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Commercial 4G LTE Networks for Supporting Strategic IoT Applications Internet of Things Fundamentals of IoT Guide to Automotive Connectivity and Cybersecurity LPWAN Technologies for IoT and M2M Applications Cognitive Radio - An Enabler for Internet of Things Internet of Things. User-Centric IoT Internet of Things (IoT) Machine-to-machine (M2M) Communications Fog-Enabled Intelligent IoT Systems Internet of Things, Smart Spaces, and Next Generation Networking Handbook of Industry 4.0 and SMART Systems Building the Internet of Things with IPv6 and MIPv6 Internet of Things and M2M Communication Technologies Practical Guide to LTE-A, VoLTE and IoT Cyber Defense Mechanisms 5G Explained 5G for the Connected World Complex, Intelligent, and Software Intensive Systems Machine-to-Machine Communications Security Issues and Privacy Threats in Smart Ubiquitous Computing Blockchain & The Smart Cities IoT and Smart Cities Intelligent Unmanned Air Vehicles Communications for Public Safety Networks Innovations in Computer Science and Engineering Innovations in Satellite Communications and Satellite Technology Challenges of the Internet of Things IoT as a Service Internet of Things (For Engineering Students) AI, Edge and IoT-based Smart Agriculture Smart Cities Green Internet of Things (IoT): Energy Efficiency Perspective Smart Homes Challenges and Opportunities for the Convergence of IoT, Big Data, and Cloud Computing Software Engineering Methods in Intelligent Algorithms Internet of Things and Data Analytics Handbook Enterprise IoT Collaborative Internet of Things (C-IoT) Trends in Telecommunication Reform 2016 New Technologies, Development and Application VI

Commercial 4G LTE Networks for Supporting Strategic IoT Applications

2021-09-14

emerging internet of things iot applications and services including e healthcare smart grid smart water smart cities and intelligent transportation systems its are set to transform and disrupt the way we live and work according to idc with iot spending forecast to surpass 1 2 trillion in 2022 a staggering number of things will require ubiquitous connectivity there is an emerging consensus that cellular based fourth generation 4g long term evolution lte and emerging 5g are the key technologies candidates that can provide the required global iot connectivity to such a staggering number of things the iot will enable billions of sensors actuators and smart devices to be interconnected and managed remotely via the internet by 2020 it is expected that the iot will encompass more than 24 billion smart devices some of these smart devices are compact multifunction sensors where multiple sensors are integrated and packed into a smart compact module to monitor and detect multiple variables simultaneously cellular based machine to machine m2m communications is one of the key iot enabling technologies with huge market potential for cellular service providers deploying lte networks massive iot miot refers to the tens of billions of m2m devices objects and machines that require ubiquitous connectivity according to the global standards body 3gpp a massive scale means deploying at least 1 million devices per squared kilometer iot applications span a wide range of use cases ranging from mission critical applications with strict latency and reliability requirements to those that require support of massive number of connected m2m devices with relaxed latency and reliability requirements mission critical iot applications could be enabled by 4g lte or emerging 5g capabilities

Internet of Things

2024-03-14

this book addresses the fundamental technologies architectures application domains and future research directions of the internet of things iot it also discusses how to create your own iot system according to applications requirements and it presents a broader view of recent trends in the iot domain and open research issues this book encompasses various research areas such as wireless networking advanced signal processing iot and ubiquitous computing internet of things theory to practice discusses the basics and fundamentals of iot and real time applications as well as the associated challenges and open research issues the book includes several case studies about the use of iot in day to day life the authors review various advanced computing technologies such as cloud computing fog computing edge computing and big data analytics that will play crucial roles in future iot based services the book provides a detailed role of blockchain technology narrowband iot nb iot wireless body area network wban lora a longrange low power platform and industrial iot iiot in the 5g world this book is intended for university college students as well as amateur electronic hobbyists and industry professionals who are looking to stay current in the iot domain

