Chapter Iii Universiti Teknologi Malaysia

Nanoelectronics are a diverse set of materials and devices that are so small that quantum mechanics need to be applied to their function. The possibilities these devices present outweigh the difficulties associated with their development, as biosensors and similar devices have the potential to vastly improve our technological reach. The Handbook of Research on Nanoelectronic Sensor Modeling and Applications begins with an introduction of the fundamental concepts of nanoelectronic sensors, then proceeds to outline in great detail the concepts of nanoscale device modeling and nanoquantum fundamentals. Recent advances in the field such as graphene technology are discussed at length in this comprehensive handbook, ideal for electrical engineers, advanced engineering students, researchers, and academics.
"This book brings together advanced research on diverse topics in wireless communications and networking, including the latest developments in broadband technologies, mobile communications, wireless sensor networks, network security, and cognitive radio networks"--
Knowledge of scientific and technological developments, and the flexible communication and decision making, knowledge sharing, and collaboration that stem from them, can enable organizations and individuals to be successful and viable competitors in today’s global economy. Information Systems and Technology for Organizational Agility, Intelligence, and Resilience aims to advise and support organizational agents who want ensure success in terms of financial, social, and environmental aspects, as well as in the aspect of human development, in a more sustainable way. The premier reference work provides examples of conceptual research, methodologies, empirical cases, and success cases for academics, researchers, intermediaries, and organizations looking to use information systems and technology to boost their agility, intelligence, and resilience.
As the Web grows and expands into ever more remote parts of the world, the availability of resources over the Internet increases exponentially. Making use of this widely prevalent tool, organizations and individuals can share and store knowledge like never before. Cloud Technology: Concepts, Methodologies, Tools, and Applications investigates the latest research in the ubiquitous Web, exploring the use of applications and software that make use of the Internet’s anytime, anywhere availability. By bringing together research and ideas from across the globe, this publication will be of use to computer engineers, software developers, and end users in business, education, medicine, and more.
The implementation of teleworking has enhanced the workforce and provided more flexible work environments. This not only leads to more productive workers, but it allows for a more diverse labor force. Remote Work and Collaboration: Breakthroughs in Research and Practice examines the benefits and challenges of working with telecommuting associates in the modern work environment. Including innovative studies on unified communications, data sharing, and job satisfaction, this multi-volume book is an ideal source for academicians, scientists, business entrepreneurs, practitioners, managers, and policy makers actively involved in the contemporary business industry.
From driverless cars to vehicular networks, recent technological advances are being employed to increase road safety and improve driver satisfaction. As with any newly developed technology, researchers must take care to address all concerns, limitations, and dangers before widespread public adoption. Intelligent Transportation and Planning: Breakthroughs in Research and Practice is an innovative reference source for the latest academic material on the applications, management, and planning of intelligent transportation systems. Highlighting a range of topics, such as automatic control, infrastructure systems, and system architecture, this publication is ideally designed for engineers, academics, professionals, and practitioners actively involved in the transportation planning sector.
In order to improve competitiveness and performance, corporations must embrace advancements in digitalization. Successful implementation of knowledge management is a huge factor in corporate success. Analyzing the Impacts of Industry 4.0 in Modern Business Environments is a critical scholarly publication that explores digital transformation in business environments and the requirement for not only a substantial management change plan but equally the two essential components of knowledge management: knowledge sharing and knowledge transfer. Featuring a broad range of topics such as strategic planning, knowledge transfer, and cybersecurity risk management, this book is geared toward researchers, academicians, and students seeking current and relevant research on organizational knowledge intensity and monitoring of knowledge management development.
The infusion of technology into curriculum influences the methods and techniques used to educate the student population. By integrating effective technology in education, teachers are provided with a better opportunity to adapt and enhance the learning experience for students from various backgrounds. Diverse Learning Opportunities Through Technology-Based Curriculum Design provides innovative insights into the development and advancement of online instruction and educational technology to engage students from diverse backgrounds. The content within this publication addresses academic performance, technology integration, and online learning. It is geared towards educators, educational software developers, instructional designers, and researchers, and it covers topics centered on the methods to adjust, adapt, and implant the newest technology into contemporary curriculum.
Modern society thrives on communication that is instant and available at all times, a constant exchange of information that encompasses everything from video streaming to GPS navigation. Experts even suggest that in the near future everything from our cars to our kitchen appliances will be connected to the internet, a feat that would not be possible without advanced wireless technology. Wideband, Multiband, and Smart Reconfigurable Antennas for Modern Wireless Communications showcases current trends and novel approaches in the design and analysis of the antennas that make wireless applications possible, while also identifying unique integration opportunities for antennas and wireless applications to work together. By featuring both theoretical and experimental approaches to integration, this book highlights specific design issues to assist a wide-range of readers including students, researchers, academics, and industry practitioners. This publication features chapters on a broad scope of topics including algorithms and antenna optimization, wireless infrastructure development, wireless applications of intelligent algorithms, antenna architecture, and antenna reconfiguration techniques.

