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Satellite Communications Modulation and Coding Techniques in Wireless Communications Digital Modulation Techniques Modulation and Coding Techniques in Wireless Communications Financial Management (A Planning and Control Approach) Automatic Modulation Classification Digital Modulations Using Python Performance Evaluation Of Different Modulation Techniques in FSO Digital Phase Modulation Next Generation Wireless Systems and Networks Dynamics of Meteor Outbursts and Satellite Mitigation Strategies Internetworking Technologies Handbook Wireless Communication Systems Digital Modulation Techniques in an Interference Environment OFDM Wireless LANs Principles of Communications SATELLITE COMMUNICATION Architectures and Synthesizers for Ultra-low Power Fast Frequency-Hopping WSN Radios CMOS Circuits for Passive Wireless Microsystems The Internet of Things IEEE 802.11ba Network Modeling, Simulation and Analysis in MATLAB EMI Protection for Communication Systems Intelligent Communication Technologies and Virtual Mobile Networks Modulation and Coding Spread Spectrum and CDMA Advanced Free Space Optics (FSO) Empowering Science and Mathematics for Global Competitiveness Proceedings of 2022 10th China Conference on Command and Control Wireless Internet Of Things: Principles And Practice Digital Communication for Practicing Engineers Proceedings of International Conference on Communication and Artificial Intelligence Satellite Communications Systems Wireless Communications 3rd Edition GNSS Systems and Engineering Digital Communications with Emphasis on Data Modems Ultra Wideband Wireless Communication Signal Processing for Mobile Communications Handbook Optical Fiber Telecommunications VB OFDM and MC-CDMA for Broadband Multi-User Communications, WLANs and Broadcasting

Satellite Communications

2000

the high level of technical detail included in standards specifications can make it difficult to find the correlation between the standard specifications and the theoretical results this book aims to cover both of these elements to give accessible information and support to readers it explains the current and future trends on communication theory and shows how these developments are implemented in contemporary wireless communication standards examining modulation coding and multiple access techniques the book is divided into two major sections to cover these functions the two stage approach first treats the basics of modulation and coding theory before highlighting how these concepts are defined and implemented in modern wireless communication systems part 1 is devoted to the presentation of main l1 procedures and methods including modulation coding channel equalization and multiple access techniques in part 2 the uses of these procedures and methods in the wide range of wireless communication standards including wlan wimax wcdma hspa lte and cdma2000 are considered an essential study of the implementation of modulation and coding techniques in modern standards of wireless communication bridges the gap between the modulation coding theory and the wireless communications standards material divided into two parts to systematically tackle the topic the first part develops techniques which are then applied and tailored to real world systems in the second part covers special aspects of coding theory and how these can be effectively applied to improve the performance of wireless communications systems

Modulation and Coding Techniques in Wireless Communications

2011-02-21

this newly revised and expanded edition of an artech house classic builds on its success as far and away the most comprehensive guide to digital modulation techniques used in communications today the second edition adds a wealth of up to date critical material including five new chapters devoted to orthogonal frequency division multiplexing ofdm covering its basics and practical implementation issues peak to average power ratio papr reduction synchronization fading channel performance and mitigation methods as well as the newest developments such as wavelet ofdm schemes new modulations for optical communications enhanced coverage of m ary amplitude shift keying ask more accurate bit error rate ber equations for quaternary phase shift keying qpsk and quadrature amplitude modulation qam enhanced coverage of fading channel mitigation methods such as channel estimate and diversity techniques fast access comparison of all modulation schemes new appendixes covering trigonometry identities fourier transform pairs and properties and q function and error function values

Digital Modulation Techniques

2006

the high level of technical detail included in standards specifications can make it difficult to find the correlation between the standard specifications and the theoretical results this book aims to cover both of these elements to give accessible information and support to readers it explains the current and future trends on communication theory and shows how these developments are implemented in contemporary wireless communication standards examining modulation coding and multiple access techniques the book is divided into two major sections to cover these functions the two stage approach first treats the basics of modulation and coding theory before highlighting how these concepts are defined and implemented in modern wireless communication systems part 1 is devoted to the presentation of main l1 procedures and methods including modulation coding channel equalization and multiple access techniques in part 2 the uses of these procedures and methods in the wide range of wireless communication standards including wlan wimax wcdma hspa lte and cdma2000 are considered an essential study of the implementation of modulation and coding techniques in modern standards of wireless communication bridges the gap between the modulation coding theory and the wireless communications standards material divided into two parts to systematically tackle the topic the first part develops techniques which are then applied and tailored to real world systems in the second part covers special aspects of coding theory and how these can be effectively applied to improve the performance of wireless communications systems

