Harnessing Artificial Emotional Intelligence for Improved Human-Computer Interactions

Nitendra Kumar, Surya Kant Pal, Priyanka Agarwal, Joanna Rosak-Szyrocka, and Vishal Jain

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Industry 5.0 is poised to redefine the collaboration between humans and machines, marking a crucial moment in technological evolution. However, as we stand at the threshold of this transformative era, a critical challenge emerges - the integration of emotional intelligence into the industrial landscape. Organizations grapple with the urgent need to understand, strategize, and ethically deploy artificial emotional intelligence (AEI) in Industry 5.0. This pivotal juncture calls for a comprehensive resource that explores the theoretical foundations but offers practical insights into the applications, challenges, and responsible deployment of AEI. The absence of a cohesive guide addressing the intricacies of AEI in Industry 5.0 leaves a void in academic scholarship. Organizations, researchers, and policymakers lack a singular, authoritative source to navigate the complexities of emotional intelligence integration, impacting Industry 5.0 strategies, sustainability plans, and customer services. The challenge lies in managing the delicate balance between human and machine collaboration while ensuring ethical considerations are at the forefront of AI deployment. As the demand for emotional intelligence in the industrial landscape intensifies, the need for a unifying resource becomes increasingly apparent.

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    Neeraj Kumar Sharma, GNIOT Engineering Institute, Greater Noida, India
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In this rapidly evolving technological landscape, artificial intelligence (AI) and machine learning (ML) have emerged as pivotal forces driving significant transformations across multiple sectors. This chapter delves into the latest trends and applications of AI and ML, emphasizing their critical roles in adapting to and shaping a post-COVID-19 world, where contactless interactions have become paramount. The authors explore how these technologies not only drive efficiency and innovation but also address the urgent need for digital transformation among IT professionals. Through a detailed examination of AI and ML's impact on various industries, this review highlights the ongoing advancements that promise to redefine our societal and business practices, ensuring a resilient, efficient, and technologically empowered future.

Chapter 2

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This chapter initiates an investigation into contemporary theories that are significantly influencing the field of cognitive psychology research. The discipline of cognitive psychology is currently experiencing a significant transition in its paradigm, which is being propelled by developments in neuroscience, technology, and multidisciplinary collaboration. This chapter provides a comprehensive analysis and evaluation of newly developed theoretical frameworks that question conventional viewpoints, presenting novel perspectives on cognitive processes such as perception, memory, and problem-solving. This article seeks to offer a complete review of the emerging theoretical paradigms that are defining the future of cognitive psychology, encompassing the integration of neuroscientific findings and the impact of cultural variables on cognitive phenomena. As we explore these intricate theories, our aim is to motivate academics, researchers, and professionals to actively participate in and enhance the ongoing dialogue within the dynamic field of cognitive psychology research.

    N. Suthanthira Vanitha, Muthayammal Engineering College (Autonomous), India
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In recent years, the attention towards artificial emotional intelligence (AEI) replicates complex human ability in artificial intelligence systems for researchers. With the integration of emotional intelligence in artificial intelligence is to revolutionize human-computer interactions, more intuitive and simulate human emotions. AEI assimilates various algorithms like natural language processing, machine learning, deep learning, and computer vision. In order to detect emotional changes, these techniques are employed, where the accuracy rate varies with the implementation of predictable emotion recognition. It is crucial to attend the challenges and ethical concerns associated with emotionally intelligent AI. Harnessing the power of AI is to enhance our lives and foster human-computer relationships. This chapter reviews the most effective and versatile emotion recognition applications and challenges to enhance human-computer interaction in diverse domains.

    Sayani Das, Institute of Mass Communication, Film, and Television Studies, India
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This research chapter delves into the emerging realm of artificial emotional intelligence (AEI) and its integration into human-computer interaction (HCI). As digital technologies become increasingly intertwined with daily human activities, the necessity for more intuitive and emotionally responsive interactions with computers is paramount. This study seeks to bridge this gap by exploring how AEI can be leveraged to enhance HCI, thereby improving user experience, satisfaction, and efficiency. The chapter begins with an in-depth literature review, tracing the evolution of HCI and the burgeoning field of AEI. It scrutinizes various theoretical models and empirical studies to establish a foundational understanding of AEI within the context of HCI. The research employs a mixed-method approach, incorporating case studies, user experience analyses, and, if applicable, experimental data, to offer a comprehensive view of current AEI applications in HCI. Key findings highlight the potential of AEI to revolutionize user interaction with digital interfaces, making these interactions more intuitive, empathetic, and user-friendly. The chapter also addresses critical ethical considerations, including user privacy and the psychological impacts of emotionally intelligent machines. The study concludes with a discussion on the implications of AEI in HCI, emphasizing its transformative potential across diverse sectors. Future research directions are proposed, underscoring the importance of continued exploration in this intersectional field. This paper aims to contribute significantly to the academic discourse in media, communication, and HCI, providing valuable insights for both researchers and practitioners.