As information systems become ever more pervasive in an increasing number of fields and professions, nurses in healthcare and medicine must take into consideration new advances in technologies and infrastructure that will better enable them to treat their patients and serve their communities. Nursing Education, Administration, and Informatics: Breakthroughs in Research and Practice is a comprehensive reference source for the latest scholarly material on nursing administration with a focus on patient care, the strategic management of nursing staff, and other areas. Highlighting a range of pertinent topics, such as online nursing education, social media for professional development, and practical nurse training, this publication is ideally designed for doctors, nurse practitioners, hospital administrators, and researchers and academics in all areas of the medical field.

We live in a wireless society, one where convenience and accessibility determine the efficacy of the latest electronic gadgets and mobile devices. Making the most of these technologies—and ensuring their security against potential attackers—requires increased diligence in mobile technology research and development. Mobile Computing and Wireless Networks: Concepts, Methodologies, Tools, and Applications brings together a comprehensive range of voices and research in the area of mobile and wireless technologies, exploring the successes and failures, advantages and drawbacks, and benefits and limitations of the technology. With applications in a plethora of different research and topic areas, this multi-volume reference work benefits researchers, service providers, end-users, and information technology professionals. This four-volume reference work includes a diverse array of chapters and authors covering topics such as m-commerce, network ethics, mobile agent systems, mobile learning, communications infrastructure, and applications in fields such as business, healthcare, government, tourism, and more.

As lifestyles in personal and public spheres become more fast-paced and hectic, the need for reliable mobile technologies becomes increasingly important. Insights into the various impacts of mobile applications pave the way for future advances and developments in communication and interaction. Critical Socio-Technical Issues Surrounding Mobile Computing is a pivotal reference source for research-based perspectives on the use and application of mobile technology in modern society. Featuring extensive research on a variety of topics relating to the social, technical, and behavioral perspectives of mobile applications, this book is an essential reference source for mobile application developers, instructors, practitioners, and students interested in current research on the impact of mobile devices on individuals and society as a whole.

"This reference brings together an impressive array of research on the development of Science, Technology, Engineering, and Mathematics curricula at all educational levels"--Provided by publisher.

Organizations of all types are consistently working on new initiatives, product lines, and workflows as a way to remain competitive in the modern business environment. No matter the type of project at hand, employing the best methods for effective execution and timely completion of the task is essential to business success. Operations and Service Management: Concepts, Methodologies, Tools, and Applications is a comprehensive reference source for the latest research on business operations and production processes. It examines the need for a customer focus and highlights a range of pertinent topics such as financial performance measures, human resource development, and business analytics, this multi-volume book is ideally designed for managers, professionals, students, researchers, and academics interested in operations and service management.

Although computational intelligence and soft computing are both well-known fields, using computational intelligence and soft computing in conjunction is an emerging concept. This combination can effectively be used in practical areas of various fields of research. Applied Computational Intelligence and Soft Computing in Engineering is an essential reference work featuring the latest scholarly research on the concepts, paradigms, and algorithms of computational intelligence and its constituent methodologies such as evolutionary computation, neural networks, and fuzzy logic. Including coverage on a broad range of topics and perspectives such as cloud computing, sampling in optimization, and swarm intelligence, this publication is ideally designed for engineers, academicians, technology developers, researchers, and students seeking current research on the benefits of applying computation intelligence techniques to engineering and technology.