Fundamentals of IoT

2023-07-31

a comprehensive guide to iot s core concepts and principles key features discover the fascinating world of arduino and unlock its potential for iot applications learn about wireless communication protocols data aggregation and the overall architecture of iot networks explore the wide range of applications that iot offers across various industries and domains description the internet of things iot is a network of physical objects embedded with sensors software and connectivity enabling them to collect and exchange data it revolutionizes the way we interact with our surroundings by connecting devices and allowing them to communicate over the internet if you want to dive deeper into the fascinating world of iot then this book is for you this book is a comprehensive book that introduces you to the world of iot it covers the definition and vision of iot provides an overview of the conceptual framework and technologies behind it and presents various examples of iot applications the book also delves into the hardware components used in iot such as sensors and actuators and explores embedded platforms like arduino and raspberry pi furthermore it discusses programming with arduino and highlights design principles and network communication aspects of iot the book concludes by addressing the challenges and real life applications of iot including smart cities healthcare and home automation by the end of the book you will possess the knowledge necessary to navigate the complex and ever evolving iot landscape what you will learn gain insights into embedded platforms and their role in iot select the right hardware devices to create efficient and effective iot systems explore the intricacies of the arduino board architecture learn the essentials of programming arduino understand the challenges faced in designing and implementing iot solutions who this book is for this book caters to the learning needs of graduate and postgraduate students in computer application engineering it is also suitable for anyone interested in gaining a comprehensive understanding of the fundamentals of the internet of things table of contents 1 introduction to internet of things 2 hardware for iot 3 embedded platforms for iot 4 programming the arduino 5 iot and m2m design standards 6 network and communication aspects of iot 7 iot design challenges 8 applications of iot 9 appendix hands on practical problems

Guide to Automotive Connectivity and Cybersecurity

2019-04-03

this comprehensive text reference presents an in depth review of the state of the art of automotive connectivity and cybersecurity with regard to trends technologies innovations and applications the text describes the challenges of the global automotive market clearly showing where the multitude of innovative activities fit within the overall effort of cutting edge automotive innovations and provides an ideal framework for understanding the complexity of automotive connectivity and cybersecurity topics and features discusses the automotive market automotive research and development and automotive electrical electronic and software technology examines connected cars and autonomous vehicles and methodological approaches to cybersecurity to avoid cyber attacks against vehicles provides an overview on the automotive industry that introduces the trends driving the automotive industry towards smart mobility and

autonomous driving reviews automotive research and development offering background on the complexity involved in developing new vehicle models describes the technologies essential for the evolution of connected cars such as cyber physical systems and the internet of things presents case studies on car2go and car sharing car hailing and ridesharing connected parking and advanced driver assistance systems includes review questions and exercises at the end of each chapter the insights offered by this practical guide will be of great value to graduate students academic researchers and professionals in industry seeking to learn about the advanced methodologies in automotive connectivity and cybersecurity

LPWAN Technologies for IoT and M2M Applications

2020-03-17

low power wide area network lpwan is a promising solution for long range and low power internet of things iot and machine to machine m2m communication applications the lpwans are resource constrained networks and have critical requirements for long battery life extended coverage high scalability and low device and deployment costs there are several design and deployment challenges such as media access control spectrum management link optimization and adaptability energy harvesting duty cycle restrictions coexistence and interference interoperability and heterogeneity security and privacy and others lpwan technologies for iot and m2m applications is intended to provide a one stop solution for study of lpwan technologies as it covers a broad range of topics and multidisciplinary aspects of lpwan and iot primarily the book focuses on design requirements and constraints channel access spectrum management coexistence and interference issues energy efficiency technology candidates use cases of different applications in smart city healthcare and transportation systems security issues hardware software platforms challenges and future directions one stop guide to the technical details of various low power long range technologies such as lorawan sigfox nb iot lte m and others describes the design aspects network architectures security issues and challenges discusses the performance interference coexistence issues and energy optimization techniques includes lpwan based intelligent applications in diverse areas such as smart city traffic management health and others presents the different hardware and software platforms for lpwans provides guidance on selecting the right technology for an application

Cognitive Radio - An Enabler for Internet of Things

2022-09-01

internet of things iot deals with the interconnection of devices that can communicate with each other over the internet currently several smart systems have evolved with the evolution in iot cognitive radio an enabler for internet of things is a research level subject for all communication engineering students at undergraduate post graduate and research levels the contents of the book are designed to cover the prescribed syllabus for one semester course on the subject prescribed by universities concepts have been explained thoroughly in simple and lucid language mathematical analysis has been used wherever necessary followed by clear and lucid explanation of the findings and

their implication key technologies presented include dynamic spectrum access spectrum sensing techniques ieee 802 22 and different radio network architectures their role and use in the context of mobile broadband access in general is explained giving both a high level overview and a detailed step by step explanation the book includes a large number of diagrams matlab examples thereby enabling the readers to have a sound grasp of the concepts presented and their applications this book is a must have resource for engineers and other professionals in the telecommunication industry working with cellular or wireless broadband technologies helping comprehension of the process of utilization of the updated technology to enable being ahead competition

