (AI) is a part of computer science where you can create intelligent machines like robots who think, behave and make decisions like humans on their own without any human help.[2] Intelligent computers programs are part of science and engineering of making intelligent machines. AI does not restrict itself to methods which are biologically observable and unlike AI intelligent machines has similar task of using computers to understand human intelligence. The block diagram of AI is as shown below
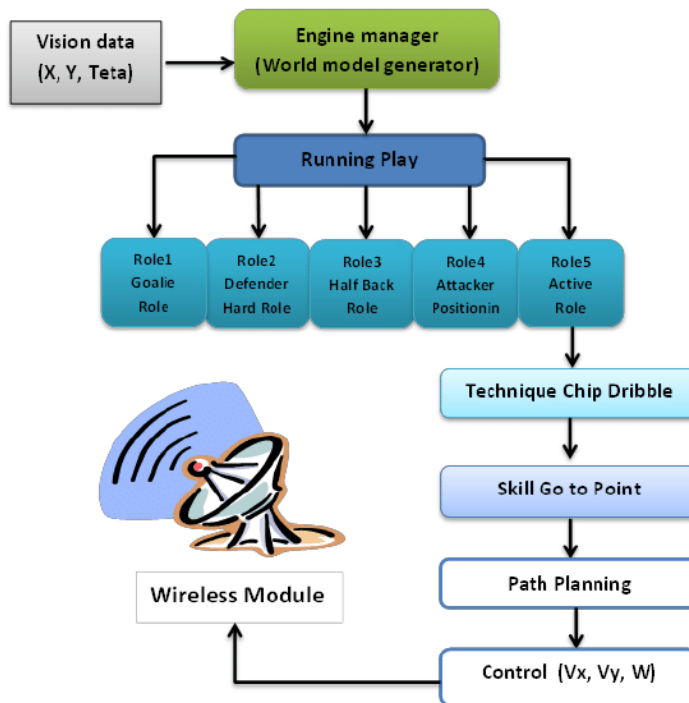
History of AI

[3] The history of AI is full of fantasies, possibilities, demonstrations, and promise which started with Homes, a Greek author who wrote of mechanical "tripods" waiting on the gods which some imagined mechanical servants are part of our culture. However, after half a century AI community start building some prototype of machines by inserting mechanisms of thought and intelligent behavior which formerly existed only as theoretical possibilities.[4] The first International Conference (ICAIL) was held in Boston in May 1987 on AI and Law and since then it has been held every odd year which led to many fantastic and key ideas in development of today, AI.
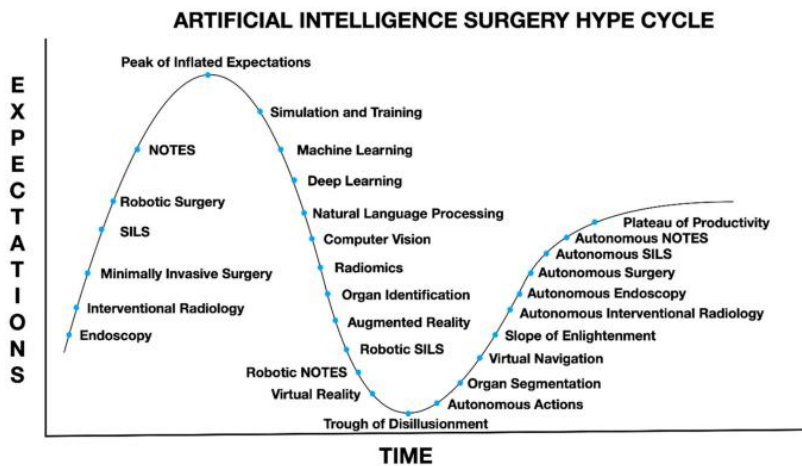
AI in India

[29] AI in India will be provenas wonderful solution to eliminate India's problem of infrastructure and bureaucracy.[30] Due to AI based tools in business operations, the global market as well the India stock market will increase in upcoming decade.

Various Place Where AI is Used

[31] High-income countries like USA, Russiaholds high profile meetings to use AI to reduce the poverty and improve the health outcomes in resource-poor settings.[32] The various models of AI and its applications in various urological conditions such as urolithiasis, pediatricurolithiasis, pediatricprostate hyperplasia (BPH), renal transplant, and uro-oncology.

AI in Healthcare Appliances

[7] AI has become an important assisting tool in many healthcare appliances and has given better conclusions in many functional medicinal areas like cancer, neurology and cardiology.[8] One of the important applications of AI in Healthcare appliances is using Cryptographic Systems using Internet of Things (IOT) using Robust Encryption Algorithms against Side Channel Attacks which helps to protect the financial and medical records data of hospitals. [9] In 2018, Google has created an AI research branch which is called as Google Deep and Health project which is to maintain a medical statistic which help to provide best and excellent health services.[33]The below diagram shows how AI robots are use in medical surgery.

ARTIFICIAL INTELLIGENCE SURGERY HYPE CYCLE

EXPECTATIONS (vertical axis)

- Peak of Inflated Expectations
- Simulation and Training
- NOTES
- Machine Learning
- Deep Learning
- Robotic Surgery
- Natural Language Processing
- SILS
- Computer Vision
- Radiomics
- Minimally Invasive Surgery
- Organ Identification
- Augmented Reality
- Interventional Radiology
- Endoscopy
- Robotic SILS
- Robotic NOTES
- Virtual Reality
- Trough of Disillusionment
- Plateau of Productivity
- Autonomous NOTES
- Autonomous SILS
- Autonomous Surgery
- Autonomous Endoscopy
- Autonomous Interventional Radiology
- Slope of Enlightenment
- Virtual Navigation
- Organ Segmentation
- Autonomous Actions

TIME

## AI in Manufacturing and Production

[10] Intelligent manufacturing is a new way of manufacturing technique with the help of technical means through which new information and communication technology, large manufacturing technology, science engineering technology are integrated into whole system.[11] Smart manufacturing is new and updated version of intelligent manufacturing with the help of next generation called AI 2.0 which enable rapid manufacturing of products, quick response to need of products and real time optimization of manufacturing technology and its production.[12] Modern manufacturing and logistics systems has powerful computing networks which has prevail ways for Big Data to store easily, analyzed faster, understand more deeply and broadly with the help of new

age of AI known as Industry 4.0. [5] The below table shows how the investment in AI startups has been increasing and the observation indicates the finding which was reported by MGI report in year 2017 tells us AI startups has grew by 40% between 2013 and 2016.
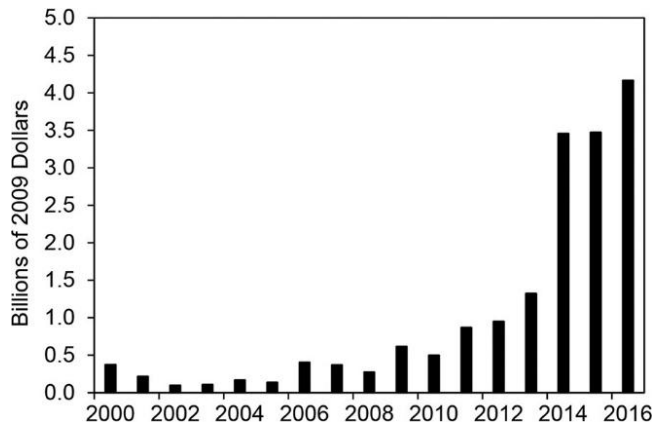
AI in Security and Surveillance

[13] AI in Surveillance helps to identify deep fake videos that blur the line between truth and falsehood and helps the city officials to monitor traffic congestion and oversee smart energy metering. The below diagram shows which countries had AI Surveillance Technology Originwhichhas become a blessing for world.

MAP 1
AI Surveillance Technology Origin

- US TECHNOLOGY
- CHINESE TECHNOLOGY
- US & CHINESE TECHNOLOGY
- TECH FROM OTHER COUNTRIES
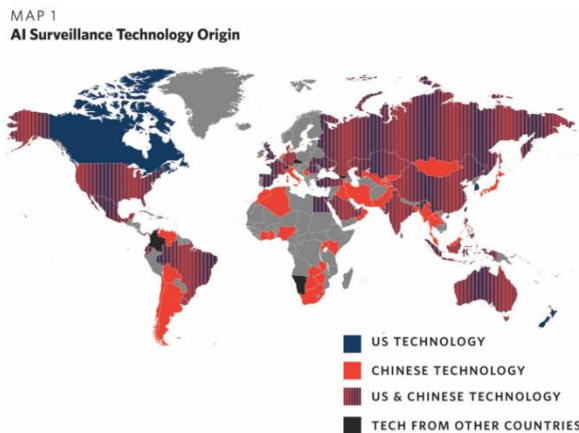
[14] Due to AI in Security and Surveillance, countries like China are exporting their high tech surveillance models to particularly to countries managed by regimes with poor human rights are weak or with poor democracy.[15] AI is also used in Mass Surveillance System for monitoring Covid-19 patients regarding their social distancing, wearing mask and body temperature which is based on BCG Healthcare framework using 5G network's low-latency, high-bandwidth functionality and to detect Covid-19 using chest X-ray or CT scan images.