This volume is the third part of a four-volume set (CCIS 190, CCIS 191, CCIS 192, CCIS 193), which constitutes the refereed proceedings of the First International Conference on Computing and Communications, ACC 2011, held in Kochi, India, in July 2011. The 70 revised full papers presented in this volume were carefully reviewed and selected from a large number of submissions. The papers are organized in topical sections on security, trust and privacy; sensor networks; signal and image processing; soft computing techniques; system software; vehicular communications networks.

"This book provides insights into initiatives that enhance student learning and contribute to improving the quality of undergraduate STEM education"--Provided by publisher.

Population growth and industrial development have increased the amount of wastewater generated by urban areas, and one of the major problems facing industrialized nations is the contamination of the environment by hazardous chemicals. Therefore, to meet the standards, suitable treatment alternatives should be established. Advanced Oxidation Processes (AOPs) in Water and Wastewater Treatment is a pivotal reference source that provides vital research on the current, green, and advanced technologies for wastewater treatment. While highlighting topics such as groundwater treatment, environmental legislation, and oxidation processes, this publication explores the contamination of environments by hazardous chemicals as well as the methods of decontamination and the reduction of negative effects on the environment. This book is a vital reference source for environmental engineers, waste authorities, solid waste management companies, landfill operators, legislators, environmentalists, and academicians seeking current research on achieving sustainable management for wastewater treatment.

A compendium of over 50 scholarly works on discourse behavior in digital communication.

Continuous improvements in technological applications have allowed more opportunities to develop systems with user-focused designs. This not only leads to higher success in day-to-day usage, but it increases the overall probability of technology adoption. Design Solutions for User-Centric Information Systems provides a comprehensive examination of the latest strategies and methods for creating technological systems with end users as the focal point of the design process. Highlighting innovative practices and applications across a variety of areas, such as cloud-based computing services, e-government adoption, and logistics evaluation, this book is an ideal reference source for computer engineers, practitioners, project managers, graduate students, and researchers interested in the enhancement of user-centric information system development.

In the current educational environment, there has been a shift towards online learning as a replacement for the traditional in-person classroom experience. With this new environment comes new technologies, benefits, and challenges for providing courses to students through an entirely digital environment. With this shift comes the necessary research on how to utilize these online courses and how to develop effective online educational materials that fit student needs and

encourage student learning, motivation, and success. The optimization of these online tools requires a deeper look into curriculum, instructional design, teaching techniques, and new models for student assessment and evaluation. Information on how to create valuable online course content, engaging lesson plans for the digital space, and meaningful student activities online are only a few of many current topics of interest for promoting student achievement through online learning. The Research Anthology on Developing Effective Online Learning Courses provides multiple perspectives on how to develop engaging and effective online learning courses in the wake of the rapid digitalization of education. This book includes topics focused on online learners, online course content, effective online instruction strategies, and instructional design for the online environment. This reference work is ideal for curriculum developers, instructional designers, IT consultants, deans, chairs, teachers, administrators, academicians, researchers, and students interested in the latest research on how to create online learning courses that promote student success.

"This book provides an opportunity for readers to clearly understand the notion of ontology engineering and the practical aspects of this approach in the domains of two interest areas: Knowledge Management Systems and Enterprise Systems"--

The latest advances and trends in technology have enabled rapid development in the field of language education. Students and teachers alike now benefit from the assistance of various technological innovations, thus increasing the overall effectiveness of the curriculum. The Handbook of Research on Individual Differences in Computer-Assisted Language Learning addresses the implementation of current research methodologies within EFL and ESL classroom settings and the variety of modifications employed by language experts. Focusing on quantitative, qualitative, and mixed methods studies, this book is an essential reference source for applied linguists, CALL researchers, language teachers, and upper-level students within the field of foreign language education.

Across numerous industries in modern society, there is a constant need to gather precise and relevant data efficiently and quickly. As such, it is imperative to research new methods and approaches to increase productivity in these areas. Ontologies and Big Data Considerations for Effective Intelligence is a key source on the latest advancements in multidisciplinary research methods and applications and examines effective techniques for managing and utilizing information resources. Featuring extensive coverage across a range of relevant perspectives and topics, such as visual analytics, spatial databases, retrieval systems, and ontology models, this book is ideally designed for researchers, graduate students, academics, and industry professionals seeking ways to optimize knowledge management processes.

