
Digital Communication By Proakis 3rd Edition

Mobile Communications Handbook
 RF and Microwave Applications and Systems
 Theory and Design of Digital Communication Systems
 Digital Communication over Fading Channels
 Digital Transmission
 Optical Fiber Communications Systems
 Digital Signal Processing Using MATLAB
 Modulation and Coding Techniques in Wireless Communications
 Digital Communications
 Contemporary Communication Systems Using MATLAB
 The RF and Microwave Handbook
 Digital Communications and Signal Processing (Second Edition)
 Multimedia Communications and Networking
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 The Mobile Communications Handbook

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Mobile Communications Handbook

Cambridge University Press
 In a single volume, The Mobile Communications Handbook 2nd. Edition covers the entire field - from principles of analog and digital communications to cordless telephones, wireless local area networks (LANs), and international technology standards. The amazing scope of the handbook ensures that it will be the primary reference for every aspect of mobile communications.

RF and Microwave Applications and Systems Springer Science & Business Media

The renowned communications theorist Robert Gallager brings his lucid writing

style to the study of the fundamental system aspects of digital communication for a one-semester course for graduate students. With the clarity and insight that have characterized his teaching and earlier textbooks, he develops a simple framework and then combines this with careful proofs to help the reader understand modern systems and simplified models in an intuitive yet precise way. A strong narrative and links between theory and practice reinforce this concise, practical presentation. The book begins with data compression for arbitrary sources. Gallager then describes how to modulate the resulting binary data for transmission over wires, cables, optical fibers, and wireless channels. Analysis and intuitive interpretations are developed for channel noise models, followed by coverage of the principles of detection,

coding, and decoding. The various concepts covered are brought together in a description of wireless communication, using CDMA as a case study.

Theory and Design of Digital Communication Systems Cambridge University Press

The authors give a detailed summary about the fundamentals and the historical background of digital communication. This includes an overview of the encoding principles and algorithms of textual information, audio information, as well as images, graphics, and video in the Internet. Furthermore the fundamentals of computer networking, digital security and cryptography are covered. Thus, the book provides a well-founded access to communication technology of computer networks, the internet and the WWW. Numerous pictures and images, a subject-

index and a detailed list of historical personalities including a glossary for each chapter increase the practical benefit of this book that is well suited as well as for undergraduate students as for working practitioners.

Digital Communication over Fading Channels Springer Science & Business Media

Amazon.com's Top-Selling DSP Book for Seven Straight Years—Now Fully Updated! Understanding Digital Signal Processing, Third Edition, is quite simply the best resource for engineers and other technical professionals who want to master and apply today's latest DSP techniques. Richard G. Lyons has updated and expanded his best-selling second edition to reflect the newest technologies, building on the exceptionally readable coverage that made it the favorite of DSP professionals worldwide. He has also added hands-on problems to every chapter, giving students even more of the practical experience they need to succeed. Comprehensive in scope and clear in approach, this book achieves the perfect balance between theory and practice, keeps math at a tolerable level, and makes DSP exceptionally accessible to beginners without ever oversimplifying it. Readers can thoroughly grasp the basics and quickly move on to more sophisticated techniques. This edition adds extensive new coverage of FIR and IIR filter analysis techniques, digital differentiators, integrators, and matched filters. Lyons has significantly updated and expanded his discussions of multirate processing techniques, which are crucial to modern wireless and satellite communications. He also presents nearly twice as many DSP Tricks as in the second edition—including techniques even seasoned DSP professionals may have overlooked. Coverage includes New homework problems that deepen your understanding and help you apply what you've learned Practical, day-to-day DSP implementations and problem-solving throughout Useful new guidance on generalized digital networks, including discrete differentiators, integrators, and matched filters Clear descriptions of statistical measures of signals, variance reduction by averaging, and real-world signal-to-noise ratio (SNR) computation A significantly expanded chapter on sample rate conversion (multirate systems) and associated filtering techniques New guidance on implementing fast convolution, IIR filter scaling, and more Enhanced coverage of analyzing digital filter behavior and performance for diverse communications and biomedical

applications Discrete sequences/systems, periodic sampling, DFT, FFT, finite/infinite impulse response filters, quadrature (I/Q) processing, discrete Hilbert transforms, binary number formats, and much more Digital Transmission CRC Press

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.