Chapter 5

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Dhanabalan Thangam, Presidency College, India

Emotions are psychophysiological processes that are sparked by both conscious and unconscious perceptions of things and events. Mood, motivation, temperament, and personality are frequently linked to emotions. Human-machine interaction will see the creation of systems that can recognize and interpret human emotions in a range of ways as computers and computer-based applications get more advanced and pervasive in people's daily lives. More sympathetic and customized relationships between humans and machines can result from efficient emotion recognition in human-machine interactions. Emotion recognition systems are able to modify their responses and user experience based on the analysis of interpersonal communication signals. The ability of virtual assistants to respond emotionally more effectively, the ability to support mental health systems by identifying users' emotional states, the improvement of customer support interactions with emotionally responsive Chabots, and the enhancement of human-robot collaboration are just a few examples of real-world applications. Reviewing the interpersonal communication elements of the emotional interaction models that are now in use is the aim of this chapter.

Chapter 6

Sachinkumar Anandpal Goswami, Ganpat University, India
Saurabh Dave, Ganpat University, India
Kashyapkumar Chaitanyakumar Patel, Ganpat University, India

This study explores the role of emotional intelligence (EI) in human-computer interactions (HCI) and its potential to improve user experience and engagement. EI, which involves the interaction between cognitive and emotional capabilities, is often overlooked in traditional HCI models. The study uses user studies, case studies, and literature reviews to understand EI's impact on HCI and its future. The goal is to provide valuable insights into the ever-changing world of technology and human interactions, highlighting the importance of EI in enhancing user experiences.

Chapter 7

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In the rapidly evolving landscape of human-robot interaction, the integration of emotional intelligence holds significant promise for advancing the effectiveness and acceptance of collaborative robotic systems. This conceptual research explores the intersection of emotional intelligence and human-robot collaboration, aiming to augment the cognitive and affective capabilities of robots to better understand, interpret, and respond to human emotions. The research explores the impact of emotionally intelligent robots on user experience, task performance, and overall collaboration dynamics. It examines how emotionally aware robots can adapt their behavior in real time, fostering a more natural and harmonious

interaction with human counterparts. This research aims to contribute to the theoretical foundation of human-robot collaboration, shedding light on the potential benefits and challenges associated with integrating emotional intelligence into robotic systems.

Chapter 8

Rabi Shaw, Kalinga Institute of Industrial Technology, India
Simanjeet Kalia, Kalinga Institute of Industrial Technology, India
Sourabh Mohanty, Kalinga Institute of Industrial Technology, India

This research chapter explores the collaborative integration of electroencephalography (EEG), artificial intelligence (AI), machine learning (ML), and pedagogy to revolutionize human activity recognition within educational settings. A primary focus lies in the utilization of ML models to scrutinize EEG data, presenting a groundbreaking approach for the early detection and classification of neurological disorders. The study reveals promising correlations between cognitive performance and character skills, unraveling their pivotal roles in shaping learning behavior. Furthermore, the investigation assesses the transformative impact of virtual reality (VR) on cognitive load within multimedia learning environments, shed- ding light on the intricate dynamics that VR introduces to the educational landscape. The utilization of brain-computer interfaces (BCIs) in mainstream education emerges as a key exploration, showcasing the potential of BCIs to bridge the gap between technological innovation and traditional learning methodologies. It includes the analysis of cognitive load, the examination of environmental and postural effects on learning outcomes, the development of robust seizure detection systems, and the evaluation of student engagement in online learning platforms. The research findings collectively offer a holistic understanding of how integrated technologies can not only enhance educational practices but also pave the way for a more personalized and adaptive learning experience. This study thus underscores the transformative potential of combining neuroscience, AI, and pedagogy to shape the future of education.

