

Digital Communication By Proakis 3rd Edition

Theory and Practice with MATLAB® and Simulink® Models
 Fundamentals and Applications
 Multimedia Communications and Networking
 Digital Communications
 Theory and Practice
 Fundamentals of Communication Systems
 Cable and Wireless Networks
 Information Theory and Coding
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 Digital Communication Systems Engineering with Software-Defined Radio
 The Physical Layer of the Universal Mobile Telecommunications System
 Bridging RF and Digital Communications
 Communication Systems - I
 Digital Communications and Signal Processing (Second Edition)
 Next Generation Wireless Systems and Networks
 Introduction to Digital Mobile Communication
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 Optical Fiber Communications Systems
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 Introduction to Communication Systems
 Synchronization in Digital Communication Systems
 Modern Communications Receiver Design and Technology
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 Contemporary Communication Systems Using MATLAB
 Communication Systems - II
 Target Acquisition in Communication Electronic Warfare Systems

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Theory and Practice with MATLAB® and Simulink® Models Cambridge University Press

"This unique resource provides you with a practical approach to quickly learning the software-defined radio concepts you need to know for your work in the field. By prototyping and evaluating actual digital communication systems capable of performing "over-the-air" wireless data transmission and reception, this volume helps you attain a first-hand understanding of critical design trade-offs and issues. Moreover you gain a sense of the actual "real-world" operational behavior of these systems. With the purchase of the book, you gain access to several ready-made Simulink experiments at the publisher's website. This collection of laboratory experiments, along with several examples, enables you to successfully implement the designs discussed the book in a short period of time. These files can be executed using MATLAB version R2011b or later. "

Fundamentals and Applications McGraw-Hill Science, Engineering & Mathematics

In this supplementary text, MATLAB is used as a computing tool to explore traditional DSP topics and solve problems to gain insight. This greatly expands the range and complexity of problems that students can effectively study in the course. Since DSP applications are primarily algorithms implemented on a DSP processor or software, a fair amount of programming is required. Using interactive software such as MATLAB makes it possible

to place more emphasis on learning new and difficult concepts than on programming algorithms. Interesting practical examples are discussed and useful problems are explored. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Multimedia Communications and Networking Springer Science & Business Media

This comprehensive sourcebook thoroughly explores the state-of-the-art in communications receivers, providing detailed practical guidance for constructing an actual high dynamic range receiver from system design to packaging. You also find clear explanations of the technical underpinnings that you need to understand for your work in the field. This cutting-edge reference presents the latest information on modern superheterodyne receivers, dynamic range, mixers, oscillators, complex coherent synthesizers, automatic gain control, DSP and software radios. You find in-depth discussions on system design, including coverage of all pertinent data and tools. Moreover, the book offers you a solid understanding of packaging and mechanical considerations, as well as a look at tomorrow's receiver technology, including new Bragg-cell applications for ultra-wideband electronic warfare receivers. This one-stop resource is packed with over 300 illustrations that support critical topics throughout."

Digital Communications Technical Publications

The four short years since *Digital Communication over Fading Channels* became an instant classic have seen a virtual explosion of significant new work on the subject, both by the authors and by numerous researchers around the world. Foremost among these is a great deal of progress in the area of

transmit diversity and space-time coding and the associated multiple input-multiple output (MIMO) channel. This new edition gathers these and other results, previously scattered throughout numerous publications, into a single convenient and informative volume. Like its predecessor, this Second Edition discusses in detail coherent and noncoherent communication systems as well as a large variety of fading channel models typical of communication links found in the real world. Coverage includes single- and multichannel reception and, in the case of the latter, a large variety of diversity types. The moment generating function (MGF)-based approach for performance analysis, introduced by the authors in the first edition and referred to in literally hundreds of publications, still represents the backbone of the book's presentation. Important features of this new edition include:

- * An all-new, comprehensive chapter on transmit diversity, space-time coding, and the MIMO channel, focusing on performance evaluation
- * Coverage of new and improved diversity schemes
- * Performance analyses of previously known schemes in new and different fading scenarios
- * A new chapter on the outage probability of cellular mobile radio systems
- * A new chapter on the capacity of fading channels
- * And much more

Digital Communication over Fading Channels, Second Edition is an indispensable resource for graduate students, researchers investigating these systems, and practicing engineers responsible for evaluating their performance.