Internet of Things. User-Centric IoT

2015-06-25

the two volume set lnicst 150 and 151 constitutes the thoroughly refereed post conference proceedings of the first international internet of things summit iot360 2014 held in rome italy in october 2014 this volume contains 74 full papers carefully reviewed and selected from 118 submissions at the following four conferences the first international conference on cognitive internet of things technologies coiote 2014 the first international conference on pervasive games pergames 2014 the first international conference on iot technologies for healthcare healthyiot 2014 and the first international conference on iot as a service iotaas 2014 the papers cover the following topics user centric iot artificial intelligence techniques for the iot the design and deployment of pervasive games for various sectors such as health and wellbeing ambient assisted living smart cities and societies education cultural heritage and tourism delivery of electronic healthcare patient care and medical data management smart objects networking considerations for iot platforms for iotaas adapting to the iot environment modeling iotaas machine to machine support in iot

Internet of Things (IoT)

2019-09-17

the internet of things iot is one of the core technologies of current and future information and communications technology ict sectors iot technologies will be deployed in numerous industries including health transport smart cities utility sectors environment security and many other areas in a manner suitable to a broad range of readers this book introduces various key iot technologies focusing on algorithms process algebra network architecture energy harvesting wireless communications and network security it presents iot system design techniques international iot standards and recent research outcomes relevant to the iot system developments and provides existing and emerging solutions to the design and development of iot platforms for multi sector industries particularly for industry 4 0 the book also addresses some of the regulatory issues and design challenges related to iot system deployments and proposes guidelines for possible future applications

Machine-to-machine (M2M) Communications

2014-12-23

part one of machine to machine m2m communications covers machine to machine systems architecture and components part two assesses performance management techniques for m2m communications part three looks at m2m applications services and standardization machine to machine communications refers to autonomous communication between devices or machines this book serves as a key resource in m2m which is set to grow significantly and is expected to generate a huge amount of additional data traffic and new revenue streams underpinning key areas of the economy such as the smart grid networked homes healthcare and transportation examines the opportunities in m2m for businesses analyses the optimisation and development of m2m communications chapters cover aspects of access scheduling mobility and security protocols within m2m communications

Fog-Enabled Intelligent IoT Systems

2019-10-16

this book first provides a comprehensive review of state of the art iot technologies and applications in different industrial sectors and public services the authors give in depth analyses of fog computing architecture and key technologies that fulfill the challenging requirements of enabling computing services anywhere along the cloud to thing continuum further in order to make iot systems more intelligent and more efficient a fog enabled service architecture is proposed to address the latency requirements bandwidth limitations and computing power issues in realistic cross domain application scenarios with limited priori domain knowledge i e physical laws system statuses operation principles and execution rules based on this fog enabled architecture a series of data driven self learning applications in different industrial sectors and public services are investigated and discussed such as robot slam and formation control wireless network self optimization intelligent transportation system smart home and user behavior recognition finally the advantages and future directions of fog enabled intelligent iot systems are summarized provides a comprehensive review of state of the art iot technologies and applications in different industrial sectors and public services presents a fog enabled service architecture with detailed technical approaches for realistic cross domain application scenarios with limited prior domain knowledge outlines a series of data driven self learning applications with new algorithms in different industrial sectors and public services

Internet of Things, Smart Spaces, and Next Generation Networking

2012-08-22

this book constitutes the joint refereed proceedings of the 12 international conference on next generation teletraffic and wired wireless advanced networking new2an and the 5th conference on internet of things and smart spaces rusmart 2012 held in st petersburg russia in august 2012 the total of 42 papers was carefully reviewed and

selected for inclusion in this book the 14 papers selected from rusmart are organized in topical sections named defining an internet of things ecosystem future services and smart space governing through service mashups the 28 papers from new2an deal with the following topics wireless cellular networks ad hoc mesh and delay tolerant networks scalability cognition and self organization traffic and internet applications and wireless sensor networks they also contain 4 selected papers from the new2an 2012 winter session