The last ten years have seen rapid advances in nanoscience and nanotechnology, allowing unprecedented manipulation of the nanoscale structures controlling solar capture, conversion, and storage. Filled with cutting-edge solar energy research and reference materials, the Handbook of Research on Solar Energy Systems and Technologies serves as a one-stop resource for the latest information regarding different topical areas within solar energy. This handbook will emphasize the application of nanotechnology innovations to solar energy technologies, explore current and future developments in third generation solar cells, and provide a detailed economic analysis of solar energy applications.

In a diverse society, the ability to cross communication barriers is critical to the success of any individual personally, professionally, and academically. With the constant acceleration of course programs and technology, educators are continually being challenged to develop and implement creative methods for engaging English-speaking and non-English-speaking learners. Computer-Assisted Language Learning: Concepts, Methodologies, Tools, and Applications is a vital reference source that examines the relationship between language education and technology and the potential for curriculum enhancements through the use of mobile technologies, flipped instruction, and language-learning software. This multi-volume book is geared toward educators, researchers, academics, linguists, and upper-level students seeking relevant research on the improvement of language education through the use of technology.

Precision agriculture integrates new technologies with the agronomic experience to intelligently manage the high spatial variability of all agricultural variables and the time scales at which these variables change. The right application of this approach increases the size and quality of the agricultural production; saves resources; improves environmental quality; helps to achieve self-sufficiency, food security, and agricultural sustainability; increases exports; and more. Precision Agriculture Technologies for Food Security and Sustainability is an essential reference source that compiles a comprehensive, multidisciplinary review of current research in the field of precision agriculture. It also discusses cutting-edge tools and models that can help facilitate and improve the systems implementation. Featuring coverage of a wide range of topics including agronomy, public policy, and internet of things, this book is ideally designed for agriculturalists, government officials, economists, environmentalists, academicians, researchers, students, and engineers in the fields of electronics, ICT, and agriculture.

The digital age has presented an exponential growth in the amount of data available to individuals looking to draw conclusions based on given or collected information across industries. Challenges associated with the analysis, security, sharing, storage, and visualization of large and complex data sets continue to plague data scientists and analysts alike as traditional data processing applications struggle to adequately manage big data. The Handbook of Research on Big Data Storage and Visualization Techniques is a critical scholarly resource that explores big data analytics and technologies and their role in developing a broad understanding of issues pertaining to the use of big data in multidisciplinary fields. Featuring coverage on a broad range of topics, such as architecture patterns, programing systems, and computational energy, this publication is geared towards professionals, researchers, and students seeking current research and application topics on the subject.

"This book provides an overview of current research and development activity in the area of learning designs"--Provided by publisher.

Technology Diffusion and Adoption: Global Complexity, Global Innovation discusses the emerging topics of information technology and the IT based solutions in global and multi-cultural environments. This comprehensive collection addresses the aspects of innovation diffusion in the field of business computing technologies and is essential for researchers, practitioners, academicians and educators all over the world.

Advanced approaches to software engineering and design are capable of solving complex computational problems and achieving standards of performance that were unheard of only decades ago. Handbook of Research on Emerging Advancements and Technologies in Software Engineering presents a comprehensive investigation of the most recent discoveries in software engineering research and practice, with studies in software design, development, implementation, testing, analysis, and evolution. Software designers, architects, and technologists, as well as students and educators, will find this book to be a vital and in-depth examination of the latest notable developments within the software engineering community.

Traditional classroom learning environments are quickly becoming a thing of the past as research continues to support the integration of learning outside of a structured school environment. Blended learning, in particular, offers the best of both worlds, combining classroom learning with mobile and web-based learning environments. Blended Learning: Concepts, Methodologies, Tools, and Applications explores

emerging trends, case studies, and digital tools for hybrid learning in modern educational settings. Focusing on the latest technological innovations as well as effective pedagogical practice, this critical multi-volume set is a comprehensive resource for instructional designers, educators, administrators, and graduate-level students in the field of education.

