Satellite Technologies For Iot Applications

Wireless Power Transfer (WPT) is considered to be an innovative game changing technology. The same radio wave and electromagnetic field theory and technology for wireless communication and remote sensing is applied for WPT. In conventional wireless communication systems, information is "carried" on a radio wave and is then transmitted over a distance. In WPT however, the energy of the radio wave itself is transmitted over a distance. Wireless communication technology has proven to be extremely useful, however in future it should be even more useful to apply both wireless communication and wireless power technologies together. There are various WPT technologies, e.g. inductive near field WPT, resonance coupling WPT, WPT via radio waves, and laser power transfer. Recent Wireless Power Transfer Technologies via Radio Waves focusses on recent technologies and applications of the WPT via radio waves in far field. The book also covers the history, and future, of WPT via radio waves, as well as safety, EMC and coexistence of radio waves for WPT. Technical topics discussed in the book include: Radio Wave GenerationRadio Wave Amplification with Solid States Circuit and Microwave TubesAntenna and Beam Forming TechnologiesRadio Wave Conversion/Rectification to ElectricityBattery-less Sensor Applications toward Internet of Things (IoT)Solar Power Satellite ApplicationSafety, EMC, Coexistence of Radio Waves for the WPT WPT is an old technology based on the basic theory of radio waves, however WPT is also a state-of-the-art technology for the latest applications in IoT, sensor networks, wireless chargers for mobile phones, and solar power satellite. The theory behind these technologies, as well

as applications, are explained in this book.

Role of Blockchain Technology in IoT Applications, Volume 115 in the Advances in Computers series, reviews the latest information on this topic that promises many applications in human life. According to forecasts made by various market research/survey agencies, there will be around 50 Billion connected devices (IoT) by 2020. Updates in this new release include chapters on the Technical Aspects of Blockchain and IoT, Integrated Platforms for Blockchain-Enablement, Intersections Between IoT and Distributed Ledger, Blockchain and Artificial Intelligence: How and Why Combining These Two Groundbreaking Technologies, Blockchain Applications in Health Care and Opportunities and Advancements Due to New Information Technology Frameworks, and more. Explores blockchain technology research trends in secured device to device communication Includes updates on secure vehicular communication (VANET) using blockchain technology Provides the latest on secure IoT communication using blockchain technology Presents use cases of blockchain technology in healthcare, the food chain, ERP and other emerging areas

This book constitutes the refereed proceedings of the 18th International Conference on Ad-Hoc, Mobile, and Wireless Networks, ADHOC-NOW 2019, held in Luxembourg, in October 2019. The 37 full and 10 short papers presented were carefully reviewed and selected from 64 submissions. The papers provide an in-depth and stimulating view on the new frontiers in the field of mobile, ad hoc and wireless computing. They are organized in the following topical sections: IoT for emergency and disaster management; scheduling and synchronization in WSN; routing strategies for WSN; LPWANs and their integration with satellite; performance improvement of wireless and sensor networks; optimization schemes for increasing sensors lifetime;

vehicular and UAV networks; body area networks, IoT security and standardization.

The proliferation of powerful but cheap devices, together with the availability of a plethora of wireless technologies, has pushed for the spread of the Wireless Internet of Things (WIoT), which is typically much more heterogeneous, dynamic, and general-purpose if compared with the traditional IoT. The WIoT is characterized by the dynamic interaction of traditional infrastructure-side devices, e.g., sensors and actuators, provided by municipalities in Smart City infrastructures, and other portable and more opportunistic ones, such as mobile smartphones, opportunistically integrated to dynamically extend and enhance the WIoT environment. A key enabler of this vision is the advancement of software and middleware technologies in various mobile-related sectors, ranging from the effective synergic management of wireless communications to mobility/adaptivity support in operating systems and differentiated integration and management of devices with heterogeneous capabilities in middleware, from horizontal support to crowdsourcing in different application domains to dynamic offloading to cloud resources, only to mention a few. The book presents state-of-the-art contributions in the articulated WIoT area by providing novel insights about the development and adoption of middleware solutions to enable the WIoT vision in a wide spectrum of heterogeneous scenarios, ranging from industrial environments to educational devices. The presented solutions provide readers with differentiated point of views, by demonstrating how the WIoT vision can be applied to several aspects of our daily life in a pervasive manner.

