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SECOND EDITION

Principles of Digital Communication

Signal Representation, Detection, Estimation and Information Coding



J. Das • S.K. Mullick • P.K. Chatterjee



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Principles Of Digital Communication

Andrew J. Viterbi



Principles Of Digital Communication:

Principles of Digital Communication and Coding Andrew J. Viterbi, Jim K. Omura, 2009-01-01 Written by two distinguished experts in the field of digital communications this classic text remains a vital resource three decades after its initial publication Its treatment is geared toward advanced students of communications theory and to designers of channels links terminals modems or networks used to transmit and receive digital messages The three part approach begins with the fundamentals of digital communication and block coding including an analysis of block code ensemble performance The second part introduces convolutional coding exploring ensemble performance and sequential decoding The final section addresses source coding and rate distortion theory examining fundamental concepts for memoryless sources as well as precepts related to memory Gaussian sources and universal coding Appendixes of useful information appear throughout the text and each chapter concludes with a set of problems the solutions to which are available online *Principles of Digital Communication* Robert G. Gallager, 2008-02-28 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 **Principles of Digital Communication** J. Das, S. K. Mullick, P. K. Chatterjee, 1986 **PRINCIPLES OF DIGITAL COMMUNICATION AND CODING** ANDREW J. VITERBI, 2018 *Review Of Digital Communication* J. Das, 2003 With The Global Trends In Communication And Data Networks Leading To Idn And Isdn There Is A Special Need For A Comprehensive Book On The State Of The Art In Digital Communication In The Absence Of Such A Reference Book Most Of Our Senior Professionals And Academics Find It Very Hard To Keep Themselves Abreast Of The Recent Developments Leading To Information Revolution And Digital Revolution The Present Volume Is An Attempt To Fill This Gap The Book Consists Of Ten Chapters And Discusses Such Topics As Principles Of Digital Modulation Source Encoding Data Transmission Through Cables And Optical Fibres Digital Radio Including Satellite Communication Data Networks And Digital Switching Information Theory And Coding Survival Of Communication Including Spread Spectrum Techniques And Future Trends Including Isdn Conceptually The Chapters Attempt To Discuss From A System Point Of View A Total Digital Communication Network E G Idn And The Total Range Of Signal Processing Techniques Has Been Presented In Subsequent Chapters Thus

Maintaining A Continuity Of Thought From End To End The Book Is Therefore Addressed To Both Professionals In Telecommunications And Senior Students In This Area **Principles of Digital Communication** Bixio Rimoldi,2016-01-21 This comprehensive and accessible text teaches the fundamentals of digital communication via a top down reversed approach specifically formulated for a one semester course The unique approach focuses on the transmission problem and develops knowledge of receivers before transmitters In doing so it cuts straight to the heart of the digital communication problem enabling students to learn quickly intuitively and with minimal background knowledge Beginning with the decision problem faced by a decoder and going on to cover receiver designs for different channels hardware constraints design trade offs convolutional coding Viterbi decoding and passband communication detail is given on system level design as well as practical applications in engineering All of this is supported by numerous worked examples homework problems and MATLAB simulation exercises to aid self study providing a solid basis for students to specialize in the field of digital communication and making it suitable for both traditional and flipped classroom teaching **An Introduction to The Principles of Digital Communication** N. B. Chakrabarti,A. K. Datta,2007 **Principles of Digital Communication and Coding** Andrew J. Viterbi,Jim K. Omura,2013-04-22 Written by two distinguished experts in the field of digital communications this classic text remains a vital resource three decades after its initial publication Its treatment is geared toward advanced students of communications theory and to designers of channels links terminals modems or networks used to transmit and receive digital messages The three part approach begins with the fundamentals of digital communication and block coding including an analysis of block code ensemble performance The second part introduces convolutional coding exploring ensemble performance and sequential decoding The final section addresses source coding and rate distortion theory examining fundamental concepts for memoryless sources as well as precepts related to memory Gaussian sources and universal coding Appendixes of useful information appear throughout the text and each chapter concludes with a set of problems the solutions to which are available online **Principles of Digital Communication** J. Das,S. K. Mullick,P. K. Chatterjee,1986 The basic principles of coding modulation detection and information processing as required to understand and appreciate the modern digital communication systems *Fundamentals of Digital Communication* Upamanyu Madhow,2008-03-06 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 *Principles of Digital Communication and Coding (Classic Reprint)* Andrew J. Viterbi, 2016-08-19 Excerpt from Principles of Digital Communication and Coding The applications oriented engineer or student can obtain an understanding of channel coding for physical channels by tackling only Chapters 2 4 and about half of 6 Avoiding the intricacies of ensemble average arguments the reader can learn how to code for noisy channels without making the additional effort to understand the complete theory At the opposite extreme students with some background in digital communications can be guided through the channel coding material in Chapters 3 through 6 in a one semester or one quarter course and advanced students who already have channel coding background can cover Part Three on source coding in a course of similar duration Numerous problems are provided to furnish examples to expand on the material or indicate related results and occasionally to guide the reader through the steps of lengthy alternate proofs and derivations About the Publisher Forgotten Books publishes hundreds of thousands of rare and classic books Find more at www.forgottenbooks.com This book is a reproduction of an important historical work Forgotten Books uses state of the art technology to digitally reconstruct the work preserving the original format whilst repairing imperfections present in the aged copy In rare cases an imperfection in the original such as a blemish or missing page may be replicated in our edition We do however repair the vast majority of imperfections successfully any imperfections that remain are intentionally left to preserve the state of such historical works *An Introduction to Principles of Digital Comm. Engineering* P. Sri Hari, 2000 **Digital Communication** Apurba Das, 2010-08-02 Digital Communications presents the theory and application of the philosophy of Digital Communication systems in a unique but lucid form The book inserts equal importance to the theory and application aspect of the subject whereby the authors selected a wide class of problems The Salient features of the book are 1 The foundation of Fourier series Transform and wavelets are introduces in a unique way but in lucid language 2 The application area is rich and resemblance to the present trend of research as we are attached with those areas professionally 3 Elegant exercise section is designed in such a way that the readers can get the flavor of the subject and get attracted towards the future scopes of the subject 4 Unparallel tabular flow chart based and pictorial methodology description will be there for sustained impression of the proposed design algorithms in mind **Digital Communication** Edward A. Lee, David G. Messerschmitt, 2012-12-06 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 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 digital CATV distribution digital cellular and radio systems the narrowband and broadband

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

An Introduction to Principles of Digital Communication Engineering P. Sri Hari,2005-08-01

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