Optical Fiber Communications Systems

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

Digital Signal Processing Using MATLAB

Nelson Books

The result of decades of research and international project experience, *Multimedia Communications and Networking* provides authoritative insight into recent developments in multimedia, digital communications, and networking services and technologies. Supplying you with the required foundation in these areas, it illustrates the means that will allow

Modulation and Coding Techniques in Wireless Communications CRC Press

This book provides a summary of the research conducted at UCLA, Stanford University, and UCSD over the last few years in the area of nonlinear dynamics and chaos as applied to digital communications. At first blush, the term "chaotic communications" seems like an oxymoron; how could something as precise and deterministic as digital communications be chaotic? But as this

book will demonstrate, the application of chaos and nonlinear dynamicsto communications provides many promising new directions in areas of coding, nonlinear optical communications, and ultra-wideband communications. The eleven chapters of the book summarize many of the promising new approaches that have been developed, and point the way to new research directions in this field. Digital communications techniques have been continuously developed and refined for the past fifty years to the point where today they form the heart of a multi-hundred billion dollar per year industry employing hundreds of thousands of people on a worldwide basis. There is a continuing need for transmission and reception of digital signals at higher and higher data rates. There are a variety of physical limits that place an upper limit on these data rates, and so the question naturally arises: are there alternative communication techniques that can overcome some of these limitations? Most digital communications today is carried out using electronic devices that are essentially "linear," and linear system theory has been used to continually refine their performance. In many cases, inherently nonlinear devices are linearized in order to achieve a certain level of linear system performance.

Digital Communications John Wiley & Sons

By 1990 the wireless revolution had begun. In late 2000, Mike Golio gave the world a significant tool to use in this revolution: *The RF and Microwave Handbook*. Since then, wireless technology spread across the globe with unprecedented speed, fueled by 3G and 4G mobile technology and the proliferation of wireless LANs. Updated to reflect this tremendous growth, the second edition of this widely embraced, bestselling handbook divides its coverage conveniently into a set of three books, each focused on a particular aspect of the technology. Six new chapters cover WiMAX, broadband cable, bit error ratio (BER) testing, high-power PAs (power amplifiers), heterojunction bipolar transistors (HBTs), as well as an overview of microwave engineering. Over 100 contributors, with diverse backgrounds in academic, industrial, government, manufacturing, design, and research reflect the breadth and depth of the field. This eclectic mix of contributors ensures that the coverage balances fundamental technical issues with the important business and marketing constraints that define commercial RF and microwave engineering. Focused chapters filled with

formulas, charts, graphs, diagrams, and tables make the information easy to locate and apply to practical cases. The new format, three tightly focused volumes, provides not only increased information but also ease of use. You can find the information you need quickly, without wading through material you don't immediately need, giving you access to the caliber of data you have come to expect in a much more user-friendly format.

Contemporary Communication Systems Using MATLAB Technical Publications

The book gives an in-depth study of the principles of the spread spectrum techniques and their applications in mobile communications. It starts with solid foundations in the digital communications that are essential to unequivocal understanding of the CDMA technology, and guides the reader through the fundamentals and characteristics of cellular CDMA communications. Features include: * A very clear and thorough description of the principles and applications of spread spectrum techniques in multi-user mobile communications. * Matlab-based worked examples, exercises and practical sessions to clearly explain the theoretical concepts. * An easy-to-read explanation of the air interface standards used in IS-95 A/B, cdma2000, and 3G WCDMA. * Clear presentations of the high speed downlink and uplink packet access (HSDPA/HSUPA) techniques used in 3G WCDMA. The book is a very suitable introduction to the principles of CDMA communications for senior undergraduate and graduate students, as well researchers and engineers in industry who are looking to develop their expertise. - A very clear and thorough description of the principles and applications of spread spectrum techniques in multi-user mobile communications. - Matlab-based worked examples, exercises and practical sessions to clearly explain the theoretical concepts. - An easy-to-read explanation of the air interface standards used in IS-95 A/B, cdma2000, and 3G WCDMA. - Clear presentations of the high speed downlink and uplink packet access (HSDPA/HSUPA) techniques used in 3G WCDMA.