Optical Wireless Communications for Broadband Global Internet Connectivity: Fundamental and Potential Applications provides a comprehensive overview for readers who require

information about the fundamental science behind optical wireless communications, as well as up-to-date advanced knowledge of the state-of-the-art technologies available today. The book is a useful resource for scientists, researchers, engineers and students interested in understanding optical, wireless communication systems for global channels. Readers will find beneficial knowledge on how related technologies of optical wireless communications can be integrated into achieving worldwide Internet connectivity. Presents an in-depth coverage of information on optical wireless communication in a single source Combines the fundamentals with the most recent advanced technology of achieving global Internet access and connectivity Provides derivations of the mathematical equations Includes between chapter sections where information and learning from one chapter is connected to other chapters
Inclusive Radio Communication Networks for 5G and Beyond is based on the COST IRACON project that consists of 500 researchers from academia and industry, with 120 institutions from Europe, US and the Far East involved. The book presents state-of-the-art design and analysis methods for 5G (and beyond) radio communication networks, along with key challenges and issues related to the development of 5G networks. Covers the latest research on 5G networks – including propagation, localization, IoT and radio channels Based on the International COST research project, IRACON, with 120 institutions and 500 researchers from Europe, US and the Far East involved Provides coverage of IoT protocols, architectures and applications, along with IoT applications in healthcare Contains a concluding chapter on future trends in mobile communications and networking
Current hype aside, the Internet of Things will ultimately become as fundamental as the Internet itself, with lots of opportunities and trials along the way. To help you navigate

these choppy waters, this practical guide introduces a dedicated methodology for businesses preparing to transition towards IoT-based business models. With a set of best practices based on case study analysis, expert interviews, and the authors' own experience, the Ignite | IoT Methodology outlined in this book delivers actionable guidelines to assist you with IoT strategy management and project execution. You'll also find a detailed case study of a project fully developed with this methodology. This book consists of three parts: Illustrative case studies of selected IoT domains, including smart energy, connected vehicles, manufacturing and supply chain management, and smart cities The Ignite | IoT Methodology for defining IoT strategy, preparing your organization for IoT adoption, and planning and executing IoT projects A detailed case study of the IIC Track & Trace testbed, one of the first projects to be fully developed according to the Ignite | IoT Methodology Internet of Things (IoT) is an ecosystem comprised of heterogeneous connected devices that communicate to deliver capabilities making our living, cities, transport, energy, and other areas more intelligent. This book delves into the different cyber-security domains and their challenges due to the massive amount and the heterogeneity of devices. This book introduces readers to the inherent concepts of IoT. It offers case studies showing how IoT counteracts the cyber-security concerns for domains. It provides suggestions on how to mitigate cyber threats by compiling a catalogue of threats that currently comprise the contemporary threat landscape. It then examines different security measures that can be applied to system installations or operational environment and discusses how these measures may alter the threat exploitability level and/or the level of the technical impact. Professionals, graduate students, researchers, academicians, and institutions that are interested in acquiring

knowledge in the areas of IoT and cyber-security, will find this book of interest.

5G is the upcoming generation of the wireless network that will be the advanced version of 4G LTE+ providing all the features of a 4G LTE network and connectivity for IoT devices with faster speed and lower latency. The 5G network is going to be a service-oriented network, connecting billions of IoT devices and mobile phones through the wireless network, and hence, it needs a special emphasis on security. Security is the necessary enabler for the continuity of the wireless network business, and in 5G, network security for IoT devices is the most important aspect. As IoT is gaining momentum, people can remotely operate or instruct their network devices. Therefore, there is a need for robust security mechanisms to prevent unauthorized access to the devices. Evolution of Software-Defined Networking Foundations for IoT and 5G Mobile Networks is a collection of innovative research on the security challenges and prevention mechanisms in high-speed mobile networks. The book explores the threats to 5G and IoT and how to implement effective security architecture for them. While highlighting topics including artificial intelligence, mobile technology, and ubiquitous computing, this book is ideally designed for cybersecurity experts, network providers, computer scientists, communication technologies experts, academicians, students, and researchers.

The emergence of Machine-to-Machine (M2M) and Internet of Things (IoT) applications to enable monitoring and control of remote assets has created a demand for low-cost satellite communications to provide global connectivity. Markets such as maritime, energy, logistics, transport and healthcare could considerably benefit from M2M applications.