Theory and Practice CRC Press

This introduction to digital data transmission, modulation, and error-correction coding, together with the underlying communication and information theory is an all-inclusive text suitable for all those connected with Mechanical Engineering or Computer Science. Equal emphasis is given to underlying mathematical theory and engineering practice. Not meant to be an encyclopedic treatise, the book offers strong, accessible pedagogy. This Second Edition presents enhanced explanations of key ideas as well as additional examples and problems. It also provides greatly expanded coverage of wireless communication, which has seen exponential growth since the release of the first edition. A pedagogical approach aimed at the 5th year EE student. A balance of theory with engineering and design. Integration of important topics such as synchronization, radio channels, and wireless communication, which are left out of competing books, or lost in more lengthy formats.

Fundamentals of Communication Systems Springer Science & Business Media

Introduces digital mobile communications with an emphasis on digital transmission methods. This book presents mathematical analyses of signals, mobile radio channels, and digital modulation methods. The new edition covers the evolution of wireless communications technologies and systems. The major new topics are OFDM (orthogonal frequency domain multiplexing), MIMO (multi-input multi-output) systems, frequency-domain equalization, the turbo codes, LDPC (low density parity check code), ACELP (algebraic code excited linear predictive) voice coding, dynamic scheduling for wireless packet data transmission and nonlinearity compensating digital pre-distorter amplifiers. The new systems using the above mentioned technologies include the second generation evolution systems, the third generation systems with their evolution systems, LTE and LTE-advanced systems, and advanced wireless local area network systems. The second edition of Digital Mobile Communication: Presents basic concepts and applications to a variety of mobile communication systems. Discusses current applications of modern digital mobile communication systems. Covers the evolution of wireless communications technologies and systems in conjunction with their background. The second edition of Digital Mobile Communication is an important textbook for university students, researchers, and engineers involved in wireless communications.

Cable and Wireless Networks Technical Publications

Cable and Wireless Networks: Theory and Practice presents a comprehensive approach to networking, cable and wireless communications, and networking security. It describes the most important state-of-the-art fundamentals and system details in the field, as well as many key aspects concerning the development and understanding of current and emergent services. In this book, the author gathers in a single volume current and emergent cable and wireless network services and technologies. Unlike other books, which cover each one of these topics independently without establishing their natural relationships, this book allows students to quickly learn and improve their mastering of the covered topics with a deeper understanding of their interconnection. It also collects in a single source the latest developments in the area, typically only within reach of an active researcher. Each chapter illustrates the theory of cable and wireless communications with relevant examples, hands-on exercises, and review questions suitable for readers with a BSc degree or an MSc degree in computer science or electrical engineering. This approach makes the book well suited for higher education students in courses such as networking, telecommunications, mobile communications, and network security. This is an excellent reference book for academic, institutional, and industrial professionals with technical responsibilities in planning, design and development of networks, telecommunications and security systems, and mobile communications, as well as for Cisco CCNA and CCNP exam preparation.

Information Theory and Coding John Wiley & Sons

Modern communications technology demands smaller, faster and more efficient circuits. This book reviews the fundamentals of electromagnetism in passive and active circuit elements, highlighting various effects and potential problems in designing a new circuit. The author begins with a review of the basics - the origin of resistance, capacitance, and inductance - then progresses to more advanced topics such as passive device design and layout, resonant circuits, impedance matching, high-speed switching circuits, and parasitic coupling and isolation techniques. Using examples and applications in RF and microwave systems, the author describes transmission lines, transformers, and distributed circuits. State-of-the-art developments in Si based broadband analog, RF, microwave, and mm-wave circuits are reviewed. With up-to-date results, techniques, practical examples, illustrations and worked examples, this book will be valuable to advanced undergraduate and graduate students of electrical engineering, and practitioners in the IC design industry. Further resources for this title are available at www.cambridge.org/9780521853507.

