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Communications and Networking-Bo Li 2018-03-19 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.

Innovations in Satellite Communications and Satellite Technology-Daniel Minoli 2015-03-16 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.

From Visual Surveillance to Internet of Things-Lavanya Sharma 2019-10-16 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.

Demystifying Internet of Things Security-Sunil Cheruvu 2019-08-13 Break down the misconceptions of the Internet of Things by examining the different security building blocks available in Intel Architecture (IA) based IoT platforms. This open access book reviews the threat pyramid, secure boot, chain of trust, and the SW stack leading up to defense-in-depth. The IoT presents unique challenges in implementing security and Intel has both CPU and Isolated Security Engine capabilities to simplify it. This book explores the challenges to secure these devices to make them immune to different threats originating from within and outside the network. The requirements and robustness rules to protect the assets vary greatly and there is no single blanket solution approach to implement security. Demystifying Internet of Things Security provides clarity to industry professionals and provides an overview of different security solutions What You'll Learn Secure devices, immunizing them against different threats originating from inside and outside the network Gather an overview of the different security building blocks available in Intel Architecture (IA) based IoT platforms Understand the threat pyramid, secure boot, chain of trust, and the software stack leading up to defense-in-depth Who This Book Is For Strategists, developers, architects, and managers in the embedded and Internet of Things (IoT) space trying to understand and implement the security in the IoT devices/platforms.

The Internet of Things in the Cloud-Honbo Zhou 2013-03-21 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 Doubletwin. 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.

Internet of Things for Smart Cities-Waleed Ejaz 2018-10-12 This book introduces the concept of smart city as the potential solution to the challenges created by urbanization. The Internet of Things (IoT) offers novel features with minimum human intervention in smart cities. This book describes different components of Internet of Things (IoT) for smart cities including sensor technologies, communication technologies, big data analytics and security.

Unit and Ubiquitous Internet of Things-Huansheng Ning 2013-04-25 Although the Internet of Things (IoT) will play a key role in the development of next generation information, network, and communication technologies, many are still unclear about what makes IoT different from similar concepts. Answering

fundamental questions about IoT architectures and models, Unit and Ubiquitous Internet of Things introduces essential IoT concepts from the perspectives of mapping and interaction between the physical world and the cyber world. It addresses key issues such as strategy and education, particularly around unit and ubiquitous IoT technologies. Supplying a new perspective on IoT, the book covers emerging trends and presents the latest progress in the field. It also: Outlines a fundamental architecture for future IoT together with the IoT layered model Describes various topological structures, existence forms, and corresponding logical relationships Establishes an IoT technology system based on the knowledge of IoT scientific problems Provides an overview of the core technologies, including basic connotation, development status, and open challenges The book examines ubiquitous sensing, networking, and communications, as well as information management involved in unit IoT. It describes global IoT applications and includes coverage of ubiquitous, local, industrial, national, and transnational IoT. Presenting detailed case studies that illustrate various application scenarios, the text considers the main IoT supporting technologies including resource management, loop control in actuation, session management, space-time consistency, security and privacy, energy management, spectrum management, nanotechnology, quantum technology, and big data.

Green Communications and Networking-F. Richard Yu 2016-04-19 Green Communications and Networking introduces novel solutions that can bring about significant reductions in energy consumption in the information and communication technology (ICT) industry-as well as other industries, including electric power. Containing the contributions of leading experts in the field, it examines the latest research advances

Recent Wireless Power Transfer Technologies via Radio Waves-Naoki Shinohara 2018-04-30 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 Generation Radio Wave Amplification with Solid States Circuit and Microwave Tubes Antenna and Beam Forming Technologies Radio Wave Conversion/Rectification to Electricity Battery-less Sensor Applications toward Internet of Things (IoT) Solar Power Satellite Application Safety, 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.

Very High Resolution (VHR) Satellite Imagery-Francisco Eugenio 2019-11-06 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.

Ad-Hoc, Mobile, and Wireless Networks-Maria Rita Palattella 2019-09-25 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.

Internet of Things-Qusay F. Hassan 2017-12-15 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.