Development in information and communication technologies has led to the advancement of business and enabled

enterprises to produce on a global scale. Productivity is a key function in maintaining a competitive advantage in today's market. The internet of things has rapidly become prevalent in the productivity efforts of businesses. Understanding these technologies and how to implement them into current business practices is vital for researchers and practitioners. Internet of Things (IoT) Applications for Enterprise Productivity is a collection of innovative research on the advancing methods productivity efforts of business through the implementation of the internet of things. While highlighting topics including employee motivation, enterprise productivity, and supply chain tracking, this book is ideally designed for manufacturing professionals, industrialists, engineers, managers, practitioners, academicians, and students seeking current research on enterprise production systems and its transformation using internet of things technologies. Recently, growing interest in the use of remote sensing imagery has appeared to provide synoptic maps of water quality parameters in coastal and inner water ecosystems;, monitoring of complex land ecosystems for biodiversity conservation; precision agriculture for the management of soils, crops, and pests; urban planning; disaster monitoring, etc. However, for these maps to achieve their full potential, it is important to engage in periodic monitoring and analysis of multi-temporal changes. In this context, very high resolution (VHR) satellite-based optical, infrared, and radar imaging instruments provide reliable information to implement spatially-based conservation actions. Moreover, they enable observations of parameters of our environment at greater broader spatial and finer temporal scales than those allowed through field observation alone. In this sense, recent very high resolution satellite technologies and image processing algorithms present the opportunity to develop quantitative techniques that have the potential to improve upon traditional

techniques in terms of cost, mapping fidelity, and objectivity. Typical applications include multi-temporal classification, recognition and tracking of specific patterns, multisensor data fusion, analysis of land/marine ecosystem processes and environment monitoring, etc. This book aims to collect new developments, methodologies, and applications of very high resolution satellite data for remote sensing. The works selected provide to the research community the most recent advances on all aspects of VHR satellite remote sensing. Business practices are rapidly changing due to technological advances in the workplace. Organizations are challenged to implement new programs for more efficient business while maintaining their standards of excellence and achievement. Human Performance Technology: Concepts, Methodologies, Tools, and Applications is a vital reference source for the latest research findings on real-world applications of digital tools for human performance enhancement across a variety of settings. This publication also examines the utilization of problem-based instructional techniques for challenges and solutions encountered by industry professionals. Highlighting a range of topics such as performance support systems, workplace curricula, and instructional technology, this multi-volume book is ideally designed for business executives and managers, business professionals, human resources managers, academicians, and researchers actively involved in the business industry.

This book addresses the major challenges in realizing unmanned aerial vehicles (UAVs) in IoT-based Smart Cities. The challenges tackled vary from cost and energy efficiency to availability and service quality. The aim of this book is to focus on both the design and implementation aspects of the UAV-based approaches in IoT-enabled smart cities' applications that are enabled and supported by wireless sensor networks, 5G, and beyond. The contributors mainly

focus on data delivery approaches and their performability aspects. This book is meant for readers of varying disciplines who are interested in implementing the smart planet/environments vision via wireless/wired enabling technologies. Involves the most up to date unmanned aerial vehicles (UAV) assessment and evaluation approaches Includes innovative operational ideas in agriculture, surveillance, rescue, etc. Pertains researchers, scientists, engineers and practitioners in the field of smart cities, IoT, and communications Fadi Al-Turjman received his Ph.D. from Queen's University, Canada. He is a full professor and a research center director at Near East University, Nicosia. He is a leading authority in the area of IoT and intelligent systems. His publication history spans over 250 publications in addition to his editorialship in top journals such as the IEEE Communication Surveys and Tutorials, and the Elsevier Sustaibable Cities and Society.

Applied Soft Computing and Embedded System Applications in Solar Energy deals with energy systems and soft computing methods from a wide range of approaches and application perspectives. The authors examine how embedded system applications can deal with the smart monitoring and controlling of stand-alone and grid-connected solar photovoltaic (PV) systems for increased efficiency. Growth in the area of artificial intelligence with embedded system applications has led to a new era in computing, impacting almost all fields of science and engineering. Soft computing methods implemented to energy-related problems regularly face data-driven issues such as problems of optimization, classification, clustering, or prediction. The authors offer real-time implementation of soft computing and embedded system in the area of solar energy to address the issues with microgrid and smart grid projects (both renewable and non-renewable generations), energy management, and