Handbook of Industry 4.0 and SMART Systems

2019-09-16

industry 4 0 refers to fourth generation of industrial activity characterized by smart systems and internet based solutions this book describes the fourth revolution based on instrumented interconnected and intelligent assets the different book chapters provide a perspective on technologies and methodologies developed and deployed leading to this concept with an aim to increase performance productivity and flexibility major application area of maintenance through smart system has been discussed in detail applicability of 4 0 in transportation energy and infrastructure is explored with effects on technology organisation and operations from a systems perspective

Building the Internet of Things with IPv6 and MIPv6

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

Internet of Things and M2M Communication Technologies

2021-09-25

this book provides readers with a 360 degree perspective on the internet of things iot design and m2m communication process it is intended to be used as a design guide for the development of iot solutions covering architecture design and development methods this book examines applications such as industry automation for industry 4 0 internet of medical things iomt and internet of services ios as it is unfolding discussions on engineering fundamentals are limited to what is required for the realization of iot solutions internet of things and m2m communication technologies architecture and practical design approach to iot in industry 4 0 is written by an industry veteran with more than 30 years of hands on experience it is an invaluable guide for electrical electronic computer science and information science engineers who aspire to be iot designers and an authoritative reference for practicing designers working on iot device development provides complete design approach to develop iot solutions includes reference designs and guidance on relevant standards compliance addresses design for manufacturability and business models

Practical Guide to LTE-A, VoLTE and IoT

2018-06-19

essential reference providing best practice of lte a volte and iot design deployment performance and evolution towards 5g this book is a practical guide to the design deployment and performance of lte a volte ims and iot a comprehensive practical performance analysis for volte is conducted based on field measurement results from live lte networks also it provides a comprehensive introduction to iot and 5g evolutions practical aspects and best practice of lte a ims volte iot are presented practical aspects of lte advanced features are presented in addition lte lte a network capacity dimensioning and analysis are demonstrated based on live lte lte a networks kpis a comprehensive foundation for 5g technologies is provided including massive mimo embb urllic mmtc ngcn and network slicing cloudification virtualization and sdn practical guide to lte a volte and iot paving the way towards 5g can be used as a practical comprehensive guide for best practices in lte lte a volte iot design deployment performance analysis and network architecture and dimensioning it offers tutorial introduction on lte a iot 5g networks enabling the reader to use this advanced book without the need to refer to more introductory texts offers a complete overview of lte and lte a ims volte and iot and 5g introduces readers to ip multimedia subsystems ims performs a comprehensive evaluation of volte csfb provides lte lte a network capacity and dimensioning examines iot and 5g evolutions towards a super connected world introduce 3gpp nb iot evolution for low power wide area lpwa network provide a comprehensive introduction for 5g evolution including embb urllic mmtc network slicing cloudification virtualization sdn and orchestration practical guide to lte a volte and iot will appeal to all deployment and service engineers network designers and planning and optimization engineers working in mobile communications also it is a practical guide for r d and standardization experts to evolve the lte lte a volte and iot towards 5g evolution

Cyber Defense Mechanisms

2020-09-20

this book discusses the evolution of security and privacy issues and brings related technological tools techniques and solutions into one single source the book will take readers on a journey to understanding the security issues and possible solutions involving various threats attacks and defense mechanisms which include iot cloud computing big data lightweight cryptography for blockchain and data intensive techniques and how it can be applied to various applications for general and specific use graduate and postgraduate students researchers and those working in this industry will find this book easy to understand and use for security applications and privacy issues

5G Explained

2019-02-20

practical guide provides students and industry professionals with latest information on 5g mobile networks continuing the tradition established in his previous publications jyrki penttinen offers 5g explained as a thorough yet concise introduction to recent advancements and growing trends in mobile telecommunications in this case penttinen focuses on the development and employment of 5g mobile networks and more specifically the challenges inherent in adjusting to new global standardization requirements and in maintaining a high level of security even as mobile technology expands to new horizons the text discusses for example the internet of things iot and how to keep networks reliable and secure when they are constantly accessed by many different devices with varying levels of user involvement and competence 5g explained is primarily designed for specialists who need rapid acclimation to the possibilities and concerns presented by 5g adoption therefore it assumes some prior knowledge of mobile communications however earlier chapters are structured so that even relative newcomers will gain useful information other notable features include three modules each consisting of three chapters introduction technical network description and planning of security and deployment comprehensive coverage of topics such as technical requirements for 5g network architecture radio and core networks and services applications discussion of specific security techniques in addition to common sense guidelines for planning deploying managing and optimizing 5g networks 5g explained offers crucial updates for anyone involved in designing deploying or working with 5g networks it should prove a valuable guide for operators equipment manufacturers and other professionals in mobile equipment engineering and security network planning and optimization and mobile application development or anyone looking to break into these fields

