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Encyclopedia of Microcomputers Allen Kent 1990-10-26 "The Encyclopedia of Microcomputers serves as the ideal companion reference to the popular Encyclopedia of Computer Science and Technology. Now in its 10th year of publication, this timely reference work details the broad spectrum of microcomputer technology, including microcomputer history; explains and illustrates the use of microcomputers throughout academe, business, government, and society in general; and assesses the future impact of this rapidly changing technology."

*Advanced Digital Signal Processing and Noise Reduction Saeed V. Vaseghi 2006-02-03 Signal processing plays an increasingly central role in the development of modern telecommunication and information processing systems, with a wide range of applications in areas such as multimedia technology, audio-visual signal processing, cellular mobile communication, radar systems and financial data forecasting. The theory and application of signal processing deals with the identification, modelling and utilisation of patterns and structures in a signal process. The observation signals are often distorted, incomplete and noisy and hence, noise reduction and the removal of channel distortion is an important part of a signal processing system. Advanced Digital Signal Processing and Noise Reduction, Third Edition, provides a fully updated and structured presentation of the theory and applications of statistical signal processing and noise reduction methods. Noise is the eternal bane of communications engineers, who are always striving to find new ways to improve the signal-to-noise ratio in communications systems and this resource will help them with this task. * Features two new chapters on Noise, Distortion and Diversity in Mobile Environments and Noise Reduction Methods for Speech Enhancement over Noisy Mobile Devices. * Topics discussed include: probability theory, Bayesian estimation and classification, hidden Markov models, adaptive filters, multi-band linear prediction, spectral estimation, and impulsive and transient noise removal. * Explores practical solutions to interpolation of missing signals, echo cancellation, impulsive and transient noise removal, channel equalisation, HMM-based signal and noise decomposition. This is an invaluable text for senior undergraduates, postgraduates and researchers in the fields of digital signal processing, telecommunications and statistical data analysis. It will also appeal to engineers in telecommunications and audio and signal processing industries.*

Seismic Exploration of the Deep Continental Crust Dirk Gajewski 2012-12-06 DEKORP, the German continental reflection seismic program, was the major focus of deep seismic research in Germany in the 1980s and 1990s. The seismic sections provided fundamental new insight into deep geological structure of the European continent and the dynamics of continental formation. They formed the basis for worldwide comparative studies of orogenic structure. The complicated signature of the reflections from the deep crust indicated that new processing and interpretation techniques must be considered to better image the crystalline crust. Results of these efforts, including pre-stack migration, 3-D imaging, shear waves and seismic anisotropy, are presented in this special volume. In part, the articles open the perspective to new and future research. In part, they document research activity triggered by technical and interpretational questions raised by DEKORP field work and profiling results. Many of the presented methods can find immediate application in industrial seismic prospecting.

Optimum Array Processing Harry L. Van Trees 2002-04-04 Well-known authority, Dr. Van Trees updates array signal processing for today's technology This is the most up-to-date and thorough treatment of the subject available Written in the same accessible style as Van Tree's earlier classics, this completely new work covers all modern applications of array signal processing, from biomedicine to wireless communications

Least-Mean-Square Adaptive Filters Simon Haykin 2003-09-08 Edited by the original inventor of the technology. Includes contributions by the foremost experts in the field. The only book to cover these topics together.

Nonlinear Digital Filters Ioannis Pitas 1990-01-31 To date, no unifying theory has been developed which encompasses nonlinear filters in the same theoretical framework. This book takes strides in that

direction by organizing nonlinear filter classes in a concise way and stretching their common properties. Annotation copyrighted by Book News, Inc., Portland, OR

Adaptive Filtering Paulo S. R. Diniz 2019-11-28 In the fifth edition of this textbook, author Paulo S.R. Diniz presents updated text on the basic concepts of adaptive signal processing and adaptive filtering. He first introduces the main classes of adaptive filtering algorithms in a unified framework, using clear notations that facilitate actual implementation. Algorithms are described in tables, which are detailed enough to allow the reader to verify the covered concepts. Examples address up-to-date problems drawn from actual applications. Several chapters are expanded and a new chapter 'Kalman Filtering' is included. The book provides a concise background on adaptive filtering, including the family of LMS, affine projection, RLS, set-membership algorithms and Kalman filters, as well as nonlinear, sub-band, blind, IIR adaptive filtering, and more. Problems are included at the end of chapters. A MATLAB package is provided so the reader can solve new problems and test algorithms. The book also offers easy access to working algorithms for practicing engineers.