power regulation. They also discuss and examine alternative solutions for energy capacity assessment, energy efficiency systems design, as well as other specific smart grid energy system applications. The book is intended for students, professionals, and researchers in electrical and computer engineering fields, working on renewable energy resources, microgrids, and smart grid projects. Examines the integration of hardware with stand-alone PV panels and real-time monitoring of factors affecting the efficiency of the PV panels Offers real-time implementation of soft computing and embedded system in the area of solar energy Discusses how soft computing plays a huge role in the prediction of efficiency of stand-alone and grid-connected solar PV systems Discusses how embedded system applications with smart monitoring can control and enhance the efficiency of stand-alone and grid-connected solar PV systems Explores swarm intelligence techniques for solar PV parameter estimation Dr. Rupendra Kumar Pachauri is Assistant Professor - Selection Grade in the Department of Electrical and Electronics Engineering, University of Petroleum and Energy Studies (UPES), Dehradun, India. Dr. Jitendra Kumar Pandey is Professor & Head of R&D in the University of Petroleum and Energy Studies (UPES), Dehradun, India. Mr. Abhishek Sharma is working as a research scientist in the research and development department (UPES, India). Dr. Om Prakash Nautiyal is working as a scientist in Uttarakhand Science Education & Research Centre (USERC), Department of Information and Science Technology, Govt. of Uttarakhand, Dehradun, India. Prof. Mangey Ram is working as a Research Professor at Graphic Era Deemed to be University, Dehradun, India.

Distributed generation is becoming more important in electrical power systems due to the decentralization of energy production. Within this new paradigm, new approaches for the

operation and planning of distributed power generation are yet to be explored. This book deals with distributed energy resources, such as renewable-based distributed generators and energy storage units, among others, considering their operation, scheduling, and planning. Moreover, other interesting aspects such as demand response, electric vehicles, aggregators, and microgrid are also analyzed. All these aspects constitute a new paradigm that is explored in this Special Issue.

The objective of this textbook is to introduce students and professionals to fundamental principles and techniques and emerging technologies in energy informatics and the digitalization of power markets and systems. The book covers such areas as smart grids and artificial intelligence (AI) and distributed ledger technology (DLT), with a focus on information and communication technologies (ICT) deployed to modernize the electric energy infrastructure. It also provides an overview of the smart grid and its main components: smart grid applications at transmission, distribution, and customer level, network requirements with communications technologies, and standards and protocols. In addition, the book addresses emerging technologies and trends in next-generation power systems, i.e., energy informatics, such as digital green shift, energy cyber-physical-social systems (E-CPSS), energy IoT, energy blockchain, and advanced optimization. Future aspects of digitalized power markets and systems will be discussed with real-world energy informatics projects. The book is designed to be a core text in upper-undergraduate and graduate courses such as Introduction to Smart Grids, Digitalization of Power

Systems, and Advanced Power System Topics in Energy Informatics.

Although the Internet of Things (IoT) is a vast and dynamic territory that is evolving rapidly, there has been a need for a book that offers a holistic view of the technologies and applications of the entire IoT spectrum. Filling this void, The Internet of Things in the Cloud: A Middleware Perspective provides a comprehensive introduction to the IoT and its development worldwide. It gives you a panoramic view of the IoT landscape—focusing on the overall technological architecture and design of a tentatively unified IoT framework underpinned by Cloud computing from a middleware perspective. Organized into three sections, it: Describes the many facets of Internet of Things—including the four pillars of IoT and the three layer value chain of IoT Focuses on middleware, the glue and building blocks of a holistic IoT system on every layer of the architecture Explores Cloud computing and IoT as well as their synergy based on the common background of distributed processing The book is based on the author's two previous bestselling books (in Chinese) on IoT and Cloud computing and more than two decades of hands-on software/middleware programming and architecting experience at organizations such as the Oak Ridge National Laboratory, IBM, BEA Systems, and Silicon Valley startup Doubletwist. Tapping into this wealth of knowledge, the book categorizes the many facets of the IoT and proposes a number of paradigms and classifications about Internet of Things' mass and niche

markets and technologies.
The two-volume set LNICST 236-237 constitutes the post-conference proceedings of the 12th EAI International Conference on Communications and Networking, ChinaCom 2017, held in Xi'an, China, in September 2017. The total of 112 contributions presented in these volumes are carefully reviewed and selected from 178 submissions. Aside from the technical paper sessions the book is organized in topical sections on wireless communications and networking, satellite and space communications and networking, big data network track, multimedia communications and smart networking, signal processing and communications, network and information security, advances and trends of V2X networks.
The Internet of Things (IoT) is transforming the way organizations communicate, collaborate, and coordinate. This report suggests ways in which the U.S. military could better leverage the IoT to improve efficiency and effectiveness.
This comprehensive book unveils the working relationship of blockchain and the fog/edge computing. The contents of the book have been designed in such a way that the reader will not only understand blockchain and fog/edge computing but will also understand their co-existence and their collaborative power to solve a range of versatile problems. The first part of the book covers fundamental concepts and the applications of blockchain-enabled fog and edge computing. These include: Internet of Things, Tactile Internet, Smart City; and E-challan in the Internet of Vehicles. The second part of the book