AI in Education

[16] Intelligent tutoring systems may look like apowerful system, but for students to teach concept and design, it is the best systems because of its several interdependent components.[17] AIED (AI in Education) depends on both knowledge and algorithm from which knowledge comes from the world and algorithm is how efficiently it processes the knowledge.[18] The below figure shows howAIEd research will solve the educational problems by creating new systems and by building up student's basic knowledge.

Advantages of AI

[19] AI computers reduce the complexity of program, improve the performance of algorithms, decrease the complexity of data to be processed.[20] There are normally several adaptation possibilities for a system who inferred some user properties.[21]AI has become an important tool in advancement of modern animal production by improving their genes and reducing the sexually transmitting diseases between them.[22]AI in electrical machines in such a way that fault tree was developed on basis of physical behavior of electrical system to obtain the pattern characterizing the faults.[23] AI bring a significant change in poultry as it will easy for poultry farmers as well for poor villagers due to its economic gain point of view. The below table shows the robot shipments in US between 2004-2016.
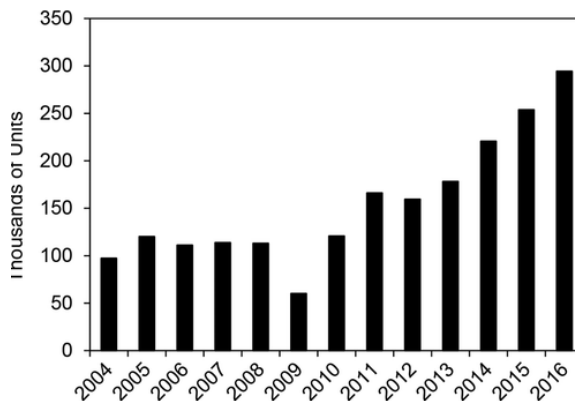
[6] There are three findings which will helps us to broaden our understanding to how AI will affect the global economic activity and will have potential race between major companies around the globe for profits, shares and labor markets.

 a. AI will impact the global economy market
 b. The economic impact may increase linearly and will visible over the time.
 c. It will increase the gaps between countries, companies and workers.

Challenges or Dis-Advantages of AI

[24] The disadvantages of AI in education system is that a robot lack emotions which will generate disconnection between student and teachers emotions.[25]AI based trading depends upon the quality of input data which keep on changing according to market which differ the outcome and hence the result cannot be trusted wholly.[26]The challenge faced in AI based clinical cancer is that result from diagnostic and prognosis performance from computer using ML can run the risk of overfitting over training data which easily degraded performance in certain settings. [27] Adaptive filtering of

several microphone signals removes the potential interferes in adaptive beamformers which is extension of differential microphone arrays has to adapt again and again.[28] The challenge faced by using AI for Twitter commentary against Women candidates in elections by judging their family and professional life.

Conclusion

AI play an important role for human society in terms of infrastructure, eradicate poverty, providing education and make a sustainable life for humans. It has a promising future which will change thelifestyle of human race. It has advantages in many aspects of life but its biggest disadvantage is its security which needs to improve every day to protect it from external attack. It has made education to reach rural areas easily. It play an important role in improving the medical techniques for incurable diseases. It has been a big help for production and manufacturing of vehicles in automobile industry.

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ARTIFICIAL INTELLIGENCE

VISHAKHA BARAI
M.Tech Embedded Systems
Email ID: vishakha.dnyaneshwar2021@vitstudent.ac.in

What is Artificial Intelligence?

Ans- Artificial Intelligence is a specialized area of study of Computer Science field in which the intelligence is explained using machines and software[1].Artificial Intelligence is the ability of system who process the external information and learn from that to execute tasks and specific goals [2].

History of AI (Artificial Intelligence)

Ans – The development of Artificial Intelligence technology is a result of inventions in engineering field. Artificial Intelligence is founded using programs, designs, programming languages, theorems [3]. Artificial Intelligence was introduced in1950, which had certain limitations at that time in models. These limitations were overcome by deep learning. Now it can solve any complex algorithms through self-learning technology [4].

AI in India

Ans – Artificial Intelligence revolution comes through societies and enter in daily life. AI role is a considerable in growth of India. For India ,AI act's as a catalyst who accelerate the progress in industrial and manufacturing fields[5].AI transforms the way we live and work. AI acceptance is consider as 4th industrial revolution ,due to its high potential. To improve the life many applications have been developed or under development. Due to AI there is a growth in industrial and manufacturing fields, hence it is helpful in annual economic growth rate. As everything will be automated using AI , it is possibility of loss of jobs[6].AI is an emerging technology in Inida. The existing policies process intend to encourage development of AI in India for economic growth and social good. There is also some limitations and risk factors consideration for development of AI applications. The framework is propose ,byanalysing three main stages of bringing AI to deployment – the data, model and application which is written against the backdrop of India's current AI policy landscape and the proposed framework applied to ongoing sectoral challenges in India [7]. The developing technologies, economical and environmental changes generated interest of man in creating smarter and safer world to live in. Now the smart cities projects are coming in existance in India. Smart cities not only improve the lifestyle of people but also helps to make society stronger and cohesive [8].Delhi has been listed in worst performer across the world w.r.t the presence of alarmingly hogh level of haze, residents suffering from respiratory diseases, lung cancer, etc. The methodology is developed using AI to measure and store the data of pollutants like CO, O_3, NO_2, SO_2, $PM_{2.5}$ as well as meteorological parameters (pressure, temperature, wind speed, wind direction index, relative humidity, visibility, dew point temperature, etc. The hour by hour data is monitored for that NF (Neuro-Fuzzy) model is usedwhich capable of forecasting the better haze episodes in Delhi.[9]

Various Places Where AI is Used

Ans – AI is useful as alternate approches to conventional techniques or as componets of integrated systems. It is useful in many fields to solve the problmes and due to this becoming popular day by day. AI used in to operate by way of presenting number of problems in photovoltaic systems applications. The AI design tool help to solve problems like forecasting and modeling of meteorological data, sizing of photovoltaic systems and modeling, simulation and control of photovoltaic systems[10]. AI is growing technology which is used in health care management system which is somewhat accurate. But it is most important that it should be prtable for a person. The health care system is called Heart Rate Measurement which is mobile based use to transfer and diagnosis based on heart rate just by clicking a button. System also consist of video conferencing to connect with doctor for any health issues[11]. In this digital era , data is acts as new oil and AI act as electricity. It is needed in different fields of operation management (OM) such as manufacturing, product development, services and supply chain. AI used in industries on six factors - job-fit, complexity, long-term consequences, affect towards use, social factors and facilitating conditions for different elements of OM by mining the collective intelligence of experts on Twitter and through academic literature[12]. The integrated robot system is developed by applying AI. The system consist of SDS-940 computer and associated programs controlling a wheeled vehicle that carries a TV camera and other sensors. It is developed for processing sensory data from the vehicle, for storing relevant information about the environment, and for planning the sequence of motor actions necessary to accomplish tasks in the environment[13]. The AI is used increasingly due to the complexity and rise of data in heathcare. Many AI systems is being developed for payers and providers of care and life sciences companies. There are many instances where AI is working much better than human. implementation factors will prevent large-scale automation of healthcare professional jobs for a considerable period[14].

Growth of AI

Ans – The development in AI technology started from year 1956. Which results in Machine Learning (MI), image and speech recognition, robotics, cognitive decision support system and many more applications get immerged using AI. Artificial Intelligence technology developed very much in medical field. Clinical Decision Support System (CDSS) is use to provide health assistance[15]. Artificial Intelligence is developed in countries like Europe, USA, India, China. The information Communication Technology (ICT) and Robot Technology (RT) is developed in AI. Where ICT is dependent on big data, lack a self-idea function and it is complicated. The recent technology is going to immerge in AI field is 'Brain Technology (BI)' that produce events without experienced them by using artificial life with imagine function. BI is going to use in automatic driving, medical field, industrial robots[16]

AI in Healthcare Appliances

Ans – Due to AI there is a huge innovation in medical science field due to which some life-threatening diseases get cured and mortality rate decreases. The Google Duplex Artificial Intelligence (AI) is used as personal assistance which helps people to give information. Using the sensors and Internet of Things (IOT) emergency module is developed for patients which helps caretaker or family members to monitor body conditions in state of emergency. With the help of AI

there is advancement in medical field. It is used in patients check –in process while visiting hospitals, maintaining patient's records, monitoring disease, assistance in surgical process, mental health therapy, optimizing staffing, image interpretation, billing[17]. Coronavirus disease 2019 (COVID 19) affected entire world. During COVID-19 the AI and Machine Learning (ML) played a vital role in healthcare. It is used for vaccine development, diagnosis strategies designing and predictions of disease spread. The real time monitoring system is used in hospital to keep track of health of patients using AI, ML, and Internet of Things (IOT)[18]