Adaptive Filters Luke Williams 2004

Digital Signal Processing with Field Programmable Gate Arrays Uwe Meyer-Baese 2007-11-14 A practical and fascinating book on a topic at the forefront of communications technology. Field-Programmable Gate Arrays (FPGAs) are on the verge of revolutionizing digital signal processing. Novel FPGA families are replacing ASICs and PDSPs for front-end digital signal processing algorithms at an accelerating rate. The efficient implementation of these algorithms is the main goal of this book. It starts with an overview of today's FPGA technology, devices, and tools for designing state-of-the-art DSP systems. Each of the book's chapter contains exercises. The VERILOG source code and a glossary are given in the appendices.

Statistische Signale Eberhard Hänsler 2013-07-02 Dieses Lehrbuch behandelt statistische Signalmodelle aus der Sicht der Systemtheorie. Es entstand aus Vorlesungen des Autors an der TH Darmstadt für Studenten der Nachrichten- und Regelungstechnik nach dem Vorexamen. Im Gegensatz zur klassischen Theorie werden in diesem Buch Signale durch Zufallsprozesse modelliert. Nach einem kurzen Abriß der wichtigsten Gesetze der Wahrscheinlichkeitsrechnung werden Zufallsvariable und Zufallsprozesse behandelt. Hieran schließt sich die Betrachtung der Zusammenhänge zwischen den Eigenschaften des Eingangs- und des Ausgangsprozesses eines Systems an. Breiten Raum nehmen dabei Korrelationsfunktionen und Leistungsdichtespektren ein. Im zweiten Teil des Buches werden Anwendungen statistischer Sig- nalmodelle dargestellt. Im Vordergrund steht dabei die Optimierung linearer Systeme. Im einzelnen werden diskutiert: Signalangepaßtes Filter, Prädiktor, Optimalfilter nach Wiener und Kolmogoroff, Kalman-Filter und adaptive Filter. Die einzelnen Abschnitte des Buches beginnen in der Regel mit einer kurzen Herleitung oder einer Definition. Anschließend werden die neu eingeführten Größen diskutiert und Verbindungen zu bereits bekannten Zusammenhängen hergestellt. Jeder Abschnitt schließt mit durchgerechneten Beispielen. Die Darstellung des Stoffes bewegt sich auf dem Mittelweg zwischen "rein anschaulich" und "streng formal". Das Buch gibt daher einem Praktiker einen ausreichenden Hintergrund für den experimentellen Umgang mit Signalen. Gleichzeitig bereitet es Theoretiker auf das Studium weiterführender Darstellungen vor.

Grundlagen der digitalen Informationsübertragung Peter Adam Höher 2011-04-28 Die Informations- und Kommunikationstechnik hat in den letzten Jahrzehnten enorm an Bedeutung gewonnen. Um so wichtiger wird die Vermittlung von Grundlagenwissen in der digitalen Informationsübertragung. Aktuelle Forschungsgebiete wie Mehrantennensysteme (MIMO-Systeme) und Mehrnutzerkommunikation basieren auf informationstheoretischen Ansätzen, aber auch auf Kenntnissen der Codierungstheorie, der Übertragungstechnik und der Schätzverfahren. Im Vordergrund dieses Lehrbuchs stehen leistungsfähige drahtlose Übertragungstechniken unter besonderer Berücksichtigung des Mobilfunks. Die meisten Prinzipien und Verfahren sind aber auch in anderen Bereichen der digitalen Übertragungstechnik und zum Teil auch in der Speichertechnik anwendbar.

Adaptive Digital Filters Maurice Bellanger 2001-07-20 This text emphasizes the intricate relationship between adaptive filtering and signal analysis - highlighting stochastic processes, signal representations and properties, analytical tools, and implementation methods. This second edition includes new chapters on adaptive techniques in communications and rotation-based algorithms. It provides practical applications in information, estimation, and circuit theories.