covers security and privacy related issues of blockchain-enabled fog and edge computing. These include, hardware primitive based Physical Unclonable Functions; Secure Management Systems; security of Edge and Cloud in the presence of blockchain; secure storage in fog using blockchain; and using differential privacy for edge-based Smart Grid over blockchain. This book is written for students, computer scientists, researchers and developers, who wish to work in the domain of blockchain and fog/edge computing. One of the unique features of this book is highlighting the issues, challenges, and future research directions associated with Blockchain-enabled fog and edge computing paradigm. We hope the readers will consider this book a valuable addition in the domain of Blockchain and fog/edge computing.

Internet of Things: Challenges, Advances, and Applications provides a comprehensive introduction to IoT, related technologies, and common issues in the adoption of IoT on a large scale. It surveys recent technological advances and novel solutions for challenges in the IoT environment. Moreover, it provides detailed discussion of the utilization of IoT and its underlying technologies in critical application areas, such as smart grids, healthcare, insurance, and the automotive industry. The chapters of this book are authored by several international researchers and industry experts. This book is composed of 18 self-contained chapters that can be read, based on interest. Features: Introduces IoT, including its history, common definitions, underlying technologies, and challenges

Discusses technological advances in IoT and implementation considerations Proposes novel solutions for common implementation issues Explores critical application domains, including large-scale electric power distribution networks, smart water and gas grids, healthcare and e-Health applications, and the insurance and automotive industries The book is an excellent reference for researchers and post-graduate students working in the area of IoT, or related areas. It also targets IT professionals interested in gaining deeper knowledge of IoT, its challenges, and application areas. The widespread availability of technologies has increased exponentially in recent years. This ubiquity has created more connectivity and seamless integration among technology devices. Emerging Trends and Applications of the Internet of Things is an essential reference publication featuring the latest scholarly research on the surge of connectivity between computing devices in modern society, as well as the benefits and challenges of this. Featuring extensive coverage on a broad range of topics such as cloud computing, spatial cognition, and ultrasonic sensing, this book is ideally designed for researchers, professionals, and academicians seeking current research on upcoming advances in the Internet of Things (IoT).
Fully updated edition of the comprehensive, single-source reference on satellite technology and its applications Covering both the technology and its applications, Satellite Technology is a concise reference on satellites for commercial, scientific and military purposes. The book explains satellite technology fully,

beginning by offering an introduction to the fundamentals, before covering orbits and trajectories, launch and in-orbit operations, hardware, communication techniques, multiple access techniques, and link design fundamentals. This new edition also includes comprehensive chapters on Satellite Networks and Satellite Technology – Emerging Trends. Providing a complete survey of applications, from remote sensing and military uses, to navigational and scientific applications, the authors also present an inclusive compendium on satellites and satellite launch vehicles. Filled with diagrams and illustrations, this book serves as an ideal introduction for those new to the topic, as well as a reference point for professionals. Fully updated edition of the comprehensive, single-source reference on satellite technology and its applications - remote sensing, weather, navigation, scientific, and military - including new chapters on Satellite Networks and Satellite Technology – Emerging Trends Covers the full range of satellite applications in remote sensing, meteorology, the military, navigation and science, and communications, including satellite-to-under sea communication, satellite cell-phones, and global Xpress system of INMARSAT The cross-disciplinary coverage makes the book an essential reference book for professionals, R&D scientists and students at post graduate level Companion website provides a complete compendium on satellites and satellite launch vehicles An ideal introduction for Professionals and R&D scientists in the field. Engineering Students. Cross disciplinary information for engineers and technical managers.

