Engineering Cyber-Physical Systems and Critical Infrastructures

Volume 3

Series Editor

Fatos Xhafa, Departament de Ciències de la Computació, Technical University of Catalonia, Barcelona, Spain

The aim of this book series is to present state of the art studies, research and best engineering practices, real-world applications and real-world case studies for the risks, security, and reliability of critical infrastructure systems and Cyber-Physical Systems. Volumes of this book series will cover modelling, analysis, frameworks, digital twin simulations of risks, failures and vulnerabilities of cyber critical infrastructures as well as will provide ICT approaches to ensure protection and avoid disruption of vital fields such as economy, utility supplies networks, telecommunications, transports, etc. in the everyday life of citizens. The intertwine of cyber and real nature of critical infrastructures will be analyzed and challenges of risks, security, and reliability of critical infrastructure systems will be revealed. Computational intelligence provided by sensing and processing through the whole spectrum of Cloud-to-thing continuum technologies will be the basis for real-time detection of risks, threats, anomalies, etc. in cyber critical infrastructures and will prompt for human and automated protection actions. Finally, studies and recommendations to policy makers, managers, local and governmental administrations and global international organizations will be sought.

Jude Hemanth · Danilo Pelusi ·
Joy Iong-Zong Chen
Editors

Intelligent Cyber Physical Systems and Internet of Things

ICoICI 2022

Springer

Editors
Jude Hemanth
Department of Electronics
and Communication Engineering
Karunya Institute of Technology
and Sciences
Coimbatore, Tamil Nadu, India

Joy Iong-Zong Chen
Department of Electrical Engineering
Da-Yeh University
Dacun, Changhua, Taiwan

Danilo Pelusi
Faculty of Communication Sciences
University of Teramo
Teramo, Italy

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We are honored to dedicate the proceedings of ICoICI 2022 to all the participants and editors of ICoICI 2022.

Preface

It is with deep satisfaction that I write this preface to the proceedings of the ICoICI 2022 held in JCT College of Engineering and Technology, Coimbatore, Tamil Nadu, India, during August 11–12, 2022.

This conference proceedings volume contains the written versions of most of the contributions presented during the conference of ICoICI 2022. The conference provided a setting for discussing recent developments in a wide variety of topics including Cyber-Physical Systems, Data Communication, Computer Networking, Communicational Technologies, Cryptography, Big Data, Cloud Computing, IoT, and Healthcare Informatics. The conference has been a good opportunity for participants coming from various destinations to present and discuss topics in their respective research areas.

ICoICI 2022 conference tends to collect the latest research results and applications on Intelligent Cyber Physical Systems and Internet of Things. It includes a selection of 65 papers from 302 papers submitted to the conference from universities and industries all over the world. All of accepted papers were subjected to strict peer-reviewing by 2–4 expert referees. The papers have been selected for this volume because of quality and the relevance to the conference.

ICoICI 2022 would like to express our sincere appreciation to all authors for their contributions to this book. We would like to extend our thanks to all the referees for their constructive comments on all papers, especially, we would like to thank to committee members for their hard working. Finally, we would like to thank the Springer publications for producing this volume.

Guest Editors—ICoICI 2022

Coimbatore, India — Prof. Dr. Jude Hemanth

Teramo, Italy — Dr. Danilo Pelusi

Dacun, Taiwan — Prof. Dr. Joy Iong-Zong Chen

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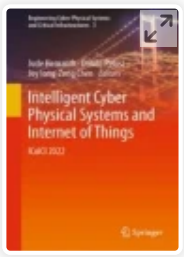

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Intelligent Cyber Physical Systems and Internet of Things

ICoICI 2022

Editors: Jude Hemanth, Danilo Pelusi, Joy Iong-Zong Chen

Presents advanced computing and networking technologies to enable intelligent and efficient IoT and CPS