Structures and Algorithms for Two-dimensional Adaptive Signal Processing Jeffrey Charles Strait 1995 The focus of this work is to explore structures and algorithms for two-dimensional adaptive signal processing. Applications in image and multichannel signal processing include 2-D adaptive differential pulse code modulation, interference cancellation, predictive coding, and noise suppression. Emphasis is placed both on FIR and IIR structures with primary benchmark issues being speed of convergence, computational complexity, and structural flexibility. The behavior of the 2-D, FIR, direct form adaptive filter is analogous to that of its 1-D counterpart. Eigenvalue disparity of the input autocorrelation matrix hinders the performance of the steepest descent adaptive algorithm. By implementing a Gauss-Newton sequential adaptive algorithm, the adaptive "modes" are effectively orthogonalized and normalized, thereby increasing the speed of convergence. An efficient block Levinson algorithm is utilized to implement the required matrix operations giving a fast quasi-Newton algorithm (FQN) with $O(Nsp3)$ complexity. The method exploits the Toeplitz-block Toeplitz structure of the resulting autocorrelation matrix estimate and realizes further computational savings by assuming that the autocorrelation matrix is constant over blocks of $Nsp2$ iterations. The FQN filter is compared to the 2-D transform domain filter, the McClellan transformation filter, and the 2-D recursive least squares filter. Two-dimensional infinite impulse response adaptive filters are also examined. It is found that

2-D IIR adaptive filters are plausible and useful. They exhibit convergence behavior which is dependent upon the 2-D indexing scheme. Several useful indexing methods are examined. A quasi-Newton acceleration algorithm is developed for this structure using the same method as above, except that some additional constraints must be imposed on the 2-D IIR autocorrelation matrix. The 2-D IIR error surface is not quadratic, and must be examined for the possible existence of local minima. Some preliminary results are presented. However, error surfaces can be graphically examined in the three-dimensional coefficient space for IIR filters with first-order denominators. Finally some applications are presented which utilize 2-D IIR adaptive filters. These include 2-D ADPCM and interference cancellation.

Adaptive Filters Behrouz Farhang-Boroujeny 2013-04-02 This second edition of Adaptive Filters: Theory andApplications has been updated throughout to reflect the latestdevelopments in this field; notably an increased coverage given tothe practical applications of the theory to illustrate the muchbroader range of adaptive filters applications developed in recentyears. The book offers an easy to understand approach to the theoryand application of adaptive filters by clearly illustrating how thetheory explained in the early chapters of the book is modified forthe various applications discussed in detail in later chapters.This integrated approach makes the book a valuable resource forgraduate students; and the inclusion of more advanced applicationsincluding antenna arrays and wireless communications makes it asuitable technical reference for engineers, practitioners andresearchers. Key features: • Offers a thorough treatment of the theory of adaptivesignal processing; incorporating new material on transform domain,frequency domain, subband adaptive filters, acoustic echocancellation and active noise control. • Provides an in-depth study of applications which nowincludes extensive coverage of OFDM, MIMO and smart antennas. • Contains exercises and computer simulation problems atthe end of each chapter. • Includes a new companion website hosting MATLAB®simulation programs which complement the theoretical analyses,enabling the reader to gain an in-depth understanding of thebehaviours and properties of the various adaptive algorithms.

Adaptive Filters and Equalisers Bernard Mulgrew 2012-12-06 The work presented in this text relates to research work in the general area of adaptive filter theory and practice which has been carried out at the Department of Electrical Engineering, University of Edinburgh since 1977. Much of the earlier work in the department was devoted to looking at the problems associated with the physical implementation of these structures. This text relates to research which has been undertaken since 1984 which is more involved with the theoretical development of adaptive algorithms. The text sets out to provide a coherent framework within which general adaptive algorithms for finite impulse response adaptive filters may be evaluated. It further presents one approach to the problem of finding a stable solution to the infinite impulse response adaptive filter problem. This latter objective being restricted to the communications equaliser application area. The authors are indebted to a great number of people for their help, guidance and encouragement during the course of preparing this text. We should first express our appreciation for the support given by two successive heads of department at Edinburgh, Professor J. H. Collins and Professor J. Mavor. The work reported here could not have taken place without their support and also that of many colleagues, principally Professor P. M. Grant who must share much of the responsibility for instigating this line of research at Edinburgh.