5G for the Connected World

2019-02-13

comprehensive handbook demystifies 5g for technical and business professionals in mobile telecommunication fields much is being said regarding the possibilities and capabilities of the emerging 5g technology as the evolution

towards 5g promises to transform entire industries and many aspects of our society 5g for the connected world offers a comprehensive technical overview that telecommunication professionals need to understand and take advantage of these developments the book offers a wide ranging coverage of the technical aspects of 5g with special consideration of the 3gpp release 15 content how it enables new services and how it differs from lte this includes information on potential use cases aspects of radio and core networks spectrum considerations and the services primarily driving 5g development and deployment the text also looks at 5g in relation to the internet of things machine to machine communication and technical enablers such as lte m nb iot and ec gsm additional chapters discuss new business models for telecommunication service providers and vertical industries as a result of introducing 5g and strategies for staying ahead of the curve other topics include key features of the new 5g radio such as descriptions of new waveforms massive mimo and beamforming technologies as well as spectrum considerations for 5g radio regarding all possible bands drivers motivations and overview of the new 5g system especially ran architecture and technology enablers e g service based architecture compute storage split and network exposure for native cloud deployments mobile edge computing non 3gpp access fixed mobile convergence detailed overview of mobility management session management and quality of service frameworks 5g security vision and architecture ultra low latency and high reliability use cases and enablers challenges and requirements e g remote control industrial automation public safety and v2x communication an outline of the requirements and challenges imposed by massive numbers of devices connected to cellular networks while some familiarity with the basics of 3gpp networks is helpful 5g for the connected world is intended for a variety of readers it will prove a useful guide for telecommunication professionals standardization experts network operators application developers and business analysts or students working in these fields as well as infrastructure and device vendors looking to develop and integrate 5g into their products and to deploy 5g radio and core networks

Complex, Intelligent, and Software Intensive Systems

2018-06-18

this book provides a platform of scientific interaction between the three challenging and closely linked areas of ict enabled application research and development software intensive systems complex systems and intelligent systems software intensive systems strongly interact with other systems sensors actuators devices other software systems and users more and more domains are using software intensive systems e g automotive and telecommunication systems embedded systems in general industrial automation systems and business applications moreover web services offer a new platform for enabling software intensive systems complex systems research is focused on the overall understanding of systems rather than their components complex systems are characterized by the changing environments in which they interact they evolve and adapt through internal and external dynamic interactions the development of intelligent systems and agents which are increasingly characterized by their use of ontologies and their logical foundations offer impulses for both software intensive systems and complex systems recent research in the field of intelligent systems robotics neuroscience artificial intelligence and cognitive sciences are vital for the future development and innovation of software intensive and complex systems

Machine-to-Machine Communications

2014-06-25

with the number of machine to machine m2m enabled devices projected to reach 20 to 50 billion by 2020 there is a critical need to understand the demands imposed by such systems machine to machine communications architectures technology standards and applications offers rigorous treatment of the many facets of m2m communication including its integration with current technology presenting the work of a different group of international experts in each chapter the book begins by supplying an overview of m2m technology it considers proposed standards cutting edge applications architectures and traffic modeling and includes case studies that highlight the differences between traditional and m2m communications technology details a practical scheme for the forward error correction code design investigates the effectiveness of the ieee 802 15 4 low data rate wireless personal area network standard for use in m2m communications identifies algorithms that will ensure functionality performance reliability and security of m2m systems illustrates the relationship between m2m systems and the smart power grid presents techniques to ensure integration with and adaptation of existing communication systems to carry m2m traffic providing authoritative insights into the technologies that enable m2m communications the book discusses the challenges posed by the use of m2m communications in the smart grid from the aspect of security and proposes an efficient intrusion detection system to deal with a number of possible attacks after reading this book you will develop the understanding required to solve problems related to the design deployment and operation of m2m communications networks and systems