Modulation and Coding Techniques in Wireless Communications

2011-01-19

automatic modulation classification amc has been a key technology in many military security and civilian telecommunication applications for decades in military and security applications modulation often serves as another level of encryption in modern civilian applications multiple modulation types can be employed by a signal transmitter to control the data rate and link reliability this book offers comprehensive documentation of amc models algorithms and implementations for successful modulation recognition it provides an invaluable theoretical and numerical comparison of amc algorithms as well as guidance on state of the art classification designs with specific military and civilian applications in mind key features provides an important collection of amc algorithms in five major categories from likelihood based classifiers and distribution test based classifiers to feature based classifiers machine learning assisted classifiers and blind modulation classifiers lists detailed implementation for each algorithm based on a unified theoretical background and a comprehensive theoretical and numerical performance comparison gives clear guidance for the design of specific automatic modulation classifiers for different practical applications in both civilian and military communication systems includes a matlab toolbox on a companion website offering the implementation of a selection of methods discussed in the book

Financial Management (A Planning and Control Approach)

2010

this paperback is a black white edition link to the color edition amazon com dp 1712321633 a learner friendly practical and example driven book digital modulations using python gives you a solid background in building simulation models for digital modulation systems in python version 3 this book an essential guide for understanding the implementation aspects of a digital modulation system shows how to simulate and model a digital modulation system from scratch the implemented simulation models shown in this book provide an opportunity for an engineer to understand the basic implementation aspects of modeling various building blocks of a digital modulation system it presents the key topics with required theoretical background along with the implementation details in the form of python scripts key topics basics of signal processing essential for implementing digital modulation techniques generation of test signals interpreting fft results power and energy of a signal methods to compute convolution analytic signal and applications waveform and complex baseband equivalent simulation models digital modulation techniques covered bpsk and its variants qpsk and its variants m ary psk m ary qam m ary pam cpm msk gmsk m ary fsk simulation for ascertaining performance of digital modulation techniques in awgn and fading channels eb n0 vs ber curves design and implementation of linear equalizers zero forcing and mmse equalizers using them in a communication link lms algorithm for adaptive equalization simulation and performance of modulation systems with receiver impairments examples using object oriented programming simulation scripts using scipy numpy and matplotlib packages

Automatic Modulation Classification

2015-02-16

free space optical fso communications are able to deliver us to an age of unprecedented bandwidth low signal attenuation small space requirements and ultimately low cost in fso communications the influence of atmospheric effects can be specified by the attenuation and fluctuations of the transmitted optical power caused by the atmospheric turbulence this paper investigate the performance of fso communication systems employing on off keying ook subcarrier binary phase shift keying bpsk modulation and q ary pulse position modulation qppm in turbulence regime the performance results are evaluated in terms of bit error rate ber employing subcarrier ook bpsk and qppm as modulation technique it is found that the ber performance under bpsk modulation is better compared to other modulation techniques but in q ary ppm if we increase the order of q then the performance will improve and it provide maximum 4db improvement

Digital Modulations Using Python

2019-12-02

the last ten years have seen a great flowering of the theory of digital data modulation this book is a treatise on

digital modulation theory with an emphasis on these more recent innovations it has its origins in a collabor ation among the authors that began in 1977 at that time it seemed odd to us that the subjects of error correcting codes and data modulation were so separated it seemed also that not enough understanding underlay the mostly ad hoc approaches to data transmission a great many others were intrigued too and the result was a large body of new work that makes up most of this book now the older disciplines of detection theory and coding theory have been generalized and applied to the point where it is hard to tell where these end and the theories of signal design and modulation begin despite our emphasis on the events of the last ten years we have included all the traditional topics of digital phase modulation signal space concepts are developed as are simple phase shift keyed and pulse shaped modulations receiver structures are discussed from the simple linear receiver to the viterbi algorithm the effects of channel filtering and of hardlimiting are described the volume thus serves well as a pedagogical book for research engineers in industry and second year graduate students in communications engineering the production of a manageable book required that many topics be left out

Performance Evaluation Of Different Modulation Techniques in FSO

2012

next generation wireless systems and networks offers an expert view of cutting edge beyond 3rd generation b3g wireless applications this self contained reference combines the basics of wireless communications such as 3g wireless standards spread spectrum and cdma systems with a more advanced level research oriented approach to b3g communications eliminating the need to refer to other material this book will provide readers with the most up to date technological developments in wireless communication systems networks and introduces the major 3g standards such as w cdma cdma2000 and td scdma it also includes a focus on cognitive radio technology and 3gpp e utra technology areas which have not been well covered elsewhere covers many hot topics in the area of next generation wireless from the authors own research including bluetooth all ip wireless networking power efficient and bandwidth efficient air link technologies and multi user signal processing in b3g wireless clear step by step progression throughout the book will provide the reader with a thorough grounding in the basic topics before moving on to more advanced material addresses various important topics on wireless communication systems and networks that have emerged only very recently such as super 3g technology 4g wireless uwb ofdma and mimo includes a wealth of explanatory tables and illustrations this essential reference will prove invaluable to senior undergraduate and postgraduate students academics and researchers it will also be of interest to telecommunications engineers wishing to further their knowledge in this field