Digital Transmission Cambridge University Press

Introduction in first chapter includes various topics given in the book. Second chapter deals with information theory that includes modes of sources and channels, information and entropy, source coding, discrete memoryless channels, mutual information and Shannon's theorems are given. Linear block codes, cyclic codes, Hamming codes, syndrome decoding, convolutional codes are given in third chapter. Spread spectrum communication includes pseudo noise sequences, direct sequence and frequency hop spread spectrum. It is presented in fourth chapter. Multiple access techniques are reviewed in fifth chapter. Sixth chapter deals with satellite communications. Satellite orbits, satellite access, earth station, transponder, frequency reuse, link budget, VSAT and MSAT are presented. Fibre optic communication is introduced in seventh chapter. Light propagation in fiber, losses,

modes, dispersion, light sources and detectors, fiber optic link are presented in this chapter.

Digital Communications John Wiley & Sons

Carefully structured to provide practical knowledge on fundamental issues, Optical Fiber Communications Systems: Theory and Practice with MATLAB® and Simulink® Models explores advanced modulation and transmission techniques of lightwave communication systems. With coverage ranging from fundamental to modern aspects, the text presents optical communication techniques and applications, employing single mode optical fibers as the transmission medium. With MATLAB and Simulink models that illustrate methods, it supplies a deeper understanding of future development of optical systems and networks. The book begins with an overview of the development of optical fiber communications technology over the last three decades of the 20th century. It describes the optical transmitters for direct and external modulation technique and discusses the detection of optical signals under direct coherent and incoherent reception. The author also covers lumped Erbium-doped and distributed Raman optical amplifiers with extensive models for the amplification of signals and structuring the amplifiers on the Simulink platform. He outlines a design strategy for optically amplified transmission systems coupled with MATLAB Simulink models, including dispersion and attenuation budget methodology and simulation techniques. The book concludes with coverage of advanced modulation formats for long haul optical fiber transmission systems with accompanied Simulink models. Although many books have been written on this topic over the last two decades, most of them present only the theory and practice of devices and subsystems of the optical fiber communications systems in the fields, but do not illustrate any computer models to represent the true practical aspects of engineering practice. This book fills the need for a text that emphasizes practical computing models that shed light on the behavior and dynamics of the devices.

Digital Transmission Engineering Digital Communications

Analysis tools such as Fourier series, Fourier transforms signals, systems and spectral densities are discussed in the second chapter. Introduction is presented in the first chapter. Third chapter presents additional analysis techniques such as probability, random variables, distribution functions and density functions. Probability models and random processes are also discussed. Noise representation, sources, noise factor, noise temperature, filtering of noise, noise bandwidth and performance of AM/FM in presence of noise is discussed in fourth chapter. Analog pulse modulation is presented in fifth chapter. Sampling, PAM, PAM/TDM are discussed in this chapter. Sixth chapter deals with digital pulse modulation methods such as PCM, DM, ADM and DPCM. Seventh chapter presents digital multiplexers, line coding, synchronization, scramblers, ISI, eye patterns and equalization techniques. Digital modulation is presented in eighth chapter. Phase shift keying, frequency shift keying, QPSK, QAM and MSK are presented. Last chapter deals with error performance of these techniques using matched filter.

Digital Communication Technical Publications

Written with the expert in mind the book describes the physical layer of UMTS (Universal Mobile Telecommunication System). In a clear fashion it compiles the main technical features of the physical layer standard together with a description of the basic digital communications and spread spectrum technology. In addition the test cases specified in the standard are described together with their implications on any practical front-end design. The reader will benefit from the standard description which frees him from studying lots of standardization documents. Additional explanations of the standard and especially the test cases will help to better understand the effects on any front-end system design. Many references are provided for readers interested in in-depth treatments of certain topics.

Digital Communication Systems Engineering with Software-Defined Radio Cengage Learning

In June 2000, GTEL (Wireless Telecommunications Research Group) at the Federal University of Ceara' was founded by Professor Rodrigo Cavalcanti and his colleagues with the mission of developing wireless communications technology and impact the development of the Brazilian telecommunications sector. From the start, this research effort has been supported by Ericsson Research providing a dynamic environment where academia and industry together can address timely and relevant research challenges. This book summarized much of the research output that has resulted from GTEL's efforts. It provides a comprehensive treatment of the physical and multiple access layers in mobile communication systems describing different generations of systems but with a focus on 3G systems. The team of Professor Cavalcanti has contributed scientifically to the development of this field and built up an impressive expertise. In the chapters that follow, they share their views and knowledge on the underlying principles and technical trade-offs when designing the air interface of 3G systems. The complexity of 3G systems and the interaction between the physical and multiple access layers present a tremendous challenge when modeling, designing, and analyzing the mobile communication system. Herein, the authors tackle this problem in an impressive manner. Their work is very much in line with the developments in 3GPP providing a deeper understanding of the evolution of 3G and also future enhancements.