Security Issues and Privacy Threats in Smart Ubiquitous Computing

2021-04-08

this book extends the work from introduction of ubiquitous computing to the internet of things to security and to privacy aspects of ubiquitous computing the uniqueness of this book is the combination of important fields like the internet of things and ubiquitous computing it assumes that the readers goal is to achieve a complete understanding of iot smart computing security issues challenges and possible solutions it is not oriented towards any specific use cases and security issues privacy threats in ubiquitous computing problems are discussed across various domains this book is motivating to address privacy threats in new inventions for a wide range of stakeholders like layman to educated users villages to metros and national to global levels this book contains numerous examples case studies technical descriptions scenarios procedures algorithms and protocols the main endeavour of this book is threat analysis and activity modelling of attacks in order to give an actual view of the ubiquitous computing applications the unique approach will help readers for a better understanding

Blockchain & The Smart Cities

2020-08-26

digital nations and smart cities are rapidly evolving and the resulting digitalization is leading to several benefits while also exposing the citizens to unforeseen risks technologies like blockchain are enabling risk management for secured automation the book takes a close look at various paradigms of smart cities digital nations governance while relating to the application of these principles in real life through the case study of singapore which is one of the world s top 3 densest but also is one of the most sustainable cities this book will be a useful resource for professionals consultants government servants and students who wish to come to grip with the emerging technologies and to understand their applications in governance and play an active role in community building activities the book explores the emergence evolution and adoption of advanced digital technologies like iot analytics and blockchain for improved governance sustainable development and better quality of life and happiness for citizens across the world

IoT and Smart Cities

2024-03-29

dr a thasil mohamed application architect compunnel inc nj usa dr s santhoshkumar assistant professor department of computer science alagappa university karaikudi sivagangai tamil nadu india

Intelligent Unmanned Air Vehicles Communications for Public Safety Networks

2022-05-06

this book provides a comprehensive overview of the potential use cases and intelligent technologies uav layered architectures research findings experimental results and standardization for intelligent uav communications for public safety networks this book will cover the conventional non intelligent and intelligent solutions specifically targeting uav communications for public safety networks moreover reconfigurable intelligent surface ris has recently attracted researchers and academician attention because its ability improves the propagation environment and enhances communication quality by intelligently reflecting the received signals leveraging intelligence into ris assisted uav communications will meet the requirements of the intelligent green and sustainable 5g and beyond cellular networks which makes it a potential candidate to overcome the inherent drawbacks of legacy wireless systems the topics covered in this book will be of interest to both the professionals and students 3d uav placements schemes trajectory design interference management schemes reinforcement learning solutions for more intelligent and trained solutions joint uav trajectory and ris s passive beamforming design and various other related topics of readers interest are presented in detail

Innovations in Computer Science and Engineering

2022-03-25

this book features a collection of high quality peer reviewed research papers presented at the 9th international

conference on innovations in computer science engineering icicse 2021 held at guru nanak institutions hyderabad india on september 3 4 2021 it covers the latest research in data science and analytics cloud computing machine learning data mining big data and analytics information security and privacy wireless and sensor networks and iot applications artificial intelligence expert systems natural language processing image processing computer vision and artificial neural networks

Innovations in Satellite Communications and Satellite Technology

2015-02-20

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

Challenges of the Internet of Things

2018-10-08

this book will examine the issues of iot according to three complementary axes technique use ethics the techniques used to produce artefacts physical objects infrastructures programs algorithms software and data big data linked data metadata ontologies are the subject of many innovations as the field of iot is rich and stimulating along with this technological boom iot uses colonize new fields of application in the fields of transport administration housing maintenance health sports well being privileged interface with digital ecosystems now at the heart of social

exchanges the iot develops a power to act whose consequences both good and bad make it difficult to assess a fair business

IoT as a Service

2020-03-31

this book constitutes the refereed post conference proceedings of the fifth international conference on iot as a service iotas 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

Internet of Things (For Engineering Students)

2020-01-01

the internet of things iot model aims to render stuff in an internet environment like individual electronic equipment or home appliances such as medical devices fridges cameras and sensors we have made quite some effort to consider and to respond to the problems emerging from linked devices through our research as experts of the internet of things in the past decades a variety of problems must be faced and adequate philosophical and technical approaches must be created to realize the full potential of the iot paradigm the development of scalable infrastructure switching from closed networks to open systems answering data sensing privacy and ethical issues radio frequency identification technologies for rfids survey routing protocols sensor implementation node exploration including iot based arduous programming