Digital Phase Modulation

2013-11-11

the potential threat posed by leonid meteroids to orbiting spacecraft over the next several years calls for new dynamic mitigation strategies to assist the satellite community in reducing the danger to its vehicles this book offers deliberate dynamic mitigation strategies to complement the traditional shielding strategies providing mission operators additional ways to decrease the danger five different attitude control and orbit maneuvering options are examined in detail the information is presented in algorithmic form to allow technically competent but meteoroid inexperienced operators to easily understand the phenomena assess the danger and implement procedures although general in scope the book emphasizes the leonid meteor events of the 1998 2002 timeframe

Next Generation Wireless Systems and Networks

2006-05-01

bull concise overviews of technologies essential to networking professionals at all levels from novice to expert bull new chapters include coverage of important topics like voip and eap bull coverage of cutting edge technologies like optical networking and storage bull authored by cisco systems worldwide leader in networking for the internet

Dynamics of Meteor Outbursts and Satellite Mitigation Strategies

1999

this practically oriented all inclusive guide covers all the major enabling techniques for current and next generation

cellular communications and wireless networking systems technologies covered include cdma ofdm uwb turbo and ldpc coding smart antennas wireless ad hoc and sensor networks mimo and cognitive radios providing readers with everything they need to master wireless systems design in a single volume uniquely a detailed introduction to the properties design and selection of rf subsystems and antennas is provided giving readers a clear overview of the whole wireless system it is also the first textbook to include a complete introduction to speech coders and video coders used in wireless systems richly illustrated with over 400 figures and with a unique emphasis on practical and state of the art techniques in system design rather than on the mathematical foundations this book is ideal for graduate students and researchers in wireless communications as well as for wireless and telecom engineers

Internetworking Technologies Handbook

2004

annotation deploy and optimize your wireless lan using the new standard for broadband wireless communication ofdm a comprehensive reference written by two experts who helped create the ofdm specifications a detailed practical guide to ofdm wlans does not exist requiring readers to seek out multiple sources of information such as white papers and research notes detailed explanations of the concepts and algorithms behind ofdm context that is missing from the two ofdm books currently available this book explains ofdm wlan basics including components of ofdm and multicarrier wlan standards it provides a practical approach to ofdm by including software and hardware examples and detailed implementation explanations ofdm multicarrier wireless networks a practical approach defines and explains the mathematical concepts behind ofdm necessary for successful ofdm wlan implementations juha heiskala is a research engineer at nokia research center in irving tx heiskala is active in the ieee 802 11 standards bodies and has been tasked with developing the 802 11a system simulation on several software platforms he is the inventor co inventor of three pending patents in the area of ofdm lans and co designed with dr john terry the modulation and coding scheme for achieving 100 mbps speeds within currently allocated band specifications for ofdm wlans john terry ph d is a senior research engineer at nokia research center he is currently managing the ofdm modulation and coding project in the hsa group dr terry has published several white papers given numerous presentations on wireless communications and generated four patents related to ofdm wlans he has 10 years of experience working in wireless communications including tenures at nasa glen research center and texas instruments

Wireless Communication Systems

2010-04-15

keeping up to date with the most current technologies in the field is essential for all effective electrical and computer engineers the updated 7th edition of principles of communications presents the reader with more in chapter examples providing for a more supportive framework for learning readers are exposed to digital data transmission techniques earlier in the book so they can appreciate the characteristics of digital communication systems prior to learning about probability and stochastic processes they will also find expanded forward error correction code examples and additional matlab problems

Digital Modulation Techniques in an Interference Environment

1977

this compact text provides a thorough readable treatment of the principles of satellite communication and its various technologies and components it presents a clear analysis of subsystems of satellites orbital mechanisms launching mechanisms earth and space systems employed in satellite links and analog and digital communication through satellites besides it explains the different methods used to access the various services provided by a satellite the text avoids complicated mathematical derivations but the results of these derivations and their references are used throughout the book when required for understanding the technical concepts primarily intended as a textbook for undergraduate students of electronics and communication engineering telecommunication engineering and information technology this easy to understand book will also be useful as a reference for professional engineers