The RF and Microwave Handbook Springer Science & Business Media

An important look at bandwidth-efficient modulations with applications to today's Space program Based on research and results obtained at the California Institute of Technology's Jet Propulsion Laboratory, this timely book defines, describes, and then delineates the performance (power and bandwidth) of digital communication

systems that incorporate a wide variety of bandwidth-efficient modulations appropriate for the design and implementation of space communications systems. The author compares the performance of these systems in the presence of a number of practical (non-ideal) transmitter and receiver characteristics such as modulator and phase imbalance, imperfect carrier synchronization, and transmitter nonlinearity. Although the material focuses on the deep space applications developed at the Jet Propulsion Laboratory, the presentation is sufficiently broad as to be applicable to a host of other applications dealing with RF communications. An important contribution to the scientific literature, *Bandwidth-Efficient Digital Modulation with Application to Deep Space Communications* * was commissioned by the JPL Deep Space Communications and Navigation System Center of Excellence * highlights many NASA-funded technical contributions pertaining to deep space communications systems * is a part of the prestigious Deep Space Communications and Navigation Series The Deep Space Communications and Navigation Series is authored by scientists and engineers with extensive experience in astronautics, communications, and related fields. It lays the foundation for innovation in the areas of deep space navigation and communications by disseminating state-of-the-art knowledge in key technologies.

Digital Communications and Signal Processing (Second Edition) Cambridge University Press

The book discusses modern channel coding techniques for wireless communications such as turbo codes, low parity check codes (LDPC), space-time coding, Reed Solomon (RS) codes and convolutional codes. Many illustrative examples are included in each chapter for easy understanding of the coding techniques. The text is integrated with MATLAB-based programs to enhance the understanding of the subject's underlying theories. It includes current topics of increasing importance such as turbo codes, LDPC codes, LT codes, Raptor codes and space-time coding in detail, in addition to the traditional codes such as cyclic codes, BCH and RS codes and convolutional codes. MIMO communications is a multiple antenna technology, which is an effective method for high-speed or high-reliability wireless communications. PC-based MATLAB m-files for the illustrative examples are included and also provided on the accompanying CD, which will help students and

researchers involved in advanced and current concepts in coding theory. Channel coding, the core of digital communication and data storage, has undergone a major revolution as a result of the rapid growth of mobile and wireless communications. The book is divided into 11 chapters. Assuming no prior knowledge in the field of channel coding, the opening chapters (1 - 2) begin with basic theory and discuss how to improve the performance of wireless communication channels using channel coding. Chapters 3 and 4 introduce Galois fields and present detailed coverage of BCH codes and Reed-Solomon codes. Chapters 5-7 introduce the family of convolutional codes, hard and soft-decision Viterbi algorithms, turbo codes, BCJR algorithm for turbo decoding and studies trellis coded modulation (TCM), turbo trellis coded modulation (TTCM), bit-interleaved coded modulation (BICM) as well as iterative BICM (BICM-ID) and compares them under various channel conditions. Chapters 8 and 9 focus on low-density parity-check (LDPC) codes, LT codes and Raptor codes. Chapters 10 and 11 discuss MIMO systems and space-time (ST) coding.

Multimedia Communications and Networking Cengage Learning

Digital Transmission - A Simulation-Aided Introduction with VisSim/Comm is a book in which basic principles of digital communication, mainly pertaining to the physical layer, are emphasized. Nevertheless, these principles can serve as the fundamentals that will help the reader to understand more advanced topics and the associated technology. In this book, each topic is addressed in two different and complementary ways: theoretically and by simulation. The theoretical approach encompasses common subjects covering principles of digital transmission, like notions of probability and stochastic processes, signals and systems, baseband and passband signaling, signal-space representation, spread spectrum, multi-carrier and ultra wideband transmission, carrier and symbol-timing recovery, information theory and error-correcting codes. The simulation approach revisits the same subjects, focusing on the capabilities of the communication system simulation software VisSim/Comm on helping the reader to fulfill the gap between the theory and its practical meaning. The presentation of the theory is made easier with the help of 357 illustrations. A total of 101 simulation files supplied in the accompanying CD support the simulation-oriented approach. A full evaluation version and a viewer-only

version of VisSim/Comm are also supplied in the CD.