Digital Signal Processing Fundamentals Vijay Madisetti 2017-12-19 Now available in a three-volume set, this updated and expanded edition of the bestselling The Digital Signal Processing Handbook continues to provide the engineering community with authoritative coverage of the fundamental and specialized aspects of information-bearing signals in digital form. Encompassing essential background material, technical details, standards, and software, the second edition reflects cutting-edge information on signal processing algorithms and protocols related to speech, audio, multimedia, and video processing technology associated with standards ranging from WiMax to MP3 audio, low-power/high-performance DSPs, color image processing, and chips on video. Drawing on the experience of leading engineers, researchers, and scholars, the three-volume set contains 29 new chapters that address multimedia and Internet technologies, tomography, radar systems, architecture, standards, and future applications in speech, acoustics, video, radar, and telecommunications. Emphasizing theoretical concepts, Digital Signal Processing Fundamentals provides comprehensive coverage of the basic foundations of DSP and includes the following parts: Signals and Systems; Signal Representation and Quantization; Fourier Transforms; Digital Filtering; Statistical Signal Processing; Adaptive Filtering; Inverse Problems and Signal Reconstruction; and Time–Frequency and Multirate Signal Processing.

Digital Signal Processing Handbook on CD-ROM VIJAY MADISETTI 1999-02-26 A best-seller in its print version, this comprehensive CD-ROM reference contains unique, fully searchable coverage of all major topics in digital signal processing (DSP), establishing an invaluable, time-saving resource for the engineering community. Its unique and broad scope includes contributions from all DSP specialties, including: telecommunications, computer engineering, acoustics, seismic data analysis, DSP software and hardware, image and video processing, remote sensing, multimedia applications, medical technology, radar and sonar applications

Advanced Signal Processing and Digital Noise Reduction Saeed V. Vaseghi 2013-03-09

Digitale Signalverarbeitung Karl-Dirk Kammeyer 2013-07-02 Das Buch enthält den kompletten Stoff einer TU-Vorlesung über digitale Signalverarbeitung sowie ein umfassendes MATLAB-Praktikum zum vertiefenden Selbststudium. Teil 1 des Buches widmet sich den Grundlagen wie Filterung und Spektralanalyse, diskreten Signalen und Systemen, der Z-Transformation wie auch rekursiven und nichtrekursiven Filtern. Hinzu kommen die Fragen der diskreten Fourier-Transformation (DFT), der Spektralanalyse determinierter Signale sowie der traditionellen und parametrischen Spektralschätzung. Teil 2 enthält Aufgaben und Lösungen zu jedem Kapitel, wobei intensiv auf die Verwendung von MATLAB-Routinen gesetzt wird. Dieser Aufgabenteil

ermöglicht eine besonders anschauliche Vertiefung der theoretischen Grundlagen der digitalen Signalverarbeitung, wie sie in Teil 1 vorangehen. In der 5. Auflage wird ein Teil der Aufgaben durch neue bzw. verbesserte ersetzt und eine Anpassung an die aktuellen MATLAB-Versionen durchgeführt. Dazu kommen formelle Änderungen als Ergebnis einer sorgfältigen Textdurchsicht. Die m-File-Lösungen können unter der Adresse http://www.ant.uni-bremen.de/pub/books/index.html bezogen werden.

Real-time Digital Signal Processing Sen-Maw Kuo 2003

New Developments in Robotics Automation and Control Alex Lazinica 2008-10-01 This book represents the contributions of the top researchers in the field of robotics, automation and control and will serve as a valuable tool for professionals in these interdisciplinary fields. It consists of 25 chapter that introduce both basic research and advanced developments covering the topics such as kinematics, dynamic analysis, accuracy, optimization design, modelling , simulation and control. Without a doubt, the book covers a great deal of recent research, and as such it works as a valuable source for researchers interested in the involved subjects.

Advances in Audio and Speech Signal Processing: Technologies and Applications Perez-Meana, Hector 2007-02-28 "This book provides a comprehensive approach of signal processing tools regarding the enhancement, recognition, and protection of speech and audio signals. It offers researchers and practitioners the information they need to develop and implement efficient signal processing algorithms in the enhancement field"--Provided by publisher.