OFDM Wireless LANs

2002

wireless sensor networks have the potential to become the third wireless revolution after wireless voice networks in the 80s and wireless data networks in the late 90s unfortunately radio power consumption is still a major bottleneck to the wide adoption of this technology different directions have been explored to minimize the radio consumption but the major drawback of the proposed solutions is a reduced wireless link robustness the primary goal of architectures and synthesizers for ultra low power fast frequency hopping wsn radios is to discuss in detail existing and new architectural and circuit level solutions for ultra low power robust uni directional and bi directional radio links architectures and synthesizers for ultra low power fast frequency hopping wsn radios guides the reader through the many system circuit and technology trade offs he will be facing in the design of communication systems for wireless sensor networks finally this book through different examples realized in both advanced cmos and bipolar technologies opens a new path in the radio design showing how radio link robustness can be guaranteed by techniques that were previously exclusively used in radio systems for middle or high end applications like bluetooth and military communications while still minimizing the overall system power consumption

Principles of Communications

2014-03-27

this book provides a comprehensive treatment of cmos circuits for passive wireless microsystems major topics include an overview of passive wireless microsystems design challenges of passive wireless microsystems fundamental issues of ultra low power wireless communications radio frequency power harvesting ultra low power modulators and demodulators ultra low power temperature compensated current and voltage references clock generation and remote calibration and advanced design techniques for ultra low power analog signal processing

SATELLITE COMMUNICATION

2005-01-01

an all in one reference to the major home area networking building automation and ami protocols including 802 15 4 over radio or plc 6lowpan rpl zigbee 1 0 and smart energy 2 0 zwave lon bacnet knx modbus mbus c 12 and dlms cosem and the new etsi m2m system level standard in depth coverage of smart grid and ev charging use cases this book describes the home area networking building automation and ami protocols and their evolution towards open protocols based on ip such as 6lowpan and etsi m2m the authors discuss the approach taken by service providers to interconnect the protocols and solve the challenge of massive scalability of machine to machine communication for mission critical applications based on the next generation machine to machine etsi m2m architecture the authors demonstrate using the example of the smartgrid use case how the next generation utilities by interconnecting and activating our physical environment will be able to deliver more energy notably for electric vehicles with less impact on our natural resources key features offers a comprehensive overview of major existing m2m and ami protocols covers the system aspects of large scale m2m and smart grid applications focuses on system level architecture interworking and nationwide use cases explores recent emerging technologies 6lowpan zigbee se 2 0 and etsi m2m and for existing technologies covers recent developments related to interworking relates zigbee to the issue of smartgrid in the more general context of carrier grade m2m applications illustrates the benefits of the smartgrid concept based on real examples including business cases this book will be a valuable guide for project managers working on smartgrid m2m telecommunications and utility projects system engineers and developers networking companies and home automation companies it will also be of use to senior academic researchers students and policy makers and regulators

Architectures and Synthesizers for Ultra-low Power Fast Frequency-Hopping WSN Radios

2010-11-19

ieee 802 11ba discover the latest developments in ieee 802 11ba and wake up radios in ieee 802 11ba ultra low

power wake up radio standard expert engineers drs steve shellhammer alfred asterjadhi and yanjun sun deliver a detailed discussion of the ieee 802 11ba standard the book begins by explaining the concept of a wake up radio wur and how it fits into the overall 802 11 standard as well as how a wur saves power and extends battery life the authors go on to describe the medium access control mac layer in detail and then talk about the various protocols used to negotiate wur operation its uses for different functionalities like wake up of the main radio discovery synchronization and security the book offers a detailed description of the physical phy layer packet construction and the rationale for the design as well as the various design aspects of the medium access control layer it also includes a thorough introduction to the motivations driving the development of the wur in 802 11 practical overviews of ieee 802 11 including the basic concepts of 802 11 the phy and mac and background material on current low power modes comprehensive discussions of the physical layer and phy layer performance including the generic receiver the ppdu transmit diversity and the fdma mode in depth examinations of the medium access layer and its frame designs perfect for professional wireless engineers ieee 802 11ba ultra low power wake up radio standard will also earn a place in the libraries of academics and students researching and studying in fields involving wireless communications

CMOS Circuits for Passive Wireless Microsystems

2010-10-28

the purpose of this book is first to study matlab programming concepts then the basic concepts of modeling and simulation analysis particularly focus on digital communication simulation the book will cover the topics practically to describe network routing simulation using matlab tool it will cover the dimensions like wireless network and wsn simulation using matlab then depict the modeling and simulation of vehicles power network in detail along with considering different case studies key features of the book include discusses different basics and advanced methodology with their fundamental concepts of exploration and exploitation in network simulation elaborates practice questions and simulations in matlab student friendly and concise useful for ug and pg level research scholar aimed at practical approach for network simulation with more programs with step by step comments based on the latest technologies coverage of wireless simulation and wsn concepts and implementations