AI in Manufacturing and Production

Ans – AI technology is used to develop intelligent systems for industrial purpose and for private purpose. The AI is going to play significant role to produce electric drives. Knowledge Based System (KBS) is going to use for production of electric drives[19]. Currently the Chinese furniture production industries facing issues like low production efficiency, low accuracy, etc. To overcome this issues AI management system is installed in industries. This management system consists of expert system and transmission of information [20]. Production Schedular is developed with the help of AI. It uses hybrid push/pull approach for scheduling and utilize expert system technology to obtain feasible solution. The schedular used in multi-stage production, monitoring production level also provides dynamic rescheduling mechanism [21]

AI in Security and Surveillance

Ans – Camera Surveillance System (CSS) is installed in various cities, companies, schools, houses. However, CSS have some drawback that it stored limited videos recording and after that it get overloaded. So, to process the data Artificial Intelligence (AI) is used. The AI algorithm is developed in such a way that CSS process data automatically and with the help of AI the unwanted activities, objects get detected [22]. The Robotic team designed two robotics agents called Ranger and Scouts using Artificial Intelligence (AI). Where Ranger is used for transportation, supervising, surveillance, monitoring mobile sensor called Scouts. Scouts are deployed in labs, offices, security purpose and it detects the moving objects using cameras. Ranger communicates each of scouts and determine whether there is any issue/threat [23]. The system is developed using AI for sensing suspicious and task-oriented behaviors. This technique is also called as Advanced Computational Intelligence Technique. This system runs videos and monitor the task specific activity and behavioral recognition automatically [24]

AI in Education

Ans – The field of Artificial Intelligence in education is related to development of AI techniques for study human teachings and also for engineering of systems. Computational methods and Computational models are also used in AI activities [25]. The AI is used to address long term educational goals. It suppoerts challenges like mentors, learning skills, interaction data, universal access to global classroom, lifelong learning and for each challenege brief research is described [26]. The one of the educational challenge of next twenty years is digital automation of taching. The human-looking robots in classrooms is more for public stunt rather than for serious educational trend. In schools and universities around the world many other forms of digital automation are being implemented [27]

Advantages of AI

Ans-AI technology is helpful for human being. By using AI the hardwork of human is reduced . It can be used in healthcare, education, software development, pharmacies, games, engineering, communication and development. The advantage of AI is that the work is accurate and the time will be saved [28]. The AI is used in cloud migration. It transforms customers data , applications and services from original IT platform to one or more cloud environment. The goal is to improve the performance of IT system by reducing the cost. With the help of AI in cloud migration the cost is reduced [29]. Due to growth of networks and internet the number of users is increased. AI is implemented in all sectors. Using AI technology , traditional cybersecurity technologies and methodologies is also developed. AI and Machine Learning is being implemented in cybersecurity systems which is used in supporting intrusion and anomaly detection and other critical areas of network defense [30]. Many years ago Assisted instruction (AI) has used. It is used to bring the power of computer system to bring the power of computer system to stand on educational process. Now a days Artificial Intelligence (AI) is used instead of Assisted Instruction (AI) for intelligent Computer Assisted Instruction (ICAI) system. The AI is used to create computerized tutors which will shape the teaching techniques to fit the learing patterns of individual students[31]. AI is used in finance to learn and execute more efficient decisions and for improvement of performance. It is also used in cogitive science applications, robotics application, natural interface applications[32].

Challenges or Dis-Advantages of AI

Ans - AI is developing day by day. For updating AI everyday the both hardware and software also get updated with it to meet its latest requirements. So the machines needs maintenance and reparing which is quite costly [33]. M-learning uses mobile devices that have wireless connectivity. Due to this devices offers opportunity to learn anytime and anywhere. In several years there is a high penetration in mobile devices. Currently the mobile devices numbers globally reached 7.9 billion I.e. more than people on earth [34]. The computer imaging is used in cosmetic surgery. Now a days there is a growth in popularity in computer imaging system using AI. The disadvantages includes cost, user learing curve and potential liability [35]. Machine Learning is a subset of AI. It is a study and usage of mathematical algorithm which improve performance without any human interaction. ML uses past data as input and produce new values as output. It is used to complete many tasks but every task must required different algorithms and maximum accuracy for target results[36]. The face recognition techniques is developed using AI. The human brain can able to remember numbers of faces in person's lifetime. But it is very difficult for automated system to reproduce same results. The faces are complex and multidimensional which makes extraction of facial feature very challenging using AI [37].

Conclusion

Artificial intelligence (AI) is the very important aspect of our lives; from computers, video games, and even kitchen appliances. As humans, we have allowed AI to infiltrate our daily lives as they complete the simplest of task for us, however they are not completed to the best of their abilities. As humans, we are able to complete a task to the prime of our capacity through the combination of our experiences, emotions, and logic. On the other hand, artificial intelligence formulates a conclusion

through a series of mathematical equations, numerous numbers of code, and a series of zeros and ones in order to mimic our human capabilities of decision making.

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ARTIFICIAL INTELLIGENCE

SHIVALI SINGH

M.Tech. in CSE specialization with Information Security
Email ID: shivali.singh2021@vitstudent.ac.in

Introduction

Artificial intelligence is made up two terms one is Artificial and second one is intelligence. AI has large applications and many approaches that are used with different technologies.

AI means Design or create a system intelligent as Human and can behave intelligently is best possible way.
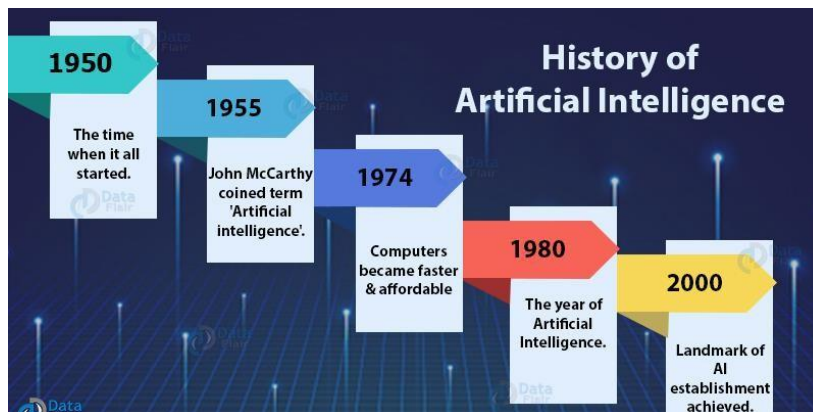
What is Artificial Intelligence?

[1] Artificial Intelligence is study of science and engineering and it is concerned with designing of intelligence in machines or systems. AI is expected to behave intelligently as human and behave in best possible manner, behaviors are reasoning ability or thought process.

Artificial Intelligence is made up of two terms one is Artificial and second is Intelligence. In AI we learn how to design machines, solve problems using algorithms and dataset.

[2] AI is one of the important inventions of human. Some new revolution in technologies is artificial Intelligence, virtual reality, robotics etc. All these technologies are changing Human life; AI has a important role in development. AI systems are used in face recognition, robotics, and natural language processing, medical diagnosis and in games.

History of AI

[3] In 1956, John McCarthy, Marvin L. Minsky (MIT), Nathaniel Rochester (IBM) and Claude Shannon (Bell Laboratories) worked on a summer research project on Artificial Intelligence.

Artificial Intelligence is first time used by John McCarthy in research and project idea was designing a system with human intelligence. Before 1956, AI was used in 1955 in military computing. After 1956 research, researchers worked on AI and what can AI do? Searched later. Now AI is used in language processing, chess, mathematics etc.

[4] The founding father of AI is John McCarthy and AI is first time researched by McCarthy. After 1956 government started funding in this field. In AI machine learns from existing data.

Growth of AI

Growth of Artificial intelligence in national economy system has broad range and it cannot be limited to use in specific companies. Firstly entire economy is scaled on and then searches optimal result of companies' balance sheet. In large business set target indicator, forecasting demand and supply, credit system etc. This way AI is used in National economy system.

These days no proper method to manage national economy. Artificial intelligence performs many types of activities like prediction, classification by using different algorithms in various fields of life. We target to find cervical vertebrae stages (CVS) using AI classifiers for development and growth and compare all algorithms.

In Orthodontic treatment AI's skeletal parameter affected by growth and development also changes transversal and sagittal in patients.

AI in India

[5] On large scale, AI based applications have been adopted by private sectors and focus in consumer goods. Indian government is trying to increase skills of all Indian so that they can get a job easily and can attract global manufacturing to India, mainly focuses on young generation through skill India initiative, and other program is digital India initiative to expand digital access. AI will have a direct impact on these two initiatives in future. AI should be taken seriously in upcoming technology in India and for national strategies.