The Physical Layer of the Universal Mobile Telecommunications System John Wiley & Sons

An accessible undergraduate textbook introducing key fundamental principles behind modern communication systems, supported by exercises, software problems and lab exercises.

Bridging RF and Digital Communications Artech House

This book concerns digital communication. Specifically, we treat the transport of bit streams from one geographical location to another over various physical media, such as wire pairs, coaxial cable, optical fiber, and radio waves. Further, we cover the multiplexing, multiple access, and synchronization issues relevant to constructing communication networks that simultaneously transport bit streams from many users. The material in this book is thus directly relevant to the design of a multitude of digital communication systems, including for example local and metropolitan area data networks, voice and video telephony systems, the integrated services digital network (ISDN), computer communication systems, voiceband data modems, and satellite communication systems. We extract the common principles underlying these and other applications and present them in a unified framework. This book is intended for designers and would-be designers of digital communication systems. To limit the scope to manageable proportions we have had to be selective in the topics covered and in the depth of coverage. In the case of advanced information, coding, and detection theory, for example, we have not tried to duplicate the in-depth coverage of many advanced textbooks, but rather have tried to cover those aspects directly relevant to the design of digital communication systems.

Communication Systems - I Technical Publications

There are eight chapters, useful appendix and solved question papers in the book. Basic digital communication, line codes and sampling methods are presented at the beginning. Digital pulse modulation techniques such as PCM, DPCM, DM, ADM are presented. Continuous wave digital modulation methods such as BPSK, DPSK, QPSK, QAM, BFSK and OOK are presented with mathematical analysis of modulators and receivers. Issues related to baseband transmission such as ISI, Nyquist pulse shaping criterion, optimum reception, matched filter and eye patterns are also discussed. Concepts of information theory such as discrete memoryless channels, mutual information, Shannon's theorems on source coding are also presented. Coding using linear block codes, cyclic codes and convolutional coding is also discussed. Secured communication using spread spectrum modulation is also discussed in detail.

Digital Communications and Signal Processing (Second Edition) Tata McGraw-Hill Education

Do you need to know how to develop more efficient digital communication systems? Based on the author's experience of over thirty years in industrial design, this practical guide provides detailed coverage of synchronization subsystems and their relationship with other system components. Readers will gain a comprehensive understanding of the techniques needed for the design, performance analysis and implementation of synchronization functions for a range of different modern communication technologies. Specific topics covered include frequency-locked loops in wireless receivers, optimal OFDM timing phase determination and implementation, and interpolation filter design and analysis in digital resamplers. Numerous implementation examples help readers to develop the necessary practical skills, and slides summarizing key concepts accompany the book online. This is an invaluable guide and essential reference for both practicing engineers and graduate students working in digital communications.

Next Generation Wireless Systems and Networks Technical Publications

Information Systems and Data Compression presents a uniform approach and methodology for designing intelligent information systems. A framework for information concepts is introduced for various types of information systems such as communication systems, information storage systems and systems for simplifying structured information. The book introduces several new concepts and presents a novel interpretation of a wide range of topics in communications, information storage, and information compression. Numerous illustrations for designing information systems for compression of digital data and images are used throughout the book.

Introduction to Digital Mobile Communication Springer

Amplitude modulation and Angle modulation are discussed in first two chapters. AM, FM, analysis equations, modulators, detectors, transmission and reception are thoroughly presented. SSB, DSB, VSB, FDM are also discussed. Noise theory is given in third chapter. It includes random variables, probability, random processes and correlation functions. Noise factor, noise temperature and mathematical analysis of noise is presented.

Performance of modulation systems in the presence of noise is explained in fourth chapter. Figure of merit, capture effect and threshold effect are also presented. Last chapter presents information theory. Entropy information rate, discrete memoryless source, source coding, Shannon's theorems are also given in detail. Mutual information and channel capacity are also presented.

Communication Theory John Wiley & Sons

"Presents transceiver system design and architecture in terms of budgeting a transceiver, transceivers architectures, and algorithms for transceivers"--