The Internet of Things

2011-12-19

in recent years the protection of communication services operating in the same of adjacent channels has become more and more challenging communication systems need to be protected from natural and man made interference this practical reference provides a thorough understanding of how to protect communication systems from intentional and unintentional electromagnetic interference engineers learn how to overcome critical problems in both digital and analog communications this unique resource shows how to shield equipment from electrical and magnetic fields design tem and gtem cell build capacitive coupling clamps for susceptibility tests protect electronic equipment with filters and calculate the measurement uncertainty professionals find numerous well illustrated examples that make challenging electromagnetics issues far easier to comprehend cd rom included contains time saving software that helps engineers perform important calculations including characteristic impedance of tem cell cut off frequencies for higher order modes and cut off and resonant frequencies for gtem cell

IEEE 802.11ba

2023-02-01

the book is a collection of high quality research papers presented at intelligent communication technologies and virtual mobile networks icicv held at francis xavier engineering college tirunelveli tamil nadu india during february 10 11 2022 the book shares knowledge and results in theory methodology and applications of communication technology and mobile networks the book covers innovative and cutting edge work of researchers developers and practitioners from academia and industry working in the area of computer networks network protocols and wireless networks data communication technologies and network security

Network Modeling, Simulation and Analysis in MATLAB

2019-08-06

preface abbreviations 1 introduction to modulation and coding 2 principles of linear modulation 3 modulation for non linear systems 4 modem design 5 principles of fec coding 6 cyclic block codes 7 convolutionals codes 8 coded modulation 9 modulation and coding on multipath channels 10 ofdm 11 turbo codes appendix 1 finite field theory appendix 2 the map algorithm

EMI Protection for Communication Systems

2010

spread spectrum and cdma are cutting edge technologies widely used in operational radar navigation and telecommunication systems and play a pivotal role in the development of the forthcoming generations of systems and networks this comprehensive resource presents the spread spectrum concept as a product of the advancements in wireless it shows how and when the classical problems of signal transmission processing stimulate the application of spread spectrum and clarifies the advantages of spread spectrum philosophy detailed coverage is provided of the tools and instruments for designing spread spectrum and cdma signals answering why a designer will prefer one solution over another the approach adopted is wide ranging covering issues that apply to both data transmission and data collection systems such as telecommunications radar and navigation presents a theory based analysis complemented by practical examples and real world case studies resulting in a self sufficient treatment of the subject contains detailed discussions of new trends in spread spectrum technology such as multi user reception multicarrier modulation ofdm mimo and space time coding provides advice on designing discrete spread spectrum signals and signal sets for time frequency measuring synchronization and multi user communications features numerous matlab based problems and other exercises to encourage the reader to initiate independent investigations and simulations this valuable text provides timely guidance on the current status and future potential of spread spectrum and cdma and is an invaluable resource for senior undergraduates and postgraduate students lecturers and practising engineers and researchers involved in the deployment and development of spread spectrum and cdma technology supported by a companion website on which instructors and lecturers can find a solutions manual for the problems and matlab programming electronic versions of some of the figures and other useful resources such as a list of abbreviations

Intelligent Communication Technologies and Virtual Mobile Networks

2022-07-19

this title provides a comprehensive unified tutorial covering the most recent advances in the emerging technology of free space optics fso a field in which interest and attention continue to grow along with the number of new challenges this book is intended as an all inclusive source to serve the needs of those who require information about the fundamentals of fso as well as up to date advanced knowledge of the state of the art in the technologies available today this text is intended for graduate students and will also be useful for research scientists and engineers with an interest in the field fso communication is a practical solution for creating a three dimensional global broadband communications grid offering bandwidths far beyond what is possible in the radio frequency rf range however the attributes of atmospheric turbulence and scattering impose perennial limitations on availability and reliability of fso links from a systems point of view this groundbreaking book provides a thorough understanding of channel behavior which can be used to design and evaluate optimum transmission techniques that operate under realistic atmospheric conditions topics addressed include fso physical and statistical models single multiple inputs outputs understanding fso theory and systems analysis modulation and coding for free space optical channels atmospheric mitigation and compensation for fso links non line of sight nlos ultraviolet and indoor fso communications fso platforms uav and mobile retromodulators for free space data links hybrid optical rf communications free space and atmospheric quantum communications other related topics chaos based and terahertz thz fso communications

Modulation and Coding

2001

this conference proceedings focuses on enabling science and mathematics practitioners and citizens to respond to the pressing challenges of global competitiveness and sustainable development by transforming research and teaching of science and mathematics the proceedings consist of 82 papers presented at the science and mathematics international conference smic 2018 organised by the faculty of mathematics and natural sciences universitas negeri jakarta indonesia the proceedings are organised in four parts science science education mathematics and mathematics education the papers contribute to our understanding of important contemporary issues in science especially nanotechnology materials and environmental science science education in particular environmental sustainability stem and steam education 21st century skills technology education and green chemistry and mathematics and its application in statistics computer science and mathematics education