Chapter 9

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This study addresses the growing significance of hand gesture recognition systems in fostering efficient human-computer interaction. Despite their versatility, existing visual systems encounter challenges in diverse environments due to lighting and background complexities. With rapid advancements in computer vision, the demand for robust human-machine interaction intensifies. Hand gestures, as expressive conveyors of information, find applications in various domains, including robot control and intelligent furniture. To overcome limitations, the authors propose a vision-based approach leveraging OpenCV and Keras to construct a hand gesture prediction model. This dataset is comprehensive, encompassing all requisite gestures for optimal system performance. The chapter demonstrates the precision and accuracy of the proposed model through validation, showcasing its potential in real-world applications. This research contributes to the broader landscape of enhancing human-computer interaction through accessible and reliable hand gesture recognition systems.

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Generative adversarial networks (GANs) are not very likely to have a significant role in the synthesis of speech features, thus not allowing for the creation of highly genuine representations that enhance the diversity within training datasets. Simultaneously, autoencoders (AE) serve to differentiate between genuine and synthetic speech features, while also extracting valuable insights from both domains. This symbiotic relationship between GANs and AE greatly enhances the model's ability to decode intricate patterns in speech, thereby fostering adaptability in real-world scenarios. The combination of GANs and AE in speech recognition systems transcends previous limitations, resulting in improved accuracy and reliability across a wide range of applications. Nonetheless, the fragmented nature of current approaches poses a hindrance to the progress of speech recognition boundaries, falling short of revolutionizing human-computer interaction paradigms.

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Facial expressions represent the changes on a person's face that reflect their inner emotional state, intentions, and communication. They serve as the most effective and quick or immediate means for humans to convey their emotions and express their intentions naturally and without words with the help of nonverbal communication. Facial emotion recognition (FER) is needed in numerous applications like scientific, medical science, investment, and market research. Emotion recognition has captivated numerous researchers in this field, drawing their interest across various know-hows such as IoT, AI with ML, and electronic sensors. Facial expression as input helps machine to identify emotions. Machines are somewhat capable of understanding basic human emotions; however, complex emotion recognition is still novice. The correctness of emotion prediction and use of the correct algorithms is still evolving in complex facial emotion detection. This chapter comprehensively explores methods for complex facial emotion recognition, utilizing computer vision and machine learning algorithms.

Himani Pokhriyal, Delhi Technological University, India
Goonjan Jain, Delhi Technological University, India

Sarcasm is a procedure of verbal irony that is planned to convey ridicule, contempt, or mockery. Because sarcasm can change a statement's meaning, the viewpoint analysis procedure is susceptible to mistakes. Sarcastic remarks simply have reduced the effectiveness of sentiment estimation, according to the prior study. This chapter uses the unsupervised mathematical optimisation-based language model to create a sarcasm recognition system between human-computer interactions. The proposed model is mostly focused

on sarcasm detection and misconception comments circulating on social networks. The first level of data preparation is in the described proposed strategy. The ensemble language modelling with the Wilson's algorithm is used to identify and categorise sarcasm which enhances its detection performance. The four datasets were created to perform the experimental findings of the proposed methodology. The results highlighted enhanced outcomes by proposed method.

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    Siddharth Vats, IMS Engineering College, India
    Rabab Anjum, IMS Engineering College, India

The convergence of artificial intelligence and human ingenuity has given rise to an unprecedented class of interconnected systems characterized by their remarkable capacity to endure adversity and adapt to changing conditions. An expanding number of industries, including manufacturing, logistics, finance, and healthcare, are being penetrated by these systems; consequently, our technological and operational interactions are being transformed. Its primary objective is to fortify systems in order to endure the inevitable disruptions and uncertainties that are intrinsic to our constantly evolving world. This chapter explores the intricacies of resilience engineering in symbiotic human-AI systems, clarifying fundamental strategies and principles that empower these systems to endure unforeseen obstacles and maintain stability amidst chaos. The objective of this research is to examine the capacity of AI to augment human capabilities, thereby enabling the creation of mutually advantageous systems that exceed traditional limitations and achieve remarkable levels of durability and performance.