The pervasiveness of and universal access to modern Information and Communication Technologies has enabled a popular new paradigm in the dissemination of information, art, and ideas. Now, instead of relying on a finite number of content providers to control the flow of information, users can generate and disseminate their own content for a wider audience. Open Source Technology: Concepts, Methodologies, Tools, and Applications investigates examples and methodologies in user-generated and freely-accessible content available through electronic and online media. With applications in education, government, entertainment, and more, the technologies explored in these volumes will provide a comprehensive reference for web designers, software developers, and practitioners in a wide variety of fields and disciplines.

Over the past decade, there has been an increase in attention and focus on the discipline of software engineering. Software engineering tools and techniques have been developed to gain more predictable quality improvement results. Process standards such as Capability Maturity Model Integration (CMMI), ISO 9000, Software Process Improvement and Capability dEtermination (SPICE), Agile Methodologies, and others have been proposed to assist organizations to achieve more predictable results by incorporating these proven standards and procedures into their software process. Software Process Improvement and Management: Approaches and Tools for Practical Development offers the latest research and case studies on software engineering and development. The production of new process standards assist organizations and software engineers in adding a measure of predictability to the software process. Companies can gain a decisive competitive advantage by applying these new and theoretical methodologies in real-world scenarios. Researchers, scholars, practitioners, students, and anyone interested in the field of software development and design should access this book as a major compendium of the latest research in the field.

This 4-Volume-Set, CCIS 0251 - CCIS 0254, constitutes the refereed proceedings of the International Conference on Informatics Engineering and Information Science, ICIEIS 2011, held in Kuala Lumpur, Malaysia, in November 2011. The 210 revised full papers presented together with invited papers in the 4 volumes were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on e-learning, information security, software engineering, image processing, algorithms, artificial intelligence and soft computing, e-commerce, data mining, neural networks, social networks, grid computing, biometric technologies, networks, distributed and parallel computing, wireless networks, information and data management, web applications and software systems, multimedia, ad hoc networks, mobile computing, as well as miscellaneous topics in digital information and communications.

Nowadays, advanced remote sensing technology plays tremendous roles to build a quantitative and comprehensive understanding of how the Earth system operates. The advanced remote sensing technology is also used widely to monitor and survey the natural disasters and man-made pollution. Besides, telecommunication is considered as precise advanced remote sensing technology tool. Indeed precise usages of remote sensing and telecommunication without a comprehensive understanding of mathematics and physics. This book has three parts (i) microwave remote sensing applications, (ii) nuclear, geophysics and telecommunication; and (iii) environment remote sensing investigations.

"This book highlights the current design issues in wireless networks, informing scholars and practitioners about advanced prototyping innovations in this field"--

With advancing technologies like distributed ledgers, smart contracts, and digital payment platforms, financial services must be innovative in order to remain relevant in the modern era. The adoption of financial technology affects the whole Islamic financial industry as well as the economic stability of a globalized world. There is a need for research that seeks to understand financial technology and the regulatory technology necessary to ensure financial security and stability. Impact of Financial Technology (FinTech) on Islamic Finance and Financial Stability is an essential publication that examines both the theory and application of newly-available financial services and discusses the impact of FinTech on the Islamic financial service industry. Featuring research on topics such as cryptocurrency, peer-to-peer transferring, and digital wallets, this book is ideally designed for researchers, bank managers, economists, analysts, market professionals, managers, executives, computer scientists, business practitioners, academicians, and students seeking coverage on how the latest in artificial intelligence, machine learning, and blockchain technology will redesign Islamic finance.

As society continues to experience increases in technological innovations, various industries must rapidly adapt and learn to incorporate these advances. While there are benefits to implementing these technologies, the sociological aspects still need to be considered. Technology Adoption and Social Issues: Concepts, Methodologies, Tools, and Applications is an innovative reference source for the latest academic material on the various effects of technology adoption, implementation, and acceptance. Highlighting a range of topics, such as educational technology, globalization, and social structure, this multi-volume book is ideally designed for academicians, professionals, and researchers who are interested in the latest insights into technology adoption.