Spread Spectrum and CDMA

2005-05-06

this book includes original peer reviewed research papers from the 2022 10th china conference on command and control c2 2022 held in beijing china on july 7 9 2022 the topics covered include but are not limited to theories modelling and simulation system engineering technology for intelligent command and control 5g and intelligent command control and management integration technology joint cooperative command and control organization management agility in the network age cyberspace situational awareness technology cps parallel management and control unmanned systems intelligent military camp technology architecture design for intelligent air traffic control system human machine interaction and virtual reality swarm intelligence and cooperative control intelligent gaming theory and technology the papers showcased here share the latest findings on theories algorithms and applications in command and control making the book a valuable asset for researchers engineers and university students alike

Advanced Free Space Optics (FSO)

2014-09-10

this textbook is clearly a valuable resource for engineering students or anyone who wants to learn about wireless communication since it provides the technical fundamentals of the key theories and methods used for iot communication if you are interested in learning about the technical details of iot and wireless communication then this very well written book loaded with the fundamentals for understanding this rapidly growing system of the future is well worth reading ieee electrical insulation magazinethis textbook metamorphosed from notes that the author has been using to teach at four universities in australia and new zealand the book treats the physical principles and design of wireless internet of things iot systems from engineering perspective iot enables communication between people between people and things and between things the book highlights the wide scope of sensors used in iot including rfids smart mobile phones home consumer devices autonomous cars utility meters car park meters robots satellites radars and wireless positioning systems three features render the book practically accessible first each chapter is organised in sections each of which ends with a set of authentic review questions to motivate reflection this is complemented by numerous worked examples in each section third the book introduces two popular industry software packages for hands on practice matlab and celplanner with the growing popularity of softwarisation and cloudification possessing expertise in these packages makes one useful to the industry parts of this book are taught in undergraduate curriculum while the rest is taught in graduate courses both traditional and modern topics including c ran network slicing nfv nb iot and 5g use cases in iot are covered instructor s resources are provided for free to instructors who adopt the book as textbook for a unit course subject paper please send your request to sales wspc com

Empowering Science and Mathematics for Global Competitiveness

2019-06-07

offers concise practical knowledge on modern communication systems to help students transition smoothly into the workplace and beyond this book presents the most relevant concepts and technologies of today s communication systems and presents them in a concise and intuitive manner it covers advanced topics such as orthogonal

frequency division multiplexing ofdm and multiple input multiple output mimo technology which are enabling technologies for modern communication systems such as wifi including the latest enhancements and lte advanced following a brief introduction to the field digital communication for practicing engineers immerses readers in the theories and technologies that engineers deal with it starts off with shannon theorem and information theory before moving on to basic modules of a communication system including modulation statistical detection channel coding synchronization and equalization the next part of the book discusses advanced topics such as ofdm and mimo and introduces several emerging technologies in the context of 5g cellular system radio interface the book closes by outlining several current research areas in digital communications in addition this text breaks down the subject into self contained lectures which can be read individually or as a whole focuses on the pros and cons of widely used techniques while providing references for detailed mathematical analysis follows the current technology trends including advanced topics such as ofdm and mimo touches on content this is not usually contained in textbooks such as cyclo stationary symbol timing recovery adaptive self interference canceler and tomlinson harashima precoder includes many illustrations homework problems and examples digital communication for practicing engineers is an ideal guide for graduate students and professionals in digital communication looking to understand work with and adapt to the current and future technology

Proceedings of 2022 10th China Conference on Command and Control

2022-08-29

this book is a collection of best selected research papers presented at the international conference on communication and artificial intelligence iccai 2020 held in the department of electronics communication engineering gla university mathura india during 17 18 september 2020 the primary focus of the book is on the research information related to artificial intelligence networks and smart systems applied in the areas of industries government sectors and educational institutions worldwide diverse themes with a central idea of sustainable networking solutions are discussed in the book the book presents innovative work by leading academics researchers and experts from industry

Wireless Internet Of Things: Principles And Practice

2020-04-22

revisions to 5th edition by zhili sun university of surrey uk new and updated edition of this authoritative and comprehensive reference to the field of satellite communications engineering building on the success of previous editions satellite communications systems fifth edition covers the entire field of satellite communications engineering from orbital mechanics to satellite design and launch configuration and installation of earth stations including the implementation of communications links and the set up of the satellite network this book provides a comprehensive treatment of satellite communications systems engineering and discusses the technological applications it demonstrates how system components interact and details the relationship between the system and its environment the authors discuss the systems aspects such as techniques enabling equipment and system dimensioning and state of the art technology for satellite platforms payloads and earth stations new features and updates for the fifth edition include more information on techniques allowing service provision of multimedia content extra material on techniques for broadcasting including recent standards dvb rcs and dvb s2 digital video broadcasting return channel satellite and satellite version 2 updates on onboard processing by offering a detailed and practical overview satellite communications systems continues to be an authoritative text for advanced students engineers and designers throughout the field of satellite communications and engineering