Active Control of Noise and Vibration Colin Hansen 2012-11-02 Since the publication of the first edition, considerable progress has been made in the development and application of active noise control (ANC) systems, particularly in the propeller aircraft and automotive industries. Treating the active control of both sound and vibration in a unified way, this second edition of Active Control of Noise and Vibra

Theory and Design of Adaptive Filters John R. Treichler 2001 Rather than superficially examining an extensive list of possible applications benefiting from adaptive filter use, the authors examine four such problems in detail and review the common attributes that are shared with many other applications of adaptive filtering. The authors develop the basic rules and algorithms for filter performance and provide tools for design, along with an appreciation of the complexity of behavioral analysis. Derivations and convergence discussions are kept to a basic level. The presentation focuses on a few principles and applies them to a series of motivating examples, that include in-depth discussion of implementation aspects for filter design not found in other books. Serves as a valuable reference for practicing engineers.

Digital Signal Processing for Communication Systems Tadeusz Wysocki 2013-04-17 Digital Signal Processing for Communication Systems examines the plans for the future and the progress that has already been made, in the field of DSP and its applications to communication systems. The book pursues the progression from communication and information theory through to the implementation, evaluation and performance enhancing of practical communication systems using DSP technology. Digital Signal Processing for Communication Systems looks at various types of coding and modulation techniques, describing different applications of Turbo-Codes, BCH codes and general block codes, pulse modulations, and combined modulation and coding in order to improve the overall system performance. The book examines DSP applications in measurements performed for channel characterisation, pursues the use of DSP for design of effective channel simulators, and discusses equalization and detection of various signal formats for different channels. A number of system design issues are presented where digital signal processing is involved, reporting on the successful implementation of the system components using DSP technology, and including the problems involved with implementation of some DSP algorithms. Digital Signal Processing for Communication Systems serves as an excellent resource for professionals and researchers who deal with digital signal processing for communication systems, and may serve as a text for advanced courses on the subject.

Principles of Adaptive Filters and Self-learning Systems Anthony Zaknich 2006-03-30 Teaches students about classical and nonclassical adaptive systems within one pair of covers Helps tutors with time-saving course plans, ready-made practical assignments and examination guidance The recently developed "practical sub-space adaptive filter" allows the reader to combine any set of classical and/or non-classical adaptive systems to form a powerful technology for solving complex nonlinear problems

Adaptive Digital Filters and Signal Analysis Maurice Bellanger 1987 This text emphasizes the intricate relationship between adaptive filtering and signal analysis - highlighting stochastic processes, signal representations and properties, analytical tools, and implementation methods.

Kernel Adaptive Filtering Weifeng Liu 2011-09-20 Online learning from a signal processing perspective There is increased interest in kernel learning algorithms in neural networks and a growing need for nonlinear adaptive algorithms in advanced signal processing, communications, and controls. Kernel Adaptive Filtering is the first book to present a comprehensive, unifying introduction to online learning algorithms in reproducing kernel Hilbert spaces. Based on research being conducted in the Computational Neuro-Engineering Laboratory at the University of Florida and in the Cognitive Systems Laboratory at McMaster University, Ontario, Canada, this unique resource elevates the adaptive filtering theory to a new level, presenting a new design methodology of nonlinear adaptive filters. Covers the kernel least mean squares algorithm, kernel affine projection algorithms, the kernel recursive least squares algorithm, the theory of Gaussian process regression, and the extended kernel recursive least squares algorithm Presents a powerful model-selection method called maximum marginal likelihood Addresses the principal bottleneck of kernel adaptive filters—their growing structure Features twelve computer-oriented experiments to reinforce the concepts, with MATLAB codes downloadable from the

authors' Web site Concludes each chapter with a summary of the state of the art and potential future directions for original research Kernel Adaptive Filtering is ideal for engineers, computer scientists, and graduate students interested in nonlinear adaptive systems for online applications (applications where the data stream arrives one sample at a time and incremental optimal solutions are desirable). It is also a useful guide for those who look for nonlinear adaptive filtering methodologies to solve practical problems.