This book constitutes the refereed post-conference proceedings of the Fifth International Conference on IoT as a Service, IoTaaS 2019, which took place in Xi'an, China, in November 2019. The 54 revised full papers were carefully reviewed and selected from 106 submissions. The papers contribute to the discussion on the challenges posed by Internet of Things (Io). The two technical tracks and three workshops deal in detail: Networking and Communications Technologies for IoT, IoT as a service, International Workshop on Edge Intelligence and Computing for IoT Communications and Applications, International Workshop on Wireless Automated Networking for Internet of Things, and International Workshop on Ubiquitous Services Transmission for Internet of Things.

From Visual Surveillance to Internet of Things: Technology and Applications is an invaluable resource for students, academicians and researchers to explore the utilization of Internet of Things with visual surveillance and its underlying technologies in different application areas. Using a series of present and future applications – business insights, indoor-outdoor securities, smart grids, human detection and tracking, intelligent traffic monitoring, e-health department and many more – this book will support readers to obtain a deeper knowledge in implementing IoT with visual surveillance. The book offers comprehensive

coverage of the most essential topics, including: The rise of machines and communications to IoT (3G, 5G) Tools and technologies of IoT with visual surveillance IoT with visual surveillance for real-time applications IoT architectures Challenging issues and novel solutions for realistic applications Mining and tracking of motion-based object data Image processing and analysis into the unified framework to understand both IOT and computer vision applications This book will be an ideal resource for IT professionals, researchers, under- or post-graduate students, practitioners, and technology developers who are interested in gaining a deeper knowledge in implementing IoT with visual surveillance, critical applications domains, technologies, and solutions to handle relevant challenges. Dr. Lavanya Sharma is an Assistant Professor in the Amity Institute of Information Technology at Amity University UP, Noida, India. She is a recipient of several prestigious awards during her academic career. She is an active nationally-recognized researcher who produces dozens of papers in her field. She has contributed as an Organizing Committee member and session chair at Springer and IEEE conferences. Prof. Pradeep K. Garg worked as a Vice Chancellor, Uttarakhand Technical University, Dehradun. Presently he is working in the department of Civil Engineering, IIT Roorkee as a professor. Prof. Garg has published

more than 300 technical papers in national and international conferences and journals. He has completed 26 research projects funded by various government agencies, guided 27 PhD candidates, and provided technical services to 84 consultancy projects on various aspects of Civil Engineering. The Measuring the Information Society Report (MISR), which has been published annually since 2009, features key ICT data and benchmarking tools to measure the information society, including the ICT Development Index (IDI). The IDI 2015 captures the level of ICT developments in 167 economies worldwide and compares progress made since the year 2010. The MISR 2015 assesses IDI findings at the regional level and highlights countries that rank at the top of the IDI and those that have improved their position in the overall IDI rankings most dynamically since 2010. The report will feature a review and quantitative assessment of the global ITU goals and targets agreed upon at PP-14 and included in the Connect 2020 Agenda. In addition, the MISR will show the results of the ICT Price Basket (IPB) and present and analyze fixed and mobile broadband price data for around 180 economies. The report also includes a chapter looking into recent developments of the Internet of Things (IoT).

Blockchain technology allows value exchange without the need for a central authority and ensures trust powered by its decentralized architecture. As such, the growing use of the internet of things (IoT) and the rise of artificial intelligence (AI) are to be benefited immensely by this technology that can offer devices and applications data security, decentralization, accountability, and reliable authentication. Bringing together blockchain technology, AI, and IoT can allow these tools to complement the strengths and weaknesses of the others and make systems more efficient.

Multidisciplinary Functions of Blockchain Technology in AI and IoT Applications deliberates upon prospects of blockchain technology using AI and IoT devices in various application domains. This book contains a comprehensive collection of chapters on machine learning, IoT, and AI in areas that include security issues of IoT, farming, supply chain management, predictive analytics, and natural languages processing. While highlighting these areas, the book is ideally intended for IT industry professionals, students of computer science and software engineering, computer scientists, practitioners, stakeholders, researchers, and academicians interested in updated and advanced research surrounding the functions of blockchain technology in AI and IoT applications across diverse

fields of research.