Digital Communication for Practicing Engineers

2019-08-28

wireless communications is one of the most important modern technologies and is interwoven with all aspects of our daily lives when we wake up we check social media email and news on our smartphones before getting up we adjust the room temperature through a bluetooth connected thermostat after we leave the house and activate the wi fi security cameras we order a rideshare on a phone app that recognizes our location and are driven to a factory where manufacturing robots are connected and controlled via 5g and that is only the start of the day it is thus no wonder that wireless infrastructure user devices and networks are among the largest and most critical industries in

most countries as the demands for wireless services constantly increase so are the requirements for new products and for engineers that can develop these products and bring them to market such engineers need a deep understanding of both the fundamentals that govern the behavior of wireless systems the current standardized systems implementations and more recent research developments that will influence the next generation of products the goal of this book is to help students researchers and practicing engineers to acquire refresh or update this knowledge it is designed to lead them from the fundamental principles and building blocks such as digital modulation fading and reuse of spectrum to more advanced technologies that underly modern wireless systems such as multicarrier and multiantenna transmission to a description of the standardized systems dominating 5g cellular wi fi and short range communications to the cutting edge research that will form the basis for beyond 5g systems in brief the book leads the reader from the fundamentals to beyond 5g

Proceedings of International Conference on Communication and Artificial Intelligence

2021-05-10

comprehensive guide to the fundamentals and advanced engineering of the beidou satellite system the first book specifically describing the chinese beidou timing navigation system an increasingly important contributor to the gnss introducing the user location information sharing demands technologies and development trends highlights the technical features and broad application prospects of navigation positioning and short message communication of the beidou satellite system enhances understanding of the fundamentals and theories of radio navigation and positioning satellite systems offers guidelines as to how to implement their design and construction a comprehensive reference on the subject for those who are doing scientific or engineering research in this area

Satellite Communications Systems

2011-08-24

this book uses a practical approach in the application of theoretical concepts to digital communications in the design of software defined radio modems this book discusses the design implementation and performance verification of waveforms and algorithms appropriate for digital data modulation and demodulation in modern communication systems using a building block approach the author provides an introductory to the advanced understanding of acquisition and data detection using source and executable simulation code to validate the communication system performance with respect to theory and design specifications the author focuses on theoretical analysis algorithm design firmware and software designs and subsystem and system testing this book treats system designs with a variety of channel characteristics from very low to optical frequencies this book offers system analysis and subsystem implementation options for acquisition and data detection appropriate to the channel conditions and system specifications and provides test methods for demonstrating system performance this book also outlines fundamental system requirements and related analysis that must be established prior to a detailed subsystem design includes many examples that highlight various analytical solutions and case studies that characterize various system performance measures discusses various aspects of atmospheric propagation using the spherical 4 3 effective earth radius model examines ionospheric propagation and uses the rayleigh fading channel to evaluate link performance using several robust waveform modulations contains end of chapter problems allowing the reader to further engage with the text digital communications with emphasis on data modems is a great resource for communication system and digital signal processing engineers and students looking for in depth theory as well as practical implementations

Wireless Communications 3rd Edition

2022-12-06

ultra wideband wireless communication an international panel of experts provide major research issues and a self contained rapid introduction to the theory and application of uwb this book delivers end to end coverage of recent advances in both the theory and practical design of ultra wideband uwb communication networks contributions offer a worldwide perspective on new and emerging applications including wpan sensor and ad hoc networks wireless telemetry and telemedicine the book explores issues related to the physical layer medium access layer and networking layer following an introductory chapter the book explores three core areas analysis of physical layer and technology issues system design elements including channel modeling coexistence and interference mitigation and

control review of mac and network layer issues up to the application case studies present examples such as network and transceiver design assisting the reader in understanding the application of theory to real world tasks ultra wideband wireless communication enables technical professionals graduate students engineers scientists and academic and professional researchers in mobile and wireless communications to become conversant with the latest theory and applications by offering a survey of all important topics in the field it also serves as an advanced mathematical treatise however the book is organized to allow non technical readers to bypass the mathematical treatments and still gain an excellent understanding of both theory and practice