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About this book

This book highlights the potential research areas of Information and Communication Technologies (ICT), such as the research in the field of modern computing and communication technologies that deal with different aspects of data analysis and network connectivity to develop solution for the emerging real-time information system challenges; contains a brief discussion about the progression from information systems to intelligent information systems, development of autonomous systems, real-time implementation of Internet of Things (IoT) and Cyber Physical Systems (CPS), fundamentals of intelligent information systems and analytical activities; helps to gain a significant research knowledge on modern communication technologies from the novel research contributions dealing with different aspects of communication systems, which showcase effective technological solutions that can be used for the implementation of novel distributed wireless communication systems. The individual chapters included in this book will provide a valuable resource for the researchers, scientists, scholars, and research enthusiasts, who have more interest in Information and Communication Technologies (ICT).

Encompassing the contributions of professors and researchers from Indian and other foreign universities, this book will be of interest to students, researchers, and practitioners, as well as members of the general public interested in the realm of Internet of Things (IoT) and Cyber Physical Systems (CPS).

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Keywords

Cyber-Physical Systems

Human-Machine Interactions

IoT Enabling Technologies

Mobile and Wearable Devices

Communication Technologies

Mobile Computing and Network Security

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Editors and Affiliations

Department of Electronics and Communication Engineering, Karunya Institute of Technology and Sciences, Coimbatore, India
Jude Hemanth

Faculty of Communication Sciences, University of Teramo, Teramo, Italy
Danilo Pelusi

Department of Electrical Engineering, Da-Yeh University, Dacun, Changhua, Taiwan
Joy Iong-Zong Chen

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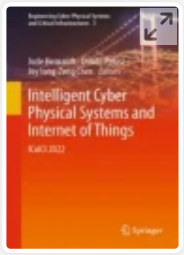

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BizGuru 1.0: Design and Development of a Mobile-Based Digital Marketing Guide for Elderly

Ahmad Sofian Shminan, Nur Zulaikha Mohamed Aziyen, Lee Jun Choi & Merikan Aren

Conference paper | First Online: 04 February 2023

Part of the Engineering Cyber-Physical Systems and Critical Infrastructures book series (ECPSCI,volume 3)

Abstract

BizGuru 1.0 is an online learning platform using mobile devices known as mobile-based learning. It is a modernized alternative to acquiring knowledge which is suitable with the current digitalized environment. BizGuru provides learning materials that promote business-related knowledge, focusing on Digital Marketing. However, in this study, the mobile application design will be focusing on the elder's group to cater for their needs. The target users are people aged 60 years old and above, who

use an Android smartphone and are interested in gaining new knowledge. The purpose of the proposed application is to help these retired elderlies find an alternative that enables them to gain income at late age to continue supporting their living expenses. With the current pandemic situation and how they are often related to poverty, both circumstances result in the elders having to struggle to survive financially. Therefore, by using BizGuru, the elderlies do not only get to familiarize themselves with modern devices, but also they could look for other alternatives to gain income and avoid poverty which helps to fulfil the 1st goal of Sustainable Development Goals (SDG) on the eradication of poverty issues. Besides, this proposed application also provides learning opportunities for elderlies who have the desire to gain knowledge at late age which can help fulfil the 4th goal of SDG which is promoting life-long learning opportunities for all.

Keywords

Mobile-based learning **Digital marketing**

Elderly community

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Author information

Authors and Affiliations

Faculty of Cognitive Sciences and Human Development, Universiti Malaysia Sarawak, 94300, Kota Samarahan, Sarawak, Malaysia
Ahmad Sofian Shminan, Nur Zulaikha Mohamed Aziyen, Lee Jun Choi & Merikan Aren

Corresponding author

Correspondence to Ahmad Sofian Shminan .

Editor information

Editors and Affiliations

Department of Electronics and Communication Engineering, Karunya Institute of Technology and Sciences, Coimbatore, Tamil Nadu, India
Jude Hemanth

Faculty of Communication Sciences, University of Teramo, Teramo, Italy
Danilo Pelusi

Department of Electrical Engineering, Da-Yeh University, Dacun, Changhua, Taiwan

Joy Iong-Zong Chen

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