India is taking maximum advantages from AI revolution. India should make a policy to drive AI innovation, adaption in sectors of consumer goods and information services. AI technologies have potential to change economy of India and national security future, in absence of government policy.

[6] AI has been taken on the list of top priorities by Indian Government; It makes life easier and make society more equal. Now Union Government also allocates funds in research, training and skills in emerging technologies like AI. India's Digital India scheme. Government started to work with AI technology in India and promoting Indian as a global manufacturing hub.

NITI Ayog is working to produce national AI policy with direct Government's effort.

In February 2018, setup four committees to prepare a roadmap for national AI programmed, and committee are- data platform, skilling, reskilling and R&D and legal, regulatory and cyber security.

Various Places Where AI is Used

[7] Artificial Intelligence is used in various fields some of are following-

A. Gaming Industry

Gaming is one of the common application of AI and it uses in chess. Even these applications are not intelligent as human and use brute force algorithm and scans all possible positions every second So that can view all moves.

B. Heavy industry

These days Robots are common in used heavy industries and do dangerous works that human cannot do. Robots also improve the efficiency and work without taking a rest.

C. Weather Forecasting

For predicting weather, neural networks are being used. On the basis of past data or experience, analyses the data for patterns and predicts the future weather.

D. Expert Systems

Expert Systems are machines, trained to have expertise in specific areas of interest. Systems are designed to solve the problems. These systems use statistical analysis and data mining to solve problem.

Expert Systems are made up of 3 parts knowledge based – it stores all information and rules infer data and relationships that is needed by expert system and Inference engine takes information from infer knowledge with query analyses it and responds with solution .

E. Data Mining or Knowledge Extraction

It is fast growing area. Data mining is part of Knowledge discovery in database. This process has some basic steps such as data selection, data cleaning, pre-processing of data and data transformation.

Data mining is basically use of algorithm to discover hidden pattern and relationship among elements in large data set.

AI in Healthcare Appliances

[8] In present time, Artificial Intelligence is used in many areas of healthcare and AI also provides all information to physicians to take decisions in healthcare and medicine. AI organizes patient treatment data and information.

1. Managing medical records and data- AI is used in data management in which data are gathered, stored, normalized, and access all previous records quickly.
2. AI analyzes all test reports, x-rays reports; ct scans reports, data entry and other tasks that are required for patient, with accurate results.
3. Many Healthcare organizations use AI based surgery tools and treatment methods. AI also rapidly recognizes symptoms and sign in CT scans, medical images such as MRI, XRAYS etc.

[9]Artificial intelligence is mostly used by dentists for appointment booking, tele-assistance for dental emergency, clinical diagnosis and treatment planning. In dentistry online appointment booking and coordinating appointment as required by patients. Pop up notifications for checkup using AI. AI provides assistance, if patients have any dental emergency, a tele – assistance is always available

[10] For drug creation, machine learning algorithm area unit is used that is part of Artificial intelligence. This algorithm is used to decrease drug recovery time. Elements of drug recovery are cheaper and safe. It does not fully works in ending all stages of drug creation; it only assists with stages like-discovering new compounds that have a need of medication.

AI in Manufacturing and Production

[11] AI technology in the manufacturing and production recently started. In this we analyze development of core and new technologies. New models are proposed for intelligent manufacturing system architecture, manufacturing and product technology. Internet plus AI characterized upcoming automatic intelligence, shared service, data driven etc.

Recently developed technologies of AI are – new generation information technology, material technology, bio technology.

[12] Future change in manufacturing system by robots. Robots perform all tasks like basic analysis, maths, and operations in industry, observe data reduce work load of employee as well as managers. Also classify and prioritize information.

[13] Since few years robots with advance artificial intelligence work in industries. AI and robotics impacts on labor market and productivity. In press, academic circles also plays important role. In upcoming years robotics in industry will end manpower –work done by human and also will affect economy of any country.

AI in Security and Surveillance

[14] Security in used in two terms one for national security and another domestic security. National security is umbrella term in it we can discuss external state and non state. Domestic security is to stability risk that is inside nations. Cyber security was identified as a AI risk in national security, firewall attacks.

[15] AI in home security, devices and appliances are connected to communicate with each other. Voice control or commands are given using remote control or computer.

Applications are lightening, home security, home theatre etc. Security is important issue in smart home. Use automation technology to maintain security. For security use neural network to provide authentication, it validates system with user name and password. Only authorized person can access

[16] AI in national security includes cyber security, information security, economical and financial tools, defense, intelligence and development. Neural network techniques are used to generate malicious inputs and these inputs leads to discovery of security vulnerabilities.

AI in Educations

[17] AIEd applications are made for universities and colleges and used in these. Many AIEd and educational data mining techniques in education system are used to track the student information like class attendance, assignment submission. AI researchers are working on novel interface like natural language processing, speech recognition, eye tracking, face detection and many other facial sensors, which is designed using both AIEd and non-AIEd software.

AIEd provides personal tutor for learning as per learner requirement and most effective approach to learning and teaching, its cost is not affordable by normal people. Intelligent tutor system use AI techniques, human tutoring, delivering knowledge that matches with learner need and target.

ITS uses machine learning techniques, large data set and self trained algorithm for decision taking what and which type of learning content should be deliver to leaner.

[18] In 18th and 19th century, all have particular procedural skills about those skills a misconception in specific domain and main error, about domain viewpoints between learner and teacher. No matter how much success and knowledge acquisition, voice raised against these skills and heard questions like

- Why do most of people always use well formalized procedural domain in spite of much harder conceptual knowledge?
- How many years old are ITS- tutor knows everything but learner's knowledge is assessed without informing learner.

- Which type of environment student gets himself in and all ongoing activities are socially embedded?

This was in 19th century, many researchers found a new method of AI and at Education and AIEd.

New technologies were researched and attracted educational researchers, technologies are- n/w communication, information database, multimedia applications. If we use new technologies many challenges will arise.AI used in developing, modeling science, applying and investigating formalized model, allowing derivation and facts.

[19] AI in education system will grow day by day, In 2024, student as well as teachers wears gloves and perform a presentation in from of company employee or students. This setup is almost similar to today's system or practical environment for practice, they performs live project presentation and this system system is machine learning intelligence provides instant feedback and output in data visualization form.

How to adopt body language, voice intonation and non- verbal behavior will be more effective and emotional relationship b/w student and teacher i.e. presenter. Instant feedback and digitalizing multimedia and transferring through cloud with high speed network, processing them using sophisticated computationally intensive algorithm on GPU cluster, deep learning network trained to do similar presentation and feedback via mobile app installed on learner devices.

Advantages of AI

[20] AI applications are used to solving problems or making decisions. AI have advantages of Reliability, cost effective and high performance speed in solving problems or taking decisions.AI is used in many domain as engineering, economics , law , medical, educational, in different types of modeling, decision making, neural network applications.

AI is used in internet such as search engines and shows notification based on search or interest.

- AI is significant, with any application limited in both capability and functionality. In Organization, AI is worked with individuals or groups.AI prevents the knowledge from deletion or lost when data is no longer used in organization by group or individuals. In AI framework, life of knowledge encapsulated till the decisions unchanged.
- After reliability establishment, application of tools occurs, AI is reliable with different applications, and AI also supports cost minimization and less personal time.
- AI deals with quantitative as well as qualitative data, this feature has lack of analytical methods.AI tools has faster computational time in terms of space and time complexity and processor capacity by using decision making process. Data gathering and screening, processing, decision making AI provides faster solutions.
- In recently research, researcher found that AI is more reliable in preventing, predicting and accessing traffic conditions, based on microscopic traffic data. AI is also used in transportation security.
- AI tools are used for security purpose and in management and development of automated responses and control plans. Advantages and efficiencies of AI make useful in development and management of transportation system. AI is more useful in intelligent transportation system, real time sensing, response, detection of systems.

[21] AI empirical methods is useful in planning and searching algorithms and machine learning algorithms are applied with real tested data sets that is trained data set. If we talk about user modeling, empirical studies are rare and very few articles are published in user modeling and UMUAI.

Many systems include a simple evaluation study with small sample size and less statistical methods. In other case AI techniques are applied in real world scenarios are applied for estimation of effectiveness, the efficiency and the usability of system. User modeling techniques are based on human computer interaction which requires empirical evaluation.

[22] During 2020, CRC (Colorectal cancer) was second ranked worldwide type of cancer. Due to rapid development in technology, AI has been flourishing area in different fields mostly in medicines. In Gastroenterology , for diagnosis and to improve the assertiveness of automatic polyp detection and its classification for preventing methods of CRC, AI software included in computer aided systems are used.

This article is on recent research AI tool and their application in detection of CRC and adenomatous polyps.

AI methods have high performance in classification, object detection and in segmentation tasks. New AI based systems have a better polyp detection rate and suggest or work for preventing CRC by decision making.

[23] Committee of scientist every five years checks development of AI, what are the changes and growth in AI and AI tools.