Building the Internet of Things with IPv6 and MIPv6-Daniel Minoli 2013-06-17 "If we had computers that knew everything there was to know about things—using data they gathered without any help from us—we would be able to track and count everything, and greatly reduce waste, loss, and cost. We would know when things needed replacing, repairing or recalling, and whether they were fresh or past their best. The Internet of Things has the potential to change the world, just as the Internet did. Maybe even more so." —Kevin Ashton, originator of the term, Internet of Things An examination of the concept and unimagined potential unleashed by the Internet of Things (IoT) with IPv6 and MIPv6 What is the Internet of Things? How can it help my organization? What is the cost of deploying such a system? What are the security implications? Building the Internet of Things with IPv6 and MIPv6: The Evolving World of M2M Communications answers these questions and many more. This essential book explains the concept and potential that the IoT presents, from mobile applications that allow home appliances to be programmed remotely, to solutions in manufacturing and energy conservation. It features a tutorial for implementing the IoT using IPv6 and Mobile IPv6 and offers complete chapter coverage that explains: What is the Internet of Things? Internet of Things definitions and frameworks Internet of Things application examples Fundamental IoT mechanisms and key technologies Evolving IoT standards Layer 1/2 connectivity: wireless technologies for the IoT Layer 3 connectivity: IPv6 technologies for the IoT IPv6 over low power WPAN (6LoWPAN) Easily accessible, applicable, and not overly technical, Building the Internet of Things with IPv6 and MIPv6 is an important resource for Internet and ISP providers, telecommunications companies, wireless providers, logistics professionals, and engineers in equipment development, as well as graduate students in computer science and computer engineering courses.

Wiley Encyclopedia of Telecommunications, 5 Volume Set-John G. Proakis 2003-01-06 Engineers have long required a comprehensive yet concise resource to turn to for reliable, up-to-date information on the continually evolving field of telecommunications. In five easily searched volumes, the Wiley Encyclopedia of Telecommunications provides a broad, clear overview of both the fundamentals of and recent advances in telecommunications. This essential reference—the only one dedicated to telecommunications for electrical engineers—is available in print and online formats. Topics Include: Optical communications Modulation and demodulation Coding and decoding Communication networks Antennas John G. Proakis is the Series Editor for the Wiley Series in Telecommunications and Signal Processing. In preparing this Encyclopedia, Dr. Proakis been assisted by an editorial board of five leading telecommunications engineers from academia and industry to bring you: Approximately 300 articles on various topics in telecommunications Articles are written by experts in their fields A broad, clear overview of both the fundamentals and recent advances in telecommunications Cutting edge topics covering the entire field of telecommunications and signal processing For more information regarding the online edition of this major

reference work, please visit: www.mrw.interscience.wiley.com/eot

Optical Wireless Communications for Broadband Global Internet Connectivity-Arun K. Majumdar
2018-10-19 **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

2020 Moscow Workshop on Electronic and Networking Technologies (MWENT)-IEEE Staff 2020-03-11 The Workshop devoted to the issues of electronics development and its integration into the modern network engineering technologies and also modern achievements in the field of creation of control and communication systems

Internet of Things-Jaydip Sen 2018-08-01 The term "Internet of Things" (IoT) refers to an ecosystem of interconnected physical objects and devices that are accessible through the Internet and can communicate with each other. The main strength of the IoT vision is the high impact it has created and will continue to do so on several aspects of the everyday life and behavior of its potential users. This book presents some of the state-of-the-art research work in the field of the IoT, especially on the issues of communication protocols, interoperability of protocols and semantics, trust security and privacy issues, reference architecture design, and standardization. It will be a valuable source of knowledge for researchers, engineers, practitioners, and graduate and doctoral students who are working in various fields of the IoT. It will also be useful for faculty members of graduate schools and universities.

Wireless and Satellite Systems-Prashant Pillai 2018-03-07 This book constitutes the proceedings of the 9th International Conference on Wireless and Satellite Services, WiSATS 2017, held in Oxford, UK, in September 2017. The conference was formerly known as the International Conference on Personal Satellite Services (PSATS) mainly covering topics in the satellite domain. The aim of this conference is to bring together researchers, developers and practitioners from around the world in the field of wireless and satellite systems. The theme of WiSATS 2017 was on the means of using the wireless and satellite services directly to the user for personal communications, multimedia and location identification.