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The term COBOT refers to "collaborative robot," which is created by combining humans and robots to increase the efficacy and efficiency of industrial processes. Cobots have extensive applications in various sectors, including healthcare, motoring, production, electronics, space exploration, logistics, and astronomy. Industry 5.0 is a development that aims to combine human specialists' creativity with accurate, intelligent, and efficient technologies to revolutionize manufacturing processes worldwide. Therefore, in the age of Industry 5.0, there is a great demand for Cobots with high, quick advancement, and low costs. Industry evolution, fundamentals of Cobots, how they differ from robots, key features, basic components, the significant role of Cobots in Industry 5.0, challenges and limitations, future scope, and ethical aspects of Cobots are covered in this chapter. This book chapter is a comprehensive manual for academic researchers and corporate executives to learn about Cobots completely.

Preface

As editors of *Industry 5.0: Applications of Artificial Emotional Intelligence: Transforming Human-Machine Interaction*, we are delighted to present this comprehensive volume which explores the intersection of artificial emotional intelligence (AEI) and Industry 5.0.

The Fifth Industrial Revolution promises a future where humans and machines collaborate synergistically, transcending traditional boundaries to create a new era of productivity and innovation. At the heart of this revolution lies the integration of emotional intelligence into the industrial landscape, heralding a paradigm shift in how humans interact with machines and technology.

In this book, we have assembled leading researchers and practitioners from diverse disciplines to provide a multifaceted exploration of AEI in Industry 5.0 settings. From theoretical foundations to practical applications, each chapter offers valuable insights into the transformative potential of AEI across industries.

The journey begins with a deep dive into the theoretical underpinnings of AEI, exploring the technologies driving emotion recognition and response. As we navigate through the chapters, readers will encounter real-world examples of AEI in action, from emotionally intelligent human-robot interfaces to empathetic AI systems designed to enhance worker well-being.

One of the key objectives of this book is to bridge the gap between research and practice, offering actionable insights for both scholars and industry professionals. By highlighting ethical considerations, privacy concerns, and human-centered design principles, we aim to foster responsible innovation in the deployment of AEI technologies.

We envision this book serving as a valuable resource for researchers, academicians, industry practitioners, and policymakers alike. Whether you are interested in cognitive behavior, psychology, business analytics, or artificial intelligence, there is something in these pages to inspire and inform your work.

As we stand on the cusp of a new era in human-computer interaction, we invite you to join us in exploring the transformative potential of AEI for Industry 5.0. Together, let us unlock new possibilities and shape a future where humans and machines thrive in harmony.

Chapter 1: Navigating the Future Trends and Applications in Artificial Intelligence and Machine Learning

Authored by Neeraj Sharma, Sushil Maurya, and Pooja Kapoor, this chapter provides a panoramic view of the evolving landscape of artificial intelligence (AI) and machine learning (ML). Amidst the rapid pace of technological advancement and the global shifts catalyzed by the COVID-19 pandemic, the chapter explores the latest trends in AI and ML, highlighting their pivotal role in shaping our contactless future.

Chapter 2: New Theoretical Paradigms in Cognitive Psychology

Written by Pankaj Bhambri and Alex Khang, this chapter delves into contemporary theories influencing cognitive psychology research. It evaluates emerging theoretical frameworks that challenge conventional viewpoints, offering novel perspectives on cognitive processes. By integrating neuroscientific findings and cultural variables, the chapter enriches our understanding of cognitive psychology's future trajectory.

Chapter 3: A Review of Artificial Emotional Intelligence for Human-Computer Interactions Applications and Challenges

Dr. N. Suthanthira Vanitha and Radhika K present a comprehensive review of AEI's applications and challenges in human-computer interactions. Exploring emotion recognition algorithms and ethical considerations, the chapter illuminates the potential and pitfalls of emotionally intelligent AI systems.

Chapter 4: Enhancing Human-Computer Interaction through Artificial Emotional Intelligence: A Comprehensive Multidisciplinary Study

Sayani Das and Archan Mitra delve into the integration of AEI into human-computer interaction, emphasizing its transformative potential. Through literature reviews and case studies, the chapter demonstrates how AEI enhances user experiences across various sectors while addressing technical challenges and ethical concerns.

Chapter 5: Leveraging Emotional AI for Improved Human-Computer Interactions: An Interdisciplinary Perspective

Authored by Vimala Govindaraju and Dhanabalan Thangam, this chapter explores emotion recognition systems' role in human-machine interaction. By reviewing emotional interaction models, the chapter sheds light on how AI can better understand and respond to human emotions, enhancing user experience.