AI is used to replace human work by machinery or robots and people can do easy task. Human feel more difficulty in programming, self writing, self modification etc. AI saves cost and time that's why call cheap labor and get fast work with profit. Machinery can work without refreshment or taking rest, once programmed can work for long times but human take breaks and feel tired. These days' robots are also working in mining and in fuel exploration process.

Using AI we can save human life and human can make new robots but robots cannot make human. Robots in programming or in other tasks don't make mistakes or errors if they programmed properly.

[24] AI gives less chances of error and high accuracy, AI finds application in space exploration. Different types of robots can be used in space exploration because robots not afraid of space environment and they can easily survive in atmosphere of different planets. Other planets don't affect robot's physical and functional state.

Robots with AI are also used in geo-information to study depth of earth and depth of ocean to extract fuels and resources that are required by people. Smart phones are examples of AI. Maps, GPS are application of AI which provide shortest path. AI can perform dangerous tasks for human health and life such as saving people from flood, fire etc.

Disadvantages / Challenges in AI

[25] Many challenges are in AI, some are –
- Tools that are used in AI are so expensive so development is not easy.
- Incomplete task of robots which is done by human charges extra time, resources and money.
- AI cannot change government communism.
- AI is making human lazy with its automatic application and invention.

- In organization, they look for minimum qualified human with AI robots because robots do similar task with more efficiency.
- Human creates a team to do any task but machinery never bonds with anyone.
- Machinery perform only programmed task nothing out of that.

[26] Challenge with traditional ML (ML is associated with AI) methodologies, need of human efforts for feature engineering in logistic regression and support vector machine methods. Feature engineering is getting higher level feature from raw patient features. Humans are essentials in designing appropriate DL model architecture.

Clinical data and behavioral data is linked to health status. When using behavior data in health application faces some challenges, due to way of data collected and stored.

[27] AI is used in geo-science, in space research and in environmental pollution controls.Many no of AI approaches, maps nonlinear behavior or mapping between input and output in biological or chemical process predicts a model of optimization and control algorithm that study pollutant removal and optimization system, developed for environment cleaning. Challenges with these techniques are if software or machinery wrong programmed can do opposite actions and this machinery clean up the environment if everything based on AI more and more production will be and that can pollute environment.

[28] Challenge in Governing artificial Intelligence is like ethical, legal and technical opportunities. Now AI works in every aspects of society from rural to urban infrastructure, law enforcement, banking, medical etc. AI with machine learning and robotics improve economic welfare, social welfare, and work for human rights.

Same time AI can behave in unpredicted way or in harmful ways.AI in society as well as in government sector making everyone lazy and lack of security aspects.

[29] Main challenge with AI is cost of maintenance and repair. Software always updated and change requirements if event breaks then cost will be very high. When we do a lot of complex tasks to AI don't forget that your machine can fail anytime. Small error in calculation can cause a big mistake or many no of problems. This can lead to loss of necessary and important data which is processed by machine.

If robots replaces a person in each activity field this may cause unemployment.

If Military robots fall into wrong hands, it will cause destruction because machines never think before acting. There is a fear that one day robot will replace people. AI making us slave and will one day rule over the world.

Conclusion

These days most of technologies are based on Artificial Intelligence. Computing word has needed to learn more and take a lot advantages from various AI approaches. Only AI has ability to learn from training dataset and provides flexibility and is more powerful. AI has already implemented algorithms to perform a task. AI is real time system due to parallel system gives fast response and fast computational time. Goal of AI is design to system as intelligent as human.

Some problems are in AI but researchers are trying to solve these and also working in many AI approaches.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

SOMPALLI ROHITKUMAR

M.Tech. VLSI Design
Email ID: sompalli.rohitkumar2021@vitstudent.ac.in

Introduction

[1]One of the booming and emerging technologies of computing is Artificial intelligence which will bring a drastic change in the computing world. AI is a combination of two words Artificial and Intelligence. Manmade things are called Artificial. The capability of thinking is called Intelligence. The computer science branch that deals with the development of intelligent machines which can think, behave and make decisions like humans is called Artificial intelligence. These intelligent machines can take decisions according to the logic program in their memory. Artificial intelligence deals with changing machines for searching and finding solutions to real-life complex problems just like humans. AI helps humans in their work and is very useful. AI reduces manpower by doing the work easily and effectively. Nowadays, Artificial intelligence is used in all fields namely healthcare, education, surveillance, self-driving cars, military, transport, etc. AI enables machines to think and make decisions as per the algorithm and do difficult things easily.

What is Artificial Intelligence?

[2] Artificial Intelligence is defined as the science and engineering of using computers to take in and understand human intelligence. It is the process of understanding and making intelligent machines, mainly intelligent computer programs. But AI doesn't restrict itself to biological methods which are observable.[3] Artificial Intelligence (AI) definition was defined in [2], which is not totally formal because of using the word "Human". The Greatest problem in this definition was the intelligence level of AI is compared with a human being intelligence level. AI mainly depends on the level of intelligence. One AI will be defined to each intelligence level. This level can't be defined because its exact value can't be measured or calculated.

History of AI

[4] In beginnings, AI was found to be fiction, philosophy, and imagination. Later, AI has influenced by young inventions in engineering, electronics, and many other disciplines. Knowledge representation, solving of problems, exposition programs in understanding language, learning, translation, proving the theorem, memory associative, Knowledge-based systems are some of the early milestones in AI.[5] In 1847, a formal language was described first by George Boole for logical reasoning. In 1936, Alan M. Turing described the Turing machine which was the next milestone in AI. In 1943, the model of artificial neurons was created by Walter Pitts and Warren McCulloch. In 1944, the theory of decision was determined by O. Morgenstern and J. Neumann. In 1949, a value-changing rule was presented by Donald Hebb for artificial neuron connections. In 1951, the first neural computer was created by Dean Edmonds and Marvin Minsky. In 1956, Marvin Minsky defined the term (AI). It was the first time AI grasp the researcher's attention, which was discussed at Dartmouth. In 1958, McCarty was regarded as the father of AI because he created the LISP language for AI software creation. In 1965, Herbert Simon stated that Machines would be

capable of doing any work a man can do, within twenty years. Later scientists understood that developing an algorithm that can do anything as a human is not possible. Now, AI has a different meaning which is defined as developing intelligent agents that do work faster and are easier to help us. In Washington, DC, the First International Joint Conference on Artificial Intelligence was held in 1970.[6] Many fields are transformed by Artificial Intelligence. They are autonomous driving, speech translation, and clinical diagnosis. The great challenges are electronic computing hardware used in AI due to growing data volume in modern society, in terms of both power consumption and computing speed. Artificial Intelligence's massive growth demands quickly increasing computation power. Two photonic processors are required for these power requirements and to bring change in AI software.[7] The growth of AI has substantially increased by day-by-day. Many technologies are developed such as facial recognition, fingerprinting, voice recognition, etc. These technologies are employed by corporates and governments to gain the satisfaction of the customer. The major challenge in AI is selecting an appropriate decision-making algorithm. These challenges can be overcome by advanced software algorithms to achieve better results. This led have growth in every sector. Nowadays, AI is used in many appliances such as Healthcare, Manufacturing and Production, Security and Surveillance, etc.

AI in India

[8] Nowadays technology is increasing rapidly day by day. Indians are far ahead in using technology in the commercial world. Education and the Digital economy are increasing day by day. Knowingly or unknowingly Indians use AI in their lifestyle and get benefits of Artificial intelligence.Many online services in India like Amazon, Netflix, and Flipkartlearn from the consumer's interest and make intelligent decisions to improve their services. But in the meanwhile, India is lagging behind in using AI in public sectors, national intelligence, military. In India, AI is mostly used by corporates. Public research scholars, labs, and education are facing difficult problems in using AI. Policymakers should make the appropriate policies to improve the implementation of AI in public sectors.[9] Nowadays Indian government is making many policies to improve the usage of AI in many sectors to make things easier. Many government schemes are online to decrease corruption. The central government provides more funds for research and skill development to improve the usage of AI in India.

Various Places Where AI is Used

[10] In this Covid-19 pandemic situation, Artificial intelligence is used a lot to track and screen the present and future patients in a particular location. AI is used in many places like Healthcare, Military, National security, Education, Industries, etc. Mainly AI is used in places where huge manpower is required and to solve difficult problems easily.[11] Artificial intelligence is used in the Gaming industry, Heavy industries, Weather forecasting, Expert systems, Data mining, and Knowledge representation. Artificial intelligence can be used in satellites to study the planets.