Wireless Internet Of Things: Principles And Practice-Gyasi-agyei Amoakoh 2020-04-22

Agricultural Internet of Things and Decision Support for Precision Smart Farming-Annamaria Castrignano
2020-01-09 **Agricultural Internet of Things and Decision Support for Smart Farming** reveals how a set of key enabling technologies (KET) related to agronomic management, remote and proximal sensing, data mining, decision-making and automation can be efficiently integrated in one system. Chapters cover how KETs enable real-time monitoring of soil conditions, determine real-time, site-specific requirements of crop systems, help develop a decision support system (DSS) aimed at maximizing the efficient use of resources, and provide planning for agronomic inputs differentiated in time and space. This book is ideal for researchers, academics, post-graduate students and practitioners who want to embrace new agricultural technologies. Presents the science behind smart technologies for agricultural management

Reveals the power of data science and how to extract meaningful insights from big data on what is most suitable based on individual time and space Proves how advanced technologies used in agriculture practices can become site-specific, locally adaptive, operationally feasible and economically affordable
Machine Learning and Data Mining in Aerospace Technology-Aboul Ella Hassanien 2019-07-02 This book explores the main concepts, algorithms, and techniques of Machine Learning and data mining for aerospace technology. Satellites are the 'eagle eyes' that allow us to view massive areas of the Earth simultaneously, and can gather more data, more quickly, than tools on the ground. Consequently, the development of intelligent health monitoring systems for artificial satellites - which can determine satellites' current status and predict their failure based on telemetry data - is one of the most important current issues in aerospace engineering. This book is divided into three parts, the first of which discusses central problems in the health monitoring of artificial satellites, including tensor-based anomaly detection for satellite telemetry data and machine learning in satellite monitoring, as well as the design, implementation, and validation of satellite simulators. The second part addresses telemetry data analytics

and mining problems, while the last part focuses on security issues in telemetry data.

Introduction to Satellite Remote Sensing-William Emery 2017-08-30 Introduction to Satellite Remote Sensing: Atmosphere, Ocean and Land Applications is the first reference book to cover ocean applications, atmospheric applications, and land applications of remote sensing. Applications of remote sensing data are finding increasing application in fields as diverse as wildlife ecology and coastal recreation management. The technology engages electromagnetic sensors to measure and monitor changes in the earth's surface and atmosphere. The book opens with an introduction to the history of remote sensing, starting from when the phrase was first coined. It goes on to discuss the basic concepts of the various systems, including atmospheric and ocean, then closes with a detailed section on land applications. Due to the cross disciplinary nature of the authors' experience and the content covered, this is a must have reference book for all practitioners and students requiring an introduction to the field of remote sensing. Provides study questions at the end of each chapter to aid learning Covers all satellite remote sensing technologies, allowing readers to use the text as instructional material Includes the most recent technologies and their applications, allowing the reader to stay up-to-date Delves into laser sensing (LIDAR) and commercial satellites (DigitalGlobe) Presents examples of specific satellite missions, including those in which new technology has been introduced

Satellite Technology-Anil K. Maini 2014-03-31 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.

Internet of Things A to Z-Qusay F. Hassan 2018-06-13 A comprehensive overview of the Internet of Things' core concepts, technologies, and applications Internet of Things A to Z offers a holistic approach to the Internet of Things (IoT) model. The Internet of Things refers to uniquely identifiable objects and their virtual representations in an Internet-like structure. Recently, there has been a rapid growth in research on IoT communications and networks, that confirms the scalability and broad reach of the core concepts. With contributions from a panel of international experts, the text offers insight into the ideas, technologies, and applications of this subject. The authors discuss recent developments in the field and the most current and emerging trends in IoT. In addition, the text is filled with examples of innovative applications and real-world case studies. Internet of Things A to Z fills the need for an up-to-date volume on the topic. This important book: Covers in great detail the core concepts, enabling technologies, and implications of the Internet of Things Addresses the business, social, and legal aspects of the Internet of Things Explores the critical topic of security and privacy challenges for both individuals and organizations Includes a discussion of advanced topics such as the need for standards and interoperability Contains contributions from an international group of experts in academia, industry, and research Written for ICT researchers, industry professionals, and lifetime IT learners as well as academics and students, Internet of Things A to Z provides a much-needed and comprehensive resource to this burgeoning field.