GNSS Systems and Engineering

2018-02-27

in recent years a wealth of research has emerged addressing various aspects of mobile communications signal processing new applications and services are continually arising and future mobile communications offer new opportunities and exciting challenges for signal processing the signal processing for mobile communications handbook provi

Digital Communications with Emphasis on Data Modems

2017-04-03

optical fiber telecommunications v a b is the fifth in a series that has chronicled the progress in the research and development of lightwave communications since the early 1970s written by active authorities from academia and industry this edition not only brings a fresh look to many essential topics but also focuses on network management and services using high bandwidth in a cost effective manner for the development of customer applications is a central theme this book is ideal for r d engineers and managers optical systems implementers university researchers and students network operators and the investment community volume a is devoted to components and subsystems including semiconductor lasers modulators photodetectors integrated photonic circuits photonic crystals specialty fibers polarization mode dispersion electronic signal processing mems nonlinear optical signal processing and quantum information technologies volume b is devoted to systems and networks including advanced modulation formats coherent systems time multiplexed systems performance monitoring reconfigurable add drop multiplexers ethernet technologies broadband access and services metro networks long haul transmission optical switching microwave photonics computer interconnections and simulation tools biographical sketches ivan kaminow retired from bell labs in 1996 after a 42 year career he conducted seminal studies on electrooptic modulators and materials raman scattering in ferroelectrics integrated optics semiconductor lasers dbr ridge waveguide ingaasp and multi frequency birefringent optical fibers and wdm networks later he led research on wdm components edfas awgs and fiber fabry perot filters and on wdm local and wide area networks he is a member of the national academy of engineering and a recipient of the ieee osa john tyndall osa charles townes and ieee leos quantum electronics awards since 2004 he has been adjunct professor of electrical engineering at the university of california berkeley tingye li retired from at t in 1998 after a 41 year career at bell labs and at t labs his seminal work on laser resonator modes is considered a classic since the late 1960s he and his groups have conducted pioneering studies on lightwave technologies and systems he led the work on amplified wdm transmission systems and championed their deployment for upgrading network capacity he is a member of the national academy of engineering and a foreign member of the chinese academy of engineering he is a recipient of the ieee david sarnoff award ieee osa john tyndall award osa ives medal quinn endowment at t science and technology medal and ieee photonics award alan willner has worked at at t bell labs and bellcore and he is professor of electrical engineering at the university of southern california he received the nsf presidential faculty fellows award from the white house packard foundation fellowship nsf national young investigator award fulbright foundation senior scholar ieee leos distinguished lecturer and usc university wide award for excellence in teaching he is a fellow of ieee and osa and he has been president of the ieee leos editor in chief of the ieee osa j of lightwave technology editor in chief of optics letters co chair of the osa science engineering council and general co chair of the conference on lasers and electro optics

Ultra Wideband Wireless Communication

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orthogonal frequency division multiplexing ofdm is a method of digital modulation in which a signal is split into

several narrowband channels at different frequencies cdma is a form of multiplexing which allows numerous signals to occupy a single transmission channel optimising the use of available bandwidth multiplexing is sending multiple signals or streams of information on a carrier at the same time in the form of a single complex signal and then recovering the separate signals at the receiving end multi carrier mc cdma is a combined technique of direct sequence ds cdma code division multiple access and ofdm techniques it applies spreading sequences in the frequency domain wireless communications has witnessed a tremendous growth during the past decade and further spectacular enabling technology advances are expected in an effort to render ubiquitous wireless connectivity a reality this technical in depth book is unique in its detailed exposure of ofdm mimo ofdm and mc cdma a further attraction of the joint treatment of these topics is that it allows the reader to view their design trade offs in a comparative context divided into three main parts part i provides a detailed exposure of ofdm designed for employment in various applications part ii is another design alternative applicable in the context of ofdm systems where the channel quality fluctuations observed are averaged out with the aid of frequency domain spreading codes which leads to the concept of mc cdma part iii discusses how to employ multiple antennas at the base station for the sake of supporting multiple users in the uplink portrays the entire body of knowledge currently available on ofdm provides the first complete treatment of ofdm mimo multiple input multiple output ofdm and mc cdma considers the benefits of channel coding and space time coding in the context of various application examples and features numerous complete system design examples converts the lessons of shannon s information theory into design principles applicable to practical wireless systems combines the benefits of a textbook with a research monograph where the depth of discussions progressively increase throughout the book this all encompassing self contained treatment will appeal to researchers postgraduate students and academics practising research and development engineers working for wireless communications and computer networking companies and senior undergraduate students and technical managers

Signal Processing for Mobile Communications Handbook

2004-08-16

Optical Fiber Telecommunications VB

2010-07-28

OFDM and MC-CDMA for Broadband Multi-User Communications, WLANs and Broadcasting

2005-01-28

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