AI in Healthcare Appliances

[12] Artificial Intelligence is applied in Healthcare appliances increasingly. Many companies have several types of AI. The main type of Applicationinvolves patient engagement and adherence, diagnosis and treatment recommendations, and administrative activities. AI can do better healthcare tasks than humans can do. Implementation of AI in Healthcare appliances will reduce healthcare

professional jobs. This will lead to the automation of healthcare professional jobs.[13] Medical practice is being changed by Artificial intelligence slowly. AI applications are expanding into many sectors. One of them is Healthcare appliances. The progress made in AI is huge. AI technologies and their biomedical applications identify the problems in medical AI systems and summarize the legal, social, and economic implications of AI in healthcare.[14] Healthcare is revolutionized and strengthened by AI. The technologies in AI can predict, learn and act according to the situation in modern healthcare. Minor patterns can be detected by AI which can be missed by humans. The studyhas centered of attention on mainly three areas of AI-powered healthcare. They are clinical trials, patient care, and recovery of drugs. Pharmaceutical companies have gained and benefited by speeding up their drug recovery process through automation. AI-assisted clinical trials are giving results accurately by handling large volumes of data. The systems which are developed by Medical AI companies can assist patients at every level to improve their life quality.

AI in Manufacturing and Production
[15] AI has brought the revolution in Manufacturing and Production. Cross-border integration, ubiquitous networks, shared services, mass innovation, etc are the characters of new AI. The new technologies in AI led to the rapid developmentof Manufacturing and Production. That means transformation in manufacturing models, approaches, and ecosystems.[16] In factories, AI is used more frequently in many applications. AI is used in control, planning, logistics, optimization, learning, assistance, etc.Large-scale production can be possible with help of AI machines in industries in less time. Manpower and money can be saved by using AI in factories. [17] A compulsory need of the next manufacturing companies is the up-gradation of supply chain flexibility because market needs are changing quickly. To meet the market needs, AI is used in factories to improve production and to meet customer requirements.

AI in Security and Surveillance
[18] The important infrastructures for providing security and safety to the general public are video surveillance systems and security cameras. In many cities, still, dangerous situation detection is performed manually. Undetected and dangerous situations are due to the lack of manpower and human's limited performance in the security sector. Therefore, AI is used in security and Surveillance to overcome these situations. [19] In present days, civilization and culture are progressing. So, human needs are also increasing. To meet human needs, technology also has to improve. AI is used in many fields such as security and surveillance. AI brought many revolutionized things in security and surveillance.[20] AI brought drastic changes in the military sector due to recent technological developments. The program must be robust such that there will be no hacking. The innovations in AI are used to strengthen military power.

AI in Education
[21] AI applications in Education are increasing day by day. There are new developed and classical architectures for Artificial Intelligence in education. Many are concentrating on developing new teaching systems. Still, there are many issues in education faced by AI.[22]AI is used in many fields of society like the military, economy, education, etc. It is hard to understand for elementary students. Various methods are to be developed to understand the principles of AI at each level. For this twenty

various methods were developed and implemented. This improves the creative thinking and understanding of the students.[23]The importance and the need for AI in various fields are increasing every day. There is no doubt that AI in education will bring tremendous change in the future. Different ways are being developed to educate the students about AI topics. AI should be from sixth grade in education to know the importance of AI in the future. Awareness has to be brought among the students about AI.

Advantages of AI

[1]AI can reduce human work and work more efficiently than humans. Humans need rest whereas machines don't need. Machines can be reprogramed and used for multipurpose. They don't get bored or tired after working for some time. By using AI machines we can reduce the mistakes. [24]AI machines are very faster than human beings. They can do the difficult work more easily whereas humans need more time to complete difficult work. They are more efficient than humans. Errors and mistakes can be minimized. AI machine's successive rate is high. They are used to discover new drugs and medicine. AI is used to drive cars without drivers by analyzing the situation and taking correct decisions fast. [25] The Basic thinking and Intelligence of the teachers has improved due to AI. In traditional schools, teachers mainly concentrate on teaching things. They don't have time to understand the students. But in modern schools, students learn things due to the implementation of AI in education. Now the teachers have to understand the students.[26]AI entered into many fields and brought rapid change in every field. AI entered the military and make things easy for officers. Many robots are used in the military for goods transportation in hill areas. They are used as security. In wars, we can use robots in the place of military men. So, that we can reduce the death rate during wars. The chance of winning the war will depend on how much and what technology we use. In the future, mainly country which has high technology usage will win the war. [27]Due to AI machines, accuracy and efficiency are improved. Money and time can be saved by using AI machines instead of humans. All things will be done easily at your fingertips. Workload will decrease and there is time to concentrate on critical things.

Challenges or Dis-Advantages of AI

[1] Most AI machines are expensive and hard to develop. It will take a long time to repair when they are damaged. AI makes humans lazy by doing everything. AI increases unemployment because it does things easily and fast. Mostly AI is used for repetition tasks.[24]AI machines are misused sometimes and used for bad activities. AI machines will do opposite work when program mismatches. There is a chance to misuse the technology when someone writes the program to destroy something. This is very dangerous to the survival of human beings. The jobs of humans will get affected as most of the work is done by them. AI machines are very costly and take more time to develop. There is more technology dependency.[25] It is very difficult to place AI in all schools especially government schools. It will take some time and also be expensive. Nowadays, AI is mostly used in only some colleges and universities. Since there is no awareness among students about AI.[28] Due to AI in all sectors, the loss of human jobs will be there. Interactions and emotions among the people decreased. They are very expensive.[29] The main disadvantage is it makes people become lazy. People will lose their skills to do a particular job when almost all work

is done by AI machines. The consumption of power will increase. It is mainly used to do a specific task. It is very costly.

Conclusion

Artificial intelligence makes things easier by applying the concept of learning by doing. AI will bring a huge change in everyone's life. Everyone should learn AI and how to use AI machines because it will bring a lot of change in every sector. Everyone should use AI for good things only. If we use AI for bad things, it will destroy whole nature and living things. Artificial machines(Robots) will play a major in the future.

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ASPECTS OF ARTIFICIAL INTELLIGENCE

PALURU HEMA PRASAD
M.Tech. VLSI Design
Email ID: paluru.hemaprasad2021@vitstudent.ac.in

Introduction

Artificial Intelligence (AI)referred as making machines that imitate humans and also think like humans artificially. AI is also a branch of Computer Science by using AI we can develop an intelligent machine.AI can help machines to think based on the past experiences and do the things based on past data. AI helps humans in complex problem solving and improving accuracy. By this machine work, the work of humans was reduced to great extinct. For developing AI there was a committee that confers every 5 years. Nowadays AI is implemented in every field in society. AI applications are increasing in the past 2 decades. AI provides applications in autonomous driving vehicles, health care, safety, and security, etc. Machines can save the time of productivity and also be accurate. It is one of the trending technologies in the world.

What is Artificial Intelligence?

[1]Artificial intelligence is the knowledge of how we are making intelligent machines by writing computer programs. By which we can get the work done through machines. AI is also a branch of Computer Science. Intelligent machines are programmed in a way that they can adopt the human intelligence. [2]AI involves making the computers run in a way that is sensible and depending on the situation it can do things. As humans we are making machines, it can also adopt the situations, based on that it can react. Getting things done through artificial human-made machines. AI has the capability to solve complex problems through intelligent machines. AI is meant for creating artificial intelligent robots that can also be self-learner.

History of AI?

[3]The history of AI begins with imagination and total fiction. Humans in our daily life, we come across mechanical devices. Now for the last half-century, thistype ofmechanicaldeviceis modelled as such as itimitates humans. AI emerged when many of the theories, electronics, and programming are implemented in practical problem-solving. Different writers have come with their fictions, whichmotivated the researchers tomodel the artificial beings such as robots.[4]The first person who developed a language for computer reasoning was George Boole in 1847. In 1936 the Turing machine was invented by Alan M.Turing, it was the first milestone towards AI. In 1943 Warren McCulloch along with Walter Pitts proposed the artificial neurons. The first neural computer was invented by Marvin Minsky and Dean Edmonds in 1951.AI was evolved in 1956 during summer. John McCarthy the man who proposed AI. At Dartmouth, they conducted a conference. AI has the meaning of making the intelligent machine get faster and easier. AI is replacing all the real-time applications as automated.

Growth of AI?

[5] The fourth industrial revolution was AI. AI with the help of big data become most popular. Computational devices that can think like intelligent beings. This machinehas programmed

intelligence by which it can solve real-world problems more accurately and efficiently. Machine learning and deep learning are sub-branches of AI, and also in product recommendation on the basis of customer needs. Big data and AI are currently being used for business growth.[6] What happens if previously performed tasks by human labour with automated? Then it will cause deployed the human labour in the production of goods and services, it will alter the economic growth and income shares. AI will become self-improving, which alters that unbounded machine intelligence, unbounded economic growth.

AI in India?

[7] Artificial Intelligence has the potential to develop India's economy and national security in the future. India has the maximum benefit from the AI revolution and must continue the sufficient policy to develop AI. AI innovation and adaptation make the changes in the public and private sectors in India. AI has largely been implemented in consumer goods and information technology (IT) services. Developing AI in India creates unique opportunities and challenges for India. India has become to see private sectors get a significant global impact in AI. Make sure that how the advent of industrial robots and their effect on manufacturing. Indian government also encouraging AI in all fields to improve productivity andattracting foreign investors.