Smart Cities Technologies-Ivan Nunes Da Silva 2016-12-07 What are smart cities? What are their purposes? What are the impacts resulting from their implementations? With these questions in mind, this book is compiled with the primary concern of answering readers with different profiles; from those interested in acquiring basic knowledge about the various topics surrounding the subject related to smart

cities, to those who are more motivated by knowing the technical elements and the technological apparatus involving this theme. This book audience is multidisciplinary, as it will be confirmed by the various chapters addressed here. It explores different knowledge areas, such as electric power systems, signal processing, telecommunications, electronics, systems optimization, computational intelligence, real-time systems, renewable energy systems, and information systems.

5G and Satellite Spectrum, Standards, and Scale-Geoff Varrall 2018-05-31 This new resource presents the emerging role of Low Earth Orbit (LEO), Medium Earth Orbit (MEO), and Geostationary satellites (GSO) as a delivery option for backhaul and wide area rural and urban mobile broadband and fixed access. The book offers insight into recently established Non Terrestrial Network standards. Readers learn which bands will need to be supported in next generation 5G and satellite devices and networks and how the bands will be characterized. Channel spacing, guard bands, FDD or TDD, out of band emission limits, and in band performance requirements are discussed. The book discusses what interference issues will arise from new band allocations including co-shared allocations and how interference will be mitigated in and between next generation terrestrial and satellite 5G networks. Readers learn how modulation choices will affect co-existence issues. The book discusses the design, performance, cost, and test implications of integrating next generation satellite physical and MAC layers with Release 16 and 17 5G standards and explores how these emerging spectrum and standards map on to IOT and MTC use cases in specific vertical markets. Readers learn how new active and passive antennas in the K bands and V and W band (E band) impact the satellite link budget and satellite delivery cost economics.

Emerging Communication Technologies Based on Wireless Sensor Networks-Mubashir Husain Rehmani 2016-04-05 Emerging Communication Technologies Based on Wireless Sensor Networks: Current Research and Future Applications fills a gap in the existing literature by combining a plethora of WSN-based emerging technologies into a single source so that researchers can form opinions regarding these technologies. It presents different types of emerging communication technologies based on WSNs and describes how wireless sensor networks can be integrated with other communication technologies. It covers many of the new techniques and demonstrates the application of WSNs. The book's 14 chapters are divided into four parts. The first part covers the basics of wireless sensor networks and their principal working methods. The authors then move on to discuss different types of WSNs, characteristics of different types of emerging technologies based on WSNs, renewable energy sources, battery replenishment strategies, and application-specific energy challenges of WSNs. The second part is dedicated to issues related to wireless body area networks (WBANs). It discusses wearable WSNs and their applications, standards, and research trends. The authors also discuss routing schemes devised for WBANs and thermal-aware routing protocols for WBANs. The third part focuses on different emerging communication technologies based on WSNs, including electromagnetic wireless nanosensor networks, WSNs in the IoT, management of WSNs through satellite networks, WSNs in smart homes, and cognitive radio technology in conjunction with WSNs. The last part of the book covers topics generally related to typical WSNs, including energy-efficient data collection in WSNs, key distribution mechanisms in WSNs, distributed data gathering algorithms for mobile WSNs, and finally, a novel mobility scheme for WSNs that supports IPv6.

Internet of Things for Sustainable Community Development-Abdul Salam 2019-12-28 This book covers how Internet of Things (IoT) has a role in shaping the future of our communities. The author shows how the research and education ecosystem promoting impactful solutions-oriented science can help citizenry, government, industry, and other stakeholders to work collaboratively in order to make informed, socially-responsible, science-based decisions. Accordingly, he shows how communities can address complex, interconnected socio-environmental challenges. This book addresses the key inter-related challenges in areas such as the environment, climate change, mining, energy, agro-economic, water, and forestry that are limiting the development of a sustainable and resilient society -- each of these challenges are tied back to IoT based solutions. Presents research into sustainable IoT with respect to wireless communications, sensing, and systems Provides coverage of IoT technologies in sustainability, health, agriculture, climate change, mining, energy, water management, and forestry Relevant for academics, researchers, policy makers, city planners and managers, technicians, and industry professionals in IoT and sustainability A Reference Guide to the Internet of Things-Greg Dunko 2017-03 This resource will help you make educated decisions for your IoT project, whether building from scratch or assembling ready to deploy components. Bridgera provides insight on what to consider throughout the entire process, from planning and design of each component to the deployment and monitoring of your IoT system. Our goal is to help you navigate the many options available when constructing an IoT system. We outline the advantages and

disadvantages of the various technologies available to help you decide which options best suit your IoT project's needs.