Industrial internet of things (IIoT) is changing the face of industry by completely redefining the way stakeholders, enterprises, and machines connect and interact with each other in the industrial digital ecosystem. Smart and connected factories, in which all the machinery transmits real-time data, enable industrial data analytics for improving operational efficiency, productivity, and industrial processes, thus creating new business opportunities, asset utilization, and connected services. IIoT leads factories to step out of legacy environments and arcane processes towards open digital industrial ecosystems. Innovations in the Industrial Internet of Things (IIoT) and Smart Factory is a pivotal reference source that discusses the development of models and algorithms for predictive control of industrial operations and focuses on optimization of industrial operational efficiency, rationalization, automation, and maintenance. While highlighting topics such as artificial intelligence, cyber security, and data collection, this book is ideally designed for engineers, manufacturers, industrialists, managers, IT consultants, practitioners, students, researchers, and industrial industry professionals.
Surveys key advances in commercial satellite communications and what might be the implications and/or opportunities for end-users and service

providers in utilizing the latest fast-evolving innovations in this field This book explores the evolving technical options and opportunities of satellite networks. Designed to be a self-contained reference, the book includes background technical material in an introductory chapter that will serve as a primer to satellite communications. The text discusses advances in modulation techniques, such as DBV-S2 extensions (DVS-S2X); spotbeam-based geosynchronous and medium earth orbit High Throughput Satellite (HTS) technologies and Internet applications; enhanced mobility services with aeronautical and maritime applications; Machine to Machine (M2M) satellite applications; emerging ultra HD technologies; and electric propulsion. The author surveys the latest innovations and service strategies and the resulting implications, which involves: Discussing advances in modulation techniques and HTS spotbeam technologies Surveying emerging high speed aeronautical mobility services and maritime and other terrestrial mobility services Assessing M2M (machine-to-machine) applications, emerging Ultra HD video technologies and new space technology Satellite communication is an integral part of the larger fields of commercial, television/media, government, and military communications, because of its multicast/broadcast capabilities, mobility, reliability, and global reach. High Throughput Satellites) are expected to

revolutionize the field during this decade, providing very high speed, yet cost-effective, Internet access and connectivity anywhere in the world, in rural areas, in the air, and at sea. M2M connectivity, enabled by satellite communications, connects trucks on transcontinental trips, aircraft in real-time-telemetry aggregation, and mercantile ships. A comprehensive analysis of the new advances in satellite communications, Innovations in Satellite Communications Technology is a reference for telecommunications and satellite providers and end-users, technology investors, logistic professionals, and more.

This book gathers recent research work on emerging Artificial Intelligence (AI) methods for processing and storing data generated by cloud-based Internet of Things (IoT) infrastructures. Major topics covered include the analysis and development of AI-powered mechanisms in future IoT applications and architectures. Further, the book addresses new technological developments, current research trends, and industry needs. Presenting case studies, experience and evaluation reports, and best practices in utilizing AI applications in IoT networks, it strikes a good balance between theoretical and practical issues. It also provides technical/scientific information on various aspects of AI technologies, ranging from basic concepts to research grade material, including future directions. The book is

intended for researchers, practitioners, engineers and scientists involved in the design and development of protocols and AI applications for IoT-related devices. As the book covers a wide range of mobile applications and scenarios where IoT technologies can be applied, it also offers an essential introduction to the field.

While there are a number of clinical practices for treating a variety of diseases, there is an urgent need to integrate bio-psychosocial perspectives and practices in order to promote comprehensive healthcare. Current research reports that diseases such as HIV/AIDS, malaria, diabetes, cardiovascular diseases, and heart diseases are a growing threat to the heath and quality of life of individuals across the globe. Considering that nearly all these diseases are directly related to the lifestyle of an individual, prevention and intervention should be devised to address psychological, emotional, social, and spiritual factors. Biopsychosocial Perspectives and Practices for Addressing Communicable and Non-Communicable Diseases is a collection of theoretical research that promotes good health and quality of life through psychosocial interventions to address psychosocial problems facing individuals such as discrimination and stigma, stress, depression, alcohol and drug abuse, smoking, lack of physical activity, and many other socio-economic factors. While highlighting topics including mental health,

traditional healthcare, and global health, this book is ideally designed for therapists, counselors, psychologists, medical professionals, hospital administrators, researchers, academicians, and students in fields that include public health, nursing, community-based healthcare, health psychology, HIV/AIDS education, human movement education, and sport psychology.

Innovations in Satellite Communications and Satellite TechnologyThe Industry Implications of DVB-S2X, High Throughput Satellites, Ultra HD, M2M, and IPJohn Wiley & Sons

This book focuses on the Internet of Everything and related fields. The Internet of Everything adds connectivity and intelligence to just about every device, giving it special functions. The book provides a common platform for integrating information from heterogeneous sources. However, this can be quite reductive, as the Internet of Everything provides links not only among things, but also data, people, and business processes. The evolution of current sensor and device networks, with strong interactions between people and social environments, will have a dramatic impact on everything from city planning, first responders, the military and health. Such a shared ecosystem will allow for the interaction between data, sensor inputs and heterogeneous systems. Semantics is a fundamental component of this since semantic technologies are able to provide the necessary bridge between different data representations, and to solve terminology incongruence.