Chapter 6: The Need for Emotional Intelligence in Human-Computer Interactions

Sachinkumar Goswami, Saurabh Dave, and Kashyapkumar Patel investigate emotional intelligence's role in HCI. Through user studies and literature reviews, the chapter highlights EI's impact on user experience and engagement, advocating for its integration into HCI models.

Chapter 7: Enhancing Human-Robot Collaboration Through Emotional Intelligence – A Conceptual Exploration

Authored by Anitha K, Monisha J, and Indrajit Ghosal, this chapter explores emotionally intelligent robots' potential in human-robot collaboration. By examining their impact on user experience and collaboration dynamics, the chapter contributes to the theoretical foundation of human-robot interaction.

Chapter 8: Revolutionizing Learning Experiences by Enhancing Learning Proficiency using Artificial Intelligence and Human Computer Interaction

Rabi Shaw, Simanjeet Kalia, and Sourabh Mohanty investigate AI's impact on learning experiences. By integrating EEG, AI, and pedagogy, the chapter explores how technology enhances educational practices and creates personalized learning experiences.

Chapter 9: Enhancing Human-Computer Interaction through Vision-Based Hand Gesture Recognition: An OpenCV and Keras Approach

Authored by Swetha Margaret T A and Renuka Devi D, this chapter focuses on hand gesture recognition systems' role in HCI. Through a vision-based approach, the chapter demonstrates how OpenCV and Keras can improve human-computer interaction in various environments.

Chapter 10: Performance Enhancement of Speech Recognition by using Machine Learning Techniques specifically GAN-AE Algorithm an Overview

Mandar Diwakar and Brijendra Gupta explore speech recognition systems' performance enhancement using ML techniques. By combining GANs and AEs, the chapter improves speech recognition accuracy, paving the way for more reliable human-computer interaction.

Chapter 11: Complex Face Emotion Recognition using Computer Vision and Machine Learning

Milind Talele, Rajashree Jain, and Shrikant Mapari delve into complex facial emotion recognition using computer vision and ML. By reviewing emotion recognition algorithms, the chapter addresses challenges in interpreting complex facial expressions, contributing to more accurate human-computer interaction.

Chapter 12: Sarcasm Detection Acknowledging Misleading Content in Social Media Using Optimised Wilson's Technique and Gumbel Mechanism

Himani Pokhriyal and Goonjan Jain investigate sarcasm detection in social media using mathematical optimization techniques. By proposing a sarcasm recognition system, the chapter enhances sentiment analysis in human-computer interactions, addressing challenges in detecting sarcastic comments.

Chapter 13: Thriving Together Resilience Engineering in Human-AI Symbiosis

Authored by Dr. Anurag Dixit, Siddharth Vats, and Rabab Anjum, this chapter explores resilience engineering in human-AI systems. By examining strategies for enduring adversity and maintaining stability, the chapter elucidates the potential of AI to augment human capabilities and create resilient symbiotic systems.

Chapter 14: COBOTS-Vital Role in Significant Domains

Sasee Kala, Sarlin Raj, and Anu P provide a comprehensive overview of collaborative robots (cobots). By exploring cobots' applications, features, and ethical considerations, the chapter offers insights into their role in Industry 5.0 and beyond, serving as a valuable resource for researchers and industry professionals.

In conclusion, *Industry 5.0: Applications of Artificial Emotional Intelligence: Transforming Human-Machine Interaction* encapsulates the essence of a burgeoning field poised to reshape the landscape of industry and technology. As editors, we take pride in presenting this comprehensive volume, which serves as a testament to the collaborative efforts of leading researchers and practitioners from diverse disciplines.

The journey through the chapters of this book has been illuminating, offering insights into the integration of artificial emotional intelligence (AEI) into the fabric of Industry 5.0. From theoretical foundations to practical applications, each chapter contributes to our understanding of how AEI enhances human-machine interactions and drives innovation across industries.

As we navigate the complexities of AEI, it becomes evident that this integration represents more than just technological advancement—it embodies a fundamental shift in how we perceive and interact with machines. By imbuing technology with emotional intelligence, we empower it to understand and respond to human needs in more nuanced and empathetic ways.

Moreover, this book underscores the importance of responsible innovation, emphasizing ethical considerations, privacy concerns, and human-centered design principles. As we usher in this new era of human-computer interaction, it is imperative that we do so with a keen awareness of the ethical implications and a commitment to ensuring that technology serves humanity's best interests.