Internet of Things (IoT) in 5G Mobile Technologies-Constantinos X. Mavromoustakis 2016-04-20 This book reports on the latest advances in the modeling, analysis and efficient management of information in Internet of Things (IoT) applications in the context of 5G access technologies. It presents cutting-edge applications made possible by the implementation of femtocell networks and millimeter wave communications solutions, examining them from the perspective of the universally and constantly connected IoT. Moreover, it describes novel architectural approaches to the IoT and presents the new framework possibilities offered by 5G mobile networks, including middleware requirements, node-centrality and the location of extensive functionalities at the edge. By providing researchers and professionals with a timely snapshot of emerging mobile communication systems, and highlighting the main pitfalls and potential solutions, the book fills an important gap in the literature and will foster the further developments of 5G hosting IoT devices.

Proceeding of the International Conference on Computer Networks, Big Data and IoT (ICCBI - 2019)-A. Pasumpon Pandian 2020-03-04 This book presents the proceedings of the International Conference on Computing Networks, Big Data and IoT [ICCBI 2019], held on December 19–20, 2019 at the Vaigai College of Engineering, Madurai, India. Recent years have witnessed the intertwining development of the Internet of Things and big data, which are increasingly deployed in computer network architecture. As society becomes smarter, it is critical to replace the traditional technologies with modern ICT architectures. In this context, the Internet of Things connects smart objects through the Internet and as a result generates big data. This has led to new computing facilities being developed to derive intelligent decisions in the big data environment. The book covers a variety of topics, including information management, mobile computing and applications, emerging IoT applications, distributed communication networks, cloud computing, and healthcare big data. It also discusses security and privacy issues, network intrusion detection, cryptography, 5G/6G networks, social network analysis, artificial intelligence, human-machine interaction, smart home and smart city applications.

QoS Over Heterogeneous Networks-Mario Marchese 2007-04-30 The importance of quality of service (QoS) has risen with the recent evolution of telecommunication networks, which are characterised by a great heterogeneity. While many applications require a specific level of assurance from the network; communication networks are characterized by different service providers, transmission means and implementer solutions such as asynchronous transfer mode (ATM), Internet protocol version 4 (IPv4), IPv6 and MPLS. Providing comprehensive coverage of QoS issues within heterogeneous network environments, "QoS Over Heterogeneous Networks" looks to find solutions to questions such as does QoS fit within heterogeneous networks and what is the impact on performance if information traverses different network portions that implement specific QoS schemes. Includes: A series of algorithms and protocols to help solve potential QoS problems. State of the art case studies and operative examples to illustrate points made. Information on QoS mapping in terms of service-level specification (SLS) and an in-depth discussion of related issues Chapters end-to-end (E2E) QoS, QoS architecture, QoS over heterogeneous networks and QoS internetworking and mapping. An ideal book for graduate students, researchers and lecturers. System designers, developers and engineers will also find "QoS Over Heterogeneous Networks" a valuable reference.

Internet of Things From Hype to Reality-Ammar Rayes 2016-10-22 This book comprehensively describes an end-to-end Internet of Things (IoT) architecture that is comprised of devices, network, compute, storage, platform, applications along with management and security components. It is organized into five main parts, comprising of a total of 11 chapters. Part I presents a generic IoT reference model to establish a common vocabulary for IoT solutions. This includes a detailed description of the Internet protocol layers and the Things (sensors and actuators) as well as the key business drivers to realize the IoT vision. Part II focuses on the IoT requirements that impact networking protocols and provides a layer-by-layer walkthrough of the protocol stack with emphasis on industry progress and key gaps. Part III introduces the concept of Fog computing and describes the drivers for the technology, its constituent elements, and how it relates and differs from Cloud computing. Part IV discusses the IoT services platform, the cornerstone of the solution followed by the Security functions and requirements. Finally, Part V provides a treatment of the topic of connected ecosystems in IoT along with practical applications. It then surveys the latest IoT standards and discusses the pivotal role of open source in IoT. "Faculty will find well-crafted questions and answers at the end of each chapter, suitable for review and in classroom discussion topics. In addition, the material in the book can be used by engineers and technical leaders looking to gain a deep