AI, Edge and IoT-based Smart Agriculture

2021-11-10

ai edge and iot smart agriculture integrates applications of iot edge computing and data analytics for sustainable agricultural development and introduces edge of thing based data analytics and iot for predictability of crop soil and plant disease occurrence for improved sustainability and increased profitability the book also addresses precision irrigation precision horticulture greenhouse iot livestock monitoring iot ecosystem for agriculture mobile robot for precision agriculture energy monitoring storage management and smart farming the book provides an overarching focus on sustainable environment and sustainable economic development through smart and e agriculture providing a medium for the exchange of expertise and inspiration contributions from both smart agriculture and data

mining researchers around the world provide foundational insights the book provides practical application opportunities for the resolution of real world problems including contributions from the data mining data analytics edge of things and cloud research communities working in the farming production sector the book offers broad coverage of the concepts themes and instruments of this important and evolving area of iot based agriculture edge of things and cloud based farming greenhouse iot mobile agriculture sustainable agriculture and big data analytics in agriculture toward smart farming integrates sustainable agriculture greenhouse iot precision agriculture crops monitoring crops controlling to prediction livestock monitoring and farm management presents data mining techniques for precision agriculture including weather prediction plant disease prediction and decision support for crop and soil selection promotes the importance and uses in managing the agro ecosystem for food security emphasizes low energy usage options for low cost and environmental sustainability

Smart Cities

2021-10-13

the development of smart cities is important and beneficial to a government and its citizens with the advent of the smartphone rapid and reliable communication between and among individuals and governments has become ubiquitous everything can be connected and accessed easily with the touch of a finger changes in mobile internet telecommunication systems allow for the advance of new urbanization using smart city development methods the evolution of technology in industry 4.0 such as the advancement of cutting edge sensors utilizing the internet of things iot concept has wide applications in developing various smart systems this publication analyzes the interconnected cyber physical systems inherent in smart cities and the development methods and applications thereof

Green Internet of Things (IoT): Energy Efficiency Perspective

2021-02-15

energy efficiency issues for green internet of things iot are investigated in this book from the perspectives of device to device d2d communications machine to machine m2m communications and air ground networks specifically critical green iot techniques from d2d communications in the cellular network to m2m communications in industrial iot iiot from single physical layer optimization to cross layer optimization and from single layer ground networks to stereoscopic air ground networks are discussed in both theoretical problem formulation and simulation result analysis in this book internet of things iot offers a platform that enables sensors and devices to connect seamlessly in an intelligent environment thus providing intelligence services including monitoring systems industrial automation and ultimately smart cities however the huge potentials of iot are constrained by high energy consumption limited battery capacity and the slow progress of battery technology the high energy consumption of iot device causes communication interruption information loss and short network lifetime moreover once deployed the batteries inside iot devices cannot be replaced in time therefore energy efficient resource allocation is urgent to be investigated to improve the energy efficiency of iot facilitate green iot and extend the network lifetime this book provides readers with a

comprehensive overview of the state of the art key technologies frameworks related optimization algorithms and corresponding integrated designs on green iot it also presents an easy to understand style in a professional manner making the book suitable for a wider range of readers from students to professionals interested in the green iot

Smart Homes

2015-01-02

the book addresses issues towards the design and development of wireless sensor network based smart home and fusion of real time data for wellness determination of an elderly person living alone in a smart home the fundamentals of selection of sensor fusion of sensor data system design modelling characterizations experimental investigations and analyses have been covered this book will be extremely useful for the engineers and researchers especially higher undergraduate postgraduate students as well as practitioners working on the development of wireless sensor networks internet of things and data mining

Challenges and Opportunities for the Convergence of IoT, Big Data, and Cloud Computing