We hope that this book will serve as a valuable resource for researchers, academicians, industry professionals, and policymakers alike, inspiring further exploration and innovation in the field of AEI. Together, let us embrace the transformative potential of AEI and work towards a future where humans and machines coexist harmoniously, ushering in a new era of productivity, efficiency, and empathy.

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Chapter 5
Leveraging Emotional AI for Improved Human-Computer Interactions:
An Interdisciplinary Perspective

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ABSTRACT

Emotions are psychophysiological processes that are sparked by both conscious and unconscious perceptions of things and events. Mood, motivation, temperament, and personality are frequently linked to emotions. Human-machine interaction will see the creation of systems that can recognize and interpret human emotions in a range of ways as computers and computer-based applications get more advanced and pervasive in people's daily lives. More sympathetic and customized relationships between humans and machines can result from efficient emotion recognition in human-machine interactions. Emotion recognition systems are able to modify their responses and user experience based on the analysis of interpersonal communication signals. The ability of virtual assistants to respond emotionally more effectively, the ability to support mental health systems by identifying users' emotional states, the improvement of customer support interactions with emotionally responsive Chabots, and the enhancement of human-robot collaboration are just a few examples of real-world applications. Reviewing the interpersonal communication elements of the emotional interaction models that are now in use is the aim of this chapter.

BACKGROUND OF THE STUDY

Human-computer interactions have advanced beyond basic functioning in the current digital era, placing an emphasis on emotional resonance and empathy. AI-powered emotional intelligence (AEI) is a revolutionary method of bridging the human-machine divide. AEI transforms user experiences by endowing technologies with the ability to recognize, comprehend, and react to human emotions. Artificial Emotion Intelligence (AEI) allows computers to understand human emotions remarkably well by using sophisticated facial expression, speech, and contextual cue interpretation. A study pointed deeper relationships between humans and robots are fostered through the usage of this technology, which makes interactions more meaningful, personalized, and intuitive (Weiss & Spiel, 2022). AEI has the potential to improve people's lives through empathic and responsive computing, revolutionizing a range of industries such as healthcare and customer service to education and entertainment.

The quality of interpersonal communication in digital environments is being improved by machines that can recognize and understand human emotions thanks to the development of emotion recognition technology, which is drastically changing human-machine interaction. It is essential for the advancement of research in this segment to comprehend the theoretical underpinnings, technological developments, and ramifications of these advancements. Under the umbrella term "affective computing," research on the function of emotions during user-interaction with interactive systems has grown in the past few years (Picard 1997). According to Gratch and Marsella (2004), the basic tenet of the theory is that "incorporating" emotions into interactive systems would improve system responses and, as a result, allow system users to respond in ways that are more realistic (de Melo, Carnevale, and Gratch 2012, Krämer et al. 2013).

In the psychology of human robot interaction (HRI) perspective, emotion recognition is essential since it has a significant impact on the dynamics and efficacy of these interactions (Gervasi et al., 2023). Gaining the benefits of social intelligence and empathy in user interactions requires robots to be emotionally intelligent and capable of recognizing and interpreting human emotions. Emotion recognition has several potential uses in the fields of psychology and Human–Computer Interaction (HCI). An individual's emotions are fundamental to their daily choices and overall wellbeing. Affect and emotion play important roles in human existence. People's thoughts and actions are influenced by their emotions, particularly when they are interacting with other people.

The voice, face, and full body all provide emotional cues, which are essential pieces of information for interpersonal communication. Understanding emotions is essential to both human–machine and interpersonal communication. Although most earlier research on the subject concentrated on a small number of actions, body expression may have a role in emotion identification. Furthermore, the majority of earlier research's emotions were acted out, leading to non-natural motion that has no practical application. A study pointed, emotion is crucial for identifying people's comprehension of motivations and behaviors, making it a crucial component in human–machine interaction. Scholars have also identified emotions as the "translation" of non-expressive verbalization or voice modulation, facial expression, or body language (Riemer, Joseph, Lee, and Riemer, 2023). This chapter focuses on a review in interpersonal communication perspective in the emotion recognition in human-machine interaction. Some directions by applying the theoretical frameworks, applications and challenges of emotion recognition in human-machine interaction as well as future directions.

Related Content

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