technical understanding of IoT, as well as by managers and business leaders looking to gain a competitive edge and understand innovation opportunities for the future.” Dr. Jim Spohrer, IBM “This text provides a very compelling study of the IoT space and achieves a very good balance between engineering/technology focus and business context. As such, it is highly-recommended for anyone interested in this rapidly-expanding field and will have broad appeal to a wide cross-section of readers, i.e., including engineering professionals, business analysts, university students, and professors.” Professor Nasir Ghani, University of South Florida

Satellite Communications Systems-Gerard Maral 2020-02-03 The revised and updated sixth edition of *Satellite Communications Systems* contains information on the most recent advances related to satellite communications systems, technologies, network architectures and new requirements of services and applications. The authors – noted experts on the topic – cover the state-of-the-art satellite communication systems and technologies and examine the relevant topics concerning communication and network technologies, concepts, techniques and algorithms. New to this edition is information on internetworking with the broadband satellite systems, more intensive coverage of Ka band technologies, GEO high throughput satellite (HTS), LEO constellations and the potential to support the current new broadband Internet services as well as future developments for global information infrastructure. The authors offer details on digital communication systems and broadband networks in order to provide high-level researchers and professional engineers an authoritative reference. The companion website provides slides for instructors to teach and for students to learn. In addition, the book is designed in a user-friendly format.

CyberParks - The Interface Between People, Places and Technology-Carlos Smaniotto Costa 2019-03-01 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.

Internet of Things Applications-Ovidiu Vermesan 2014-06 Internet of Things Applications aims to provide a broad overview of various topics of Internet of Things (IoT) from the research, innovation, and development priorities to enabling technologies, nanoelectronics, cyber physical systems, architecture, interoperability, and industrial applications. It is intended to be a standalone book in a series that covers the IoT activities of the Internet of Things European Research Cluster (IERC) from technology to international cooperation and the global "state of play." The book builds on the ideas put forward by the IERC Strategic Research Agenda and presents global views and state-of-the-art results on the challenges the research, development, and deployment of IoT face at the global level. IoT is creating a revolutionary new paradigm with opportunities in every industry, including Health Care, Pharmaceuticals, Food and Beverage, Agriculture, Computer, Electronics Telecommunications, Automotive, Aeronautics, Transportation Energy, and Retail, to apply the massive potential of the IoT to achieving real-world solutions. The beneficiaries will include semiconductor companies, device and product companies, infrastructure software companies, application software companies, consulting companies, and telecommunication and cloud service providers. IoT will create new revenues annually for these stakeholders and potentially create substantial market share shakeups due to increased technology competition. The IoT will fuel technology innovation by creating the means for machines to communicate several different types of information with one another. At the same time, it will contribute to the increased value of information created by the number of interconnections among things and the transformation of the processed information into knowledge shared in the Internet of Everything. The success of IoT depends strongly on enabling technology development, market acceptance, and standardization, which provides interoperability, compatibility, reliability, and effective operations on a global scale. The connected devices are part of ecosystems connecting people, processes, data, and things which are communicating in the cloud, using the increased storage and computing power and pushing for standardization of communication and metadata. In this context, product manufacturers have to address

security, privacy, safety, and trust through the life cycle of their products, from design to the support processes. The IoT developments address the whole IoT spectrum - from devices at the edge to cloud and datacentres on the backend and everything in between - through ecosystems created by industry, research, and application stakeholders that enable real-world use cases to accelerate the IoT and establish open interoperability standards and common architectures for IoT solutions. Enabling technologies such as nanoelectronics, sensors/actuators, cyber-physical systems, intelligent device management, smart gateways, telematics, smart network infrastructure, cloud computing, and software technologies will create new products, services, and interfaces by creating smart environments and smart spaces with applications ranging from Smart Cities, smart transport, buildings, energy, and grid to smart health and life. Technical topics discussed in the book include: * Introduction * Internet of Things Strategic Research and Innovation Agenda * Internet of Things in the industrial context: Time for deployment. * Integration of heterogeneous smart objects, applications and services * Evolution from device to semantic and business interoperability * Software define and virtualization of network resources * Innovation through interoperability and standardisation when everything is connected anytime at anyplace * Dynamic context-aware scalable and trust-based IoT Security, Privacy framework * Federated Cloud service management and the Internet of Things * Internet of Things Applications