Various Places Where AI is Used?

[8] Artificial Intelligence on the basis of a symbolic, non-algorithmic way of solving problems. Machines are capable of updating the data itself. AI has transformed the globe beyond imagination. Usages of AI in areas like pattern recognition, data processing, and robotics are to develop human intelligence in computers. Some of the military applications are also using AI technologies. In recent times AI is popular in Cognitive Science applications like Neural networks, Fuzzy logic, Genetic Algorithms, and Intelligent Agents, and in Robotics applications like Visual Perception, Locomotion, Navigation, Tactility, and Dexterity, and also in Natural Interface applications like Natural Languages, Speech Recognition, Multisensory Interfaces, and Virtual Reality.AI is also used in armed forces in war fields by which we can reduce losses. AI is also used in education, health care, safety, and security, etc.

AI in Healthcare Appliances?

[9]In Healthcare, AI diagnosis better than doctors, work on basis of data science and some arithmetic algorithms to diagnose. This leads to taking quick treatments by aspecialist. AI in healthcare is mostly used in data management by which it can trace the disease accurately. Doing repetitive jobs in healthcare like analysing tests and X-Rays, CT scans. In cancer patients to observe the effectiveness of chemotherapy. Detecting mental illness, in management of diabetes.[10]Across the world, one among the leading causes of death was Cardiac disease. Nowadays enormous advancements in Cardiac diseasecontrolare developed. Past 10 years the usage of AI in Cardiac disease was a large extent across the world. Major advancements are in the field of healthcare appliances. The major application of AI in healthcare isthe diagnosis and management of a disease. There is enormous research going on the exploitation of AI in Healthcare. Present research going on to manage and control diseases like Cardiac and etc.[11]Nowadays AI has in all domains, been better than past human behaviour. AI is one of the fields in engineering and science, it is about how well the machines are imitating the intelligent behaviour of humans. AI is one of the emerging fields

in the world. AI has the tools as best compared in the market to detect, diagnose, and treat. Major illness treatments like cancer and neurology are the applications of AI. AI combines with machine learning by which can be useful to the diagnosis and treatment of several diseases.

AI in Manufacturing and Production?

[12]AI is an emerging technology in industrial manufacturing and they were increasing production. In industries so many developments moving towards AI to increase production. Industrial artificial intelligence (IAI) is the core of smart manufacturing. AI brings unusual changes in closed-loop production and product logistics. Advanced methods like deep neural networks and transfer learnings are used in the industry so that they are maintaining the entire production. IAI is a popular technology in the future to develop industrial manufacturing.[13] Modern manufacturing techniques have powerful computing networks. These networks are continuously driving the data by sensors, smart devices, and machines. By this technique, big data was analysed faster. These advances in AI technology are called industry 4.0 or smart factories. Deep learning and advanced cognitive computing are evolved and it was used in automated visuals, maintenance, and fault detection. Now they were trying to apply the traditional research approaches like the Internet of things. [14] Quick changes in the customer requirements will cause anincreasein the changes in manufacturing. Industries are continuously redesigning their products and reconfiguring their manufacturing. Traditional approaches were replaced with new ideas. AI will bring efficiency to manufacturing. For this, some Intelligent Manufacturing Systems(IMS) was used, by using the efficient machines the productivity goes on increases.

AI in Security and Surveillance?

[15] Artificial intelligence (AI) is an emerging technology that will have a deterministic and transformative influence on strategic competition, military power, and world politics very bad. Surveillance can detect unusual events that could help public security.[16] In the world information technology is a part of making our files and nation safer. Varies data and technical challenges providing intelligence and security information. ISI will deliver such issues for intelligence and security applications. Security agencies will store a huge amount of data from various sources. Using AI storing and manipulating the data with ease. [17] Highly efficient device for scanning a large file with low-level visual sensory data and delivering selective information to one's brain the only being was humans. By using the sensors and artificial intelligence they were trying to get a similar view using computer vision. This type of application of video analysis and understanding is surveillance, which aims to convey automatically human activities.

AI in Education?

[18] For the past 2 decades, computers usage in education was increased. Computer-based training (CBT) and computer-aided instruction (CAI) are the techniques to teach about the computer. CBT and CAI are somewhat effective as compared to human tutors in several ways. The approach is different for different individuals. [19] Early researchers mainly concentrated on making personalized systems on the basis of solitary learners, in the recent system takes consideration of other people also.AI in education was pure applied basis.[20] Imagining smart classrooms in the future will increase the learning experience and create communication between teachers and

students using real-time sensing and AI. In the future, the systems are enough to make changes and suggestions to a presenter to improve the concepts and memorability of the presentation. AI provides real-time experience in education also. In real times it was the trend in the education system. AI has advantages and disadvantages in real time applications.

Advantages of AI?

[21]One of the most popular usages of AI in the search engines. AI is also used in engineering, prediction, decision support, and control applications. Using AI either makes a decision or solves a problem. AI reduces the cost via reducing personal time. Gives faster solutions to complexproblems. It can take any kind of risks which are not taken by humans. [22] AI in social media sites like Facebook, Twitter, Snapchat, and YouTubehas billions of data of different users, they were using AI to store and well manage. AI has the ability to organize massive data. It also analyses the required contents of different users. AI is getting more user-friendly. [23] In the e-commerce industry nowadays AI is creating competition. AI is the most emerging technology in the e-commerce business. AI gives the facility for the shoppers to get the required products. In e-commerce websites, AI is implemented based on user interest the things will also display. [24] In Robotics AI is having a remarkable role. Robots are usually used in some repetitive tasks. Using AI we can make intelligent robots that can perform tasks with their own experience. For example, Humanoid robotscan imitate human behaviour. [25] AI is used in many fields like security and surveillance where it is necessary for solving crimes and preventing the crimes. CCTVs are deployed everywhere in the world.

Disadvantages of AI?

[26] Developing a machine itself is expensive. It requires more cash, time to create a machine, and also repair or rebuild. When robots are replaced with humans then it creates unemployment. Machines easily cause destruction. AI is making humans lazy with its applications.[27]AI makes humans lazy to work and dotheir activities also. Sometimes it works opposite to the command where we gave wrong instructions. We need to be careful while in writing the code. It reduces human employment. Sometimes AI leads to massive destructions. Technology dependency will increase.[28] AI replacing humans with robots in major repetitive tasks. It leads to unemployment. Machines cannot contribute to teamwork like humans. Machines are failed to develop the bond between humans.[29]AI is more costly because it is in the beginning stage. Creating robots likehuman behaviour is difficult, so it requires more time and resources. Maintenance cost is also high. It needs maintenance time and cost also to work in better condition. [30] As robots are programmed it was the issue. Robots cannot think beyond their experience and outside the programmed data. Machines cannot be as creative. It can also do mistakes and it cannot be synchronized with the human workforce.

Conclusion

Artificial Intelligence is the trending technology in the world. Every aspect of human life is led by AI. Artificial Intelligent Technologies createease for human life. AI going to be the torchbearer for all real-time applications. AI needs to be taught by every institution in India, by which India has more competitive advantages. AI is one among the trends in the world.AI is also having disadvantages too based on the requirement we need to implement AI in real-time. For writing the

AI programs we need to follow certain ethics. There were certain rules of AI that needed to follow. AI is one among the other potentials by which India's economy will increase.

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ARTIFICIAL INTELLIGENCE

ADITYA KUMAR ATAL
M.Tech. ConstructionTech. and Mgmt.
Email ID: adityakumar.atal2021@vitstudent.ac.in

What is Artificial Intelligence?

It can be defined as the study of the mental faculties through the means of computer and electronic gadgets.Nowadays, Artificial Intelligence has become a huge source of attraction. The reason behind this is the positive achievement received in machine learning(ML). AI always favour edexplain ability. Advice Taker, which was presented by McCarthy in the year 1958, can be considered as one of the early instance of AI as a "program with common sense". Moreover, reasoning abilities with common sense as an important feature of AI that was available in Advice Taker was presumably considered for the first time. Rather only proposing solution to problems related to pattern recognition, contemporary research focuses greatly on building real models of AI systems which contains understanding and explanation support feature. It can be defined as a goal reproduce intelligent human behavior in machines by uncovering the processes at work in our own intelligence such that they could be automated.