Digital Communication Systems

Engineering with Software-defined Radio

Springer Science & Business Media

CDMA Techniques for Third Generation Mobile Systems presents advanced techniques for analyzing and developing third generation mobile telecommunication systems. Coverage includes analysis of CDMA-based systems, multi-user receivers, Turbo coding for mobile radio applications, spatial and temporal processing techniques as well as software radio techniques. Special emphasis has been given to recent advances in coding techniques, smart antenna systems, spatial filtering, and software implementation issues.

Internationally recognized specialists contributed to this volume, and each chapter has been reviewed and edited for uniformity. CDMA Techniques for Third Generation Mobile Systems is an invaluable reference work for engineers and researchers involved in the development of specific CDMA systems. *Digital Communication* John Wiley & Sons The recent shift in focus from defense and government work to commercial wireless efforts has caused the job of the typical microwave engineer to change dramatically. The modern microwave and RF engineer is expected to know customer expectations, market trends, manufacturing technologies, and factory models to a degree that is unprecedented in the

Bandwidth-Efficient Digital Modulation with Application to Deep Space Communications

CRC Press

For one- or two-semester, senior-level undergraduate courses in Communication Systems for Electrical and Computer Engineering majors. This text introduces the basic techniques used in modern communication systems and provides fundamental tools and methodologies used in the analysis and design of these systems. The authors emphasize digital communication systems, including new generations of wireless communication systems, satellite communications, and data transmission networks. A background in calculus, linear algebra, basic electronic circuits, linear system theory, and probability and random variables is assumed.

Digital Communication

CRC Press

Thorough coverage of basic digital communication system principles ensures that readers are exposed to all basic relevant topics in digital communication system design. The use of CD player and

JPEG image coding standard as examples of systems that employ modern communication principles allows readers to relate the theory to practical systems. Over 180 worked-out examples throughout the book aids readers in understanding basic concepts. Over 480 problems involving applications to practical systems such as satellite communications systems, ionospheric channels, and mobile radio channels gives readers ample opportunity to practice the concepts they have just learned. With an emphasis on digital communications, *Communication Systems Engineering, Second Edition* introduces the basic principles underlying the analysis and design of communication systems. In addition, this book gives a solid introduction to analog communications and a review of important mathematical foundation topics. New material has been added on wireless communication systems—GSM and CDMA/IS-94; turbo codes and iterative decoding; multicarrier (OFDM) systems; multiple antenna systems. Includes thorough coverage of basic digital communication system principles—including source coding, channel coding, baseband and carrier modulation, channel distortion, channel equalization, synchronization, and wireless communications. Includes basic coverage of analog modulation such as amplitude modulation, phase modulation, and frequency modulation as well as demodulation methods. For use as a reference for electrical engineers for all basic relevant topics in digital communication system design.

Understanding Digital Signal Processing

Cambridge University Press

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.

Introduction to Communication Systems

John Wiley & Sons

This supplement contains worked out solutions to the chapter end problem sets found in *Digital Communication, Second Edition*, ISBN 0-7923-9391-0.

Communication Systems Engineering John Wiley & Sons

This is a concise presentation of the concepts underlying the design of digital communication systems, without the detail that can overwhelm students. Many examples, from the basic to the cutting-edge, show how the theory is used in the design of modern systems and the relevance of this theory will motivate students. The theory is supported by practical algorithms so that the student can perform computations and simulations. Leading edge topics in coding and wireless communication make this an ideal text for students taking just one course on the subject. *Fundamentals of Digital Communications* has coverage of turbo and LDPC codes in sufficient detail and clarity to enable hands-on implementation and performance evaluation, as well as 'just enough' information theory to enable computation of performance benchmarks to compare them against. Other unique features include space-time communication and geometric insights into noncoherent communication and equalization.

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