2021-01-29

in today s market emerging technologies are continually assisting in common workplace practices as companies and organizations search for innovative ways to solve modern issues that arise prevalent applications including internet of things big data and cloud computing all have noteworthy benefits but issues remain when separately integrating them into the professional practices significant research is needed on converging these systems and leveraging each of their advantages in order to find solutions to real time problems that still exist challenges and opportunities for the convergence of iot big data and cloud computing is a pivotal reference source that provides vital research on the relation between these technologies and the impact they collectively have in solving real world challenges while highlighting topics such as cloud based analytics intelligent algorithms and information security this publication explores current issues that remain when attempting to implement these systems as well as the specific applications iot big data and cloud computing have in various professional sectors this book is ideally designed for academicians researchers developers computer scientists it professionals practitioners scholars students and engineers seeking research on the integration of emerging technologies to solve modern societal issues

Software Engineering Methods in Intelligent Algorithms

2019-05-07

this book presents software engineering methods in the context of the intelligent systems it discusses real world

problems and exploratory research describing novel approaches and applications of software engineering software design and algorithms the book constitutes the refereed proceedings of the software engineering methods in intelligent algorithms section of the 8th computer science on line conference 2019 csoc 2019 held on line in april 2019

Internet of Things and Data Analytics Handbook

2017-01-10

this book examines the internet of things iot and data analytics from a technical application and business point of view internet of things and data analytics handbook describes essential technical knowledge building blocks processes design principles implementation and marketing for iot projects it provides readers with knowledge in planning designing and implementing iot projects the book is written by experts on the subject matter including international experts from nine countries in the consumer and enterprise fields of iot the text starts with an overview and anatomy of iot ecosystem of iot communication protocols networking and available hardware both present and future applications and transformations and business models the text also addresses big data analytics machine learning cloud computing and consideration of sustainability that are essential to be both socially responsible and successful design and implementation processes are illustrated with best practices and case studies in action in addition the book examines cloud computing data analytics and sustainability and how they relate to iot overs the scope of consumer government and enterprise applications includes best practices business model and real world case studies hwaiyu geng p e is a consultant with amica research amicaresearch org palo alto california promoting green planning design and construction projects he has had over 40 years of manufacturing and management experience working with westinghouse applied materials hewlett packard and intel on multi million high tech projects he has written and presented numerous technical papers at international conferences mr geng a patent holder is also the editor author of data center handbook wiley 2015

Enterprise IoT

2015-10-29

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

Collaborative Internet of Things (C-IoT)

2015-04-23

this book provides a simplified visionary approach about the future direction of iot addressing its wide scale adoption in many markets its interception with advanced technology the explosive growth in data and the emergence of data analytics iot business applications span multiple vertical markets the objective is to inspire creative thinking and collaboration among startups and entrepreneurs which will breed innovation and deliver iot solutions that will positively impact us by making business processes more efficient and improving our quality of life with increasing proliferation of smart phones and social media data generated by user wearable mobile devices continue to be key sources of information about us and the markets around us better insights will be gained through cognitive computation coupled with business intelligence and visual analytics that are gis based

Trends in Telecommunication Reform 2016

2017-07-11

the annual trends in telecommunication reform publications are a key part of the dialogue with the world s information and communications technology ict policy makers and regulators in an increasingly converged digital environment under the overarching theme regulatory incentives to achieve digital opportunities the 16th edition of trends explores topical issues regulators need to address to ensure that citizens can benefit from the social and economic opportunities brought about by the digital economy for digital opportunities to fully materialize an adaptive consultative and innovative approach to ict policy and regulation is more than ever necessary the thematic chapters drawing up from discussion papers presented at the 2015 itu global symposium for regulators examine investment strategies to foster the deployment of broadband and access to the digital economy network sharing and co investment regulation regulation and the internet of things iot interoperability in the digital ecosystem and smart regulation to facilitate m services and applications uptake and diffusion

New Technologies, Development and Application VI

2023-05-19

this book features papers focusing on the implementation of new and future technologies which were presented at the international conference on new technologies development and application held at the academy of science and arts of bosnia and herzegovina in sarajevo on 22 24 june 2023 it covers a wide range of future technologies and technical disciplines including complex systems such as industry 4 0 patents in industry 4 0 robotics mechatronics systems automation manufacturing cyber physical and autonomous systems sensors networks control energy and renewable energy

sources automotive and biological systems vehicular networking and connected vehicles effectiveness and logistics systems smart grids nonlinear systems power social and economic systems education and iot this book is oriented towards fourth industrial revolution industry 4 0 which implementation will improve many aspects of human life in all segments and lead to changes in business paradigms and production models further new business methods are emerging transforming production systems transport delivery and consumption which need to be monitored and implemented by every company involved in the global market

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