History of AI

The beginnings of artificial intelligence are discovered to philosophy, fiction, and imagination. Early inventions in electronics items, engineering, and many other disciplines have influenced AI. Some early milestones include work in problems solving which included basic work in learning, knowledge representation, and inference as well as demonstration programs in language understanding, translation, theorem proving, associative memory, and knowledge-based systems.Artificial intelligence (AI), commonly defined as a systems ability to interpret external data correctly, to learn from such data, and to use those learnings to achieve specific goals and tasks through flexible adaptation.A conventional language for logical reasoning was first delineated by George Boole in 1847. About one century later in 1936, Turing-machine, which is considered to be one of the turning point in Artificial Intelligence history, was described by Alan M. Turing. The prototype of artificial neurons was designed by W.Pitts and W.McCulloh in 1943. Just after one year, in 1944, theory of decision was discovered by Neumann and Morgenstern. In between 1949 and 1951, progress in artificial neurons was presented by different researchers. Finally, in 1956, J. McCarthy was first to define Artificial Intelligence (AI). At Dartmouth, AI was kept in dialogue for the first time. One year later, Lisp (List Processing) language was reported by father of AI, J. McCarthy.

Growth of AI

The development of AI increases economic growth along the transitional dynamics path, and increases household short-run utility,If an increase in the accumulation of AI is due to the rising productivity in the goods or AI sector, but can be detrimental to household short-run utility if an increase in the accumulation of AI is because firms use more AI to replace human labor. The development of AI is not necessarily beneficial to household welfare in the long run. The main

results are unaffected when considering the case where AI can improve the accumulation of human capital, the traditional research and development model, and different kinds of physical capital.. To obtain AI with complete functions, efforts has augmented quickly over the past years. AI is constantly increasing its influence in various fields like big data, cloud computing, medical, etc. Amazon Eco, Microsoft – Equivio, Google-Smart Contact Lenses, etc are the best examples of AI that can be seen these days. [6] Due to development of AI and technology, Cortana and Siri, driverless cars, IBM Watson, Automated Trading and Deep Learning have become common these days. Various companies like Yahoo, Google and Amazon are providing open source tools which helps a lot in the development AI and various other related technologies. AI is likely to be labor-saving and resource-saving, Being an information technology, AI also tends to give rise to natural monopolies, creating a small set of so-called superstar firms that are located in a few powerful countries but serve the entire world economy.This creates the possibility of steering innovation in AI and other technologies in directions that are more beneficial to humanity at large extent.

AI in Health Care Appliances

Recent studies shows that AI has exceeded human work in several fields, likewise people in healthcare are also hoping for this to happen. Prevention and detection of the disease as early as possible may be achieved by AI. Similarly, AI may play a vital role in diagnosis and treatment of illness. A lot of time was wasted just to find out the idea and information regarding the illness instead of absorbing and understanding it. The development of AI has helped increase thinking ability of an individual in 3 different regions.

Applications

1. Managing medical records and knowledge,Digitalconsulation,TreatmentDesign,Drug creation
2. Contact tracking and tracing,
   AI and IoT Applications in Pandemic and beyond:
   a) Early warning system
   b) Tracking the speed of virus
   c) Early detection and diagnosis
   d) Screening
3. In health care systems, there is a large amount of data which gives ideal learning inputs of machine learning enabled decision support systems.Clinical decision support can improve the diagnostic accuracy and it helps the healthcare workers to sort out the complexities in clinical variabilities.It has potential application in the field of orthodontics, periodontics and oral surgery for analysing the condition and treatment planning. It is also used for reducing the feudal claims in the field of dental insurance; it checks the accuracy of the details provided by the patients. The dental clinics might establish an AI comprehensive care system replacing the dental assistant.

Artificial Intelligence in Manufacturing and Production

The technology of AI provides the enhancement of fresh models, processes and structures along with system architecture in the fields of intelligent manufacturing. IMS (Intelligent Manufacturing System) possesses different characteristics like independent and intelligent sensing, interdependence

and participation. Understanding, evaluating and decision-making also come under features of IMS. Moreover, control and implementation of material, machine and information are also signified by IMS. [11] Nowadays AM (Additive Manufacturing) is continuously stretching its influence in the field of production. Agents empowered by AI can help to decrease the workforce needed to increase AM production. AI empowered agents also help to scale up the efficiency of resource utilization Various benefits of AI in manufacturing and production are:

1. increasing innovative capability in national manufacturing
2. promoting the deep fusion of information and industrialization,
3. strengthening the basic industry capacity
4. booming the quality brand-building,
5. popularizing environment-friendly manufacturing
6. advancing breakthroughs in key areas,
7. pushing forward further the structural adjustment to the manufacturing industry,
8. advancing services for manufacturing and production,
9. increasing international involvement in manufacturing.

Artificial Intelligence in Security and Surveillance

A new enhanced Artificial Intelligence (AI) algorithm is introduced for adjusting the orientation of Pan–Tilt–Zoom (PTZ) surveillance cameras in new Cairo. For validating the proposed algorithm, it is tested on many scenarios with different criterions. After that, the proposed algorithm is applied to adjust the PTZ monitoring cameras in the green river which locates on new administrative capital as an equivalent to the river Nile. In addition, it compared with several other AI algorithms through the appropriate statistical analysis. The overall experimental results indicate the prosperity of the proposed algorithm for increasing the coverage of the PTZ surveillance system.Large number of cities and states have already started to use advanced artificial intelligent surveillance tools to watch, monitor and keep the track of the citizens to prevent crime and inhuman activities. City officials also deploy these tools to control traffic congestion. One of the report suggests that out of one hundred seventy six countries, 25 use AI technologies like facial recognition systems and platforms for smart/safe city. Hence, this proves that AI enriched surveillance technology is continuously getting deployed in various parts of the country.

AI in Education

As various types of occupations will be affected by AI, it is believed that AI is going to have a huge impact on the teaching materials and techniques. OECD which stands for Organization for Economic and Co-operative Development, assists for taking survey under PIAAC (International Assessment of Adult Competencies) evaluates grown man/woman's proficiency on important information processing expertise. According to this organization, the proficiency mark of over fifty percentage of grown human tie with AI and the percentage is continuously augmenting. Even, Open Leader board of IBM is following different parameters to understand the development of AI in education. [17] Over two and a half decades, AIED which stands for Artificial Intelligence in Education, has achieved a significant progress. To achieve the central idea of AIED, we need to understand our past and outline our future accordingly. It will help us to identify our strengths and emerging opportunities in our field of interests. According to one of the research, evolutionary and

revolutionary process is going to effect the education in the next twenty five years. Evolutionary process deals with our conventional style of teaching practices like classroom practices, interaction between students and teachers, etc. While revolutionary process includes integration of technologies within day to day activities of students and teachers.[18] The area of Web Intelligence(WI) plays an important role in covering different aspects of AI which are already developed and also those which are emerging. However, WI faces many challenges as well like intelligent web mining and web services, social networking, etc.

Advantages of AI

- The encapsulation of ideas and knowledge in an AI structure exists as long as the problems and the conditions for the scenarios do not change. AI helps to promote learning capability which further increases the life and the significance of the application. "Reinforcement learning", which is one of the features of the AI enhances the reliability of the tools and techniques used in various fields. AI helps to reduce the operational cost by involving AI in decision making process.
- The decisions which are taken by AI are dependent on the facts. It is not affected by emotions in any way but human decisions are generally influenced by their feelings. Unlike humans, systems designed with AI are tireless and perform decision making tasks continuously.
- AI provides the facility to enhance the understandings on scientific facts and performs the complex calculations through various computational models. If we compare with human, AI can finish task earlier with few errors. The function accomplished by AI is boundless. AI supports to discover new and interesting things.
- AI has been found very advantageous in the field of fashion industry. AI is considered to be efficient in optimizing decision making which are very significant for the industry. As big data era has evolved significantly, the companies like fashion companies, use AI to find the difficult relation and dependencies along with the uncertainties that is involved with human cases. These companies utilize AI very efficiently in fashion recommendation and design support systems.

Challenges or Dis-Advantages of AI

- [24] One of the most talked disadvantage of AI is that it has affected human jobs because of which employment has decreased. Also, the younger generation are becoming lazy with the development of AI as the dependencies has increased rapidly in AI. Moreover, sometimes AI can involve wastage of both time and money. It may be misused which can result in huge destruction.
- [25] Human involvement is decreasing rapidly due to the replacement of humans with AI supported robots for performing repetitive tasks which is creating an important problem to to mobilize the standards. Team management which requires to create a bond with human cannot be achieved with AI. AI machines can only complete the task that is assigned to it. If we want the machine to do anything out of that, the machines will get crashed or may give the outputs which are useless.
- [26] AI robots fails to connect with the teachers and students emotionally. This can hamper the personal development of the students and can even replace the teachers one day. Thus, AI has created a king of fear among the teachers and proctors. Also, it may happen in the

near future that AI can start acting like superior brothers which may start to regulate humans. This can lead to ethical dilemma.

Conclusion

It can be defined as the study of the mental faculties through the means of computer and electronic gadgets.The development of AI increases economic growth along the transitional dynamics path, and increases household short-run utility.. AI is likely to be labor-saving and resource-saving, Being an information technology, AI also tends to give rise to natural monopolies, creating a small set of so-called superstar firms that are located in a few powerful countries but serve the entire world economy.

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