Integrating data from distributed devices, sensor networks, social networks and biomedical instruments requires, first of all, the systematization of the current state of the art in such fields. Then, it is necessary to identify a common action thread to actually merge and homogenize standards and techniques applied in such a heterogeneous field. The exact requirements of an Internet of Everything environment need to be precisely identified and formally expressed, and finally, the role of modern computing paradigms, such as Cloud and Fog Computing, needs to be assessed with respect to the requirements expressed by an Internet of Everything ecosystem.

Covers the latest developments in PNT technologies, including integrated satellite navigation, sensor systems, and civil applications Featuring sixty-four chapters that are divided into six parts, this two-volume work provides comprehensive coverage of the state-of-the-art in satellite-based position, navigation, and timing (PNT) technologies and civilian applications. It also examines alternative navigation technologies based on other signals-of-opportunity and sensors and offers a comprehensive treatment on integrated PNT systems for consumer and commercial applications. Volume 1 of Position, Navigation, and Timing Technologies in the 21st Century: Integrated Satellite Navigation, Sensor Systems, and Civil Applications contains three parts and focuses on the satellite navigation systems, technologies, and engineering and scientific applications. It starts with a historical perspective of GPS development and other related PNT development. Current global and

regional navigation satellite systems (GNSS and RNSS), their inter-operability, signal quality monitoring, satellite orbit and time synchronization, and ground- and satellite-based augmentation systems are examined. Recent progresses in satellite navigation receiver technologies and challenges for operations in multipath-rich urban environment, in handling spoofing and interference, and in ensuring PNT integrity are addressed. A section on satellite navigation for engineering and scientific applications finishes off the volume. Volume 2 of Position, Navigation, and Timing Technologies in the 21st Century: Integrated Satellite Navigation, Sensor Systems, and Civil Applications consists of three parts and addresses PNT using alternative signals and sensors and integrated PNT technologies for consumer and commercial applications. It looks at PNT using various radio signals-of-opportunity, atomic clock, optical, laser, magnetic field, celestial, MEMS and inertial sensors, as well as the concept of navigation from Low-Earth Orbiting (LEO) satellites. GNSS-INS integration, neuroscience of navigation, and animal navigation are also covered. The volume finishes off with a collection of work on contemporary PNT applications such as survey and mobile mapping, precision agriculture, wearable systems, automated driving, train control, commercial unmanned aircraft systems, aviation, and navigation in the unique Arctic environment. In addition, this text: Serves as a complete reference and handbook for professionals and students interested in the broad range of PNT subjects Includes chapters that focus on the latest developments in GNSS and other navigation

sensors, techniques, and applications Illustrates interconnecting relationships between various types of technologies in order to assure more protected, tough, and accurate PNT Position, Navigation, and Timing Technologies in the 21st Century: Integrated Satellite Navigation, Sensor Systems, and Civil Applications will appeal to all industry professionals, researchers, and academics involved with the science, engineering, and applications of position, navigation, and timing technologies. pnt21book.com

This book features selected papers presented at the 3rd International Conference on Recent Innovations in Computing (ICRIC 2020), held on 20-21 March 2020 at the Central University of Jammu, India, and organized by the university's Department of Computer Science & Information Technology. It includes the latest research in the areas of software engineering, cloud computing, computer networks and Internet technologies, artificial intelligence, information security, database and distributed computing, and digital India.

This open access book is about public open spaces, about people, and about the relationship between them and the role of technology in this relationship. It is about different approaches, methods, empirical studies, and concerns about a phenomenon that is increasingly being in the centre of sciences and strategies – the penetration of digital technologies in the urban space. As the main outcome of the CyberParks Project, this book aims at fostering the understanding about the current and future interactions of the nexus people, public spaces and technology. It addresses a wide range of challenges and

multidisciplinary perspectives on emerging phenomena related to the penetration of technology in people's lifestyles - affecting therefore the whole society, and with this, the production and use of public spaces. Cyberparks coined the term cyberpark to describe the mediated public space, that emerging type of urban spaces where nature and cybertechnologies blend together to generate hybrid experiences and enhance quality of life.

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