5G-Enabled Internet of Things-Yulei Wu 2019-05-29 How the enabling technologies in 5G as an integral or as a part can seamlessly fuel the IoT revolution is still very challenging. This book presents the state-of-the-art solutions to the theoretical and practical challenges stemming from the integration of 5G enabling technologies into IoTs in support of a smart 5G-enabled IoT paradigm, in terms of network design, operation, management, optimization, privacy and security, and applications. In particular, the technical focus covers a comprehensive understanding of 5G-enabled IoT architectures, converged access networks, privacy and security, and emerging applications of 5G-enabled IoT.

Broadband-National Research Council 2002-02-25 Broadband communication expands our opportunities for entertainment, e-commerce and work at home, health care, education, and even e-government. It can make the Internet more useful to more people. But it all hinges on higher capacity in the "first mile" or "last mile" that connects the user to the larger communications network. That connection is often adequate for large organizations such as universities or corporations, but enhanced connections to homes are needed to reap the full social and economic promise. Broadband: Bringing Home the Bits provides a contemporary snapshot of technologies, strategies, and policies for improving our communications and information infrastructure. It explores the potential benefits of broadband, existing and projected demand, progress and failures in deployment, competition in the broadband industry, and costs and who pays them. Explanations of broadband's "alphabet soup" HFC, DSL, FTTH, and all the rest are included as well. The report's findings and recommendations address regulation, the roles of communities, needed research, and other aspects, including implications for the Telecommunications Act of 1996.

Broadband Communications Networks-Abdelfatteh Haidine 2018-09-19 Nowadays, the Internet plays a vital role in our lives. It is currently one of the most effective media that is shifting to reach into all areas in today's society. While we move into the next decade, the future of many emerging technologies (IoT, cloud solutions, automation and AI, big data, 5G and mobile technologies, smart cities, etc.) is highly dependent on Internet connectivity and broadband communications. The demand for mobile and faster Internet connectivity is on the rise as the voice, video, and data continue to converge to speed up business operations and to improve every aspect of human life. As a result, the broadband communication networks that connect everything on the Internet are now considered a complete ecosystem routing all Internet traffic and delivering Internet data faster and more flexibly than ever before. This book gives an insight into the latest research and practical aspects of the broadband communication networks in support of many emerging paradigms/applications of global Internet from the traditional architecture to the incorporation of smart applications. This book includes a preface and introduction by the editors, followed by 20 chapters written by leading international researchers, arranged in three parts. This book is recommended for researchers and professionals in the field and may be used as a reference book on broadband communication networks as well as on practical uses of wired/wireless broadband communications. It is also a concise guide for students and readers interested in studying Internet connectivity, mobile/optical broadband networks and concepts/applications of telecommunications engineering.

Mobile Satellite Communications Handbook-Roger Cochetti 2014-09-25 With a Preface by noted satellite scientist Dr. Ahmad Ghais, the Second Edition reflects the expanded user base for this technology by updating information on historic, current, and planned commercial and military satellite systems and by

expanding sections that explain the technology for non-technical professionals. The book begins with an introduction to satellite communications and goes on to provide an overview of the technologies involved in mobile satellite communications, providing basic introductions to RF Issues, power Issues, link issues and system issues. It describes early commercial mobile satellite communications systems, such as Marisat and Marecs and their military counterparts. The book then discusses the full range of Inmarsat and other current and planned geostationary, low earth orbiting and hybrid mobile satellite systems from over a dozen countries and companies. It is an essential guide for anyone seeking a comprehensive understanding of this industry and military tool. • Revised edition will serve both technical and non-technical professionals who rely every day on mobile satellite communications • Describes and explains historic, current, and planned civil, commercial, and military mobile satellite communications systems. • First Edition charts and tables updated and expanded with current material for today's mobile satellite technology

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