Adaptive Filtering Paulo Sergio Ramirez Diniz 2002 Adaptive Filtering: Algorithms and Practical Implementation, Second Edition, presents a concise overview of adaptive filtering, covering as many algorithms as possible in a unified form that avoids repetition and simplifies notation. It is suitable as a textbook for senior undergraduate or first-year graduate courses in adaptive signal processing and adaptive filters. The philosophy of the presentation is to expose the material with a solid theoretical foundation, to concentrate on algorithms that really work in a finite-precision implementation, and to provide easy access to working algorithms. Hence, practicing engineers and scientists will also find the book to be an excellent reference. This second edition contains a substantial amount of new material: -Two new chapters on nonlinear and subband adaptive filtering; -Linearly constrained Weiner filters and LMS algorithms; -LMS algorithm behavior in fast adaptation; -Affine projection algorithms; -Derivation smoothing; -MATLAB codes for algorithms. An instructor's manual, a set of master transparencies, and the MATLAB codes for all of the algorithms described in the text are also available. Useful to both professional researchers and students, the text includes 185 problems; over 38 examples, and over 130 illustrations. It is of primary interest to those working in signal processing, communications, and circuits and systems. It will also be of interest to those working in power systems, networks, learning systems, and intelligent systems.

Fundamentals of Adaptive Filtering Ali H. Sayed 2003-06-13 This book is based on a graduate level course offered by the author at UCLA and has been classed tested there and at other universities over a number of years. This will be the most comprehensive book on the market today providing instructors a wide choice in designing their courses. * Offers computer problems to illustrate real life applications for students and professionals alike * An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department. An Instructor's Manual presenting detailed solutions to all the problems in the book is available from the Wiley editorial department.

Algorithms for Communications Systems and their Applications Nevio Benvenuto 2002-10-11 This volume presents the logical arithmetical or computational procedures within communications systems that will ensure the solution to various problems. The authors comprehensively introduce the theoretical elements that are at the basis of the field of algorithms for communications systems. Various applications of these algorithms are then illustrated with particular attention to wired and wireless network access technologies. * Provides a complete treatment of algorithms for communications systems, rarely presented together * Introduces the theoretical background to digital communications and signal processing * Features numerous applications including advanced wireless modems and echo cancellation techniques * Includes useful reference lists at the end of each chapter Graduate students in the fields of Telecommunications and Electrical Engineering Researchers and Professionals in the area of Digital Communications, Signal Processing and Computer Engineering will find this book invaluable.

Digital Signal Processing in Telecommunications Anibal R. Figueiras-Vidal 2012-12-06 This publication deals with the application of advanced digital signal processing techniques and neural networks to various telecommunication problems. The editor presents the latest research results in areas such as arrays, mobile channels, acoustic echo cancellation, speech coding and adaptive filtering in varying environments.

Stability and Control of Dynamical Systems with Applications Derong Liu 2012-12-06 It is with great pleasure that I offer my reflections on Professor Anthony N. Michel's retirement from the University of Notre Dame. I have known Tony since 1984 when he joined the University of Notre Dame's faculty as Chair of the Depart ment of Electrical Engineering. Tony has had a long and outstanding career. As a researcher, he has made im portant contributions in several areas of systems theory and control theory, espe cially stability analysis of large-scale dynamical systems. The numerous awards he received from the professional societies, particularly the Institute of Electrical and Electronics Engineers (IEEE), are a testament to his accomplishments in research. He received the IEEE Control Systems Society's Best Transactions Paper Award (1978), and the IEEE Circuits and Systems Society's Guillemin-Cauer Prize Paper Award (1984) and Myril B. Reed Outstanding Paper Award (1993), among others. In addition, he was a Fulbright Scholar (1992) and received the Alexander von Hum boldt Forschungspreis (Alexander von Humboldt Research Award for Senior U.S. Scientists) from the German government (1997). To date, he has written eight books and published over 150 archival journal papers. Tony is also an effective administrator who inspires high academic standards.

Adaptive Filtering Paulo S. R. Diniz 2008-05-22 This book presents the basic concepts of adaptive signal processing and adaptive filtering in a concise and straightforward manner, using clear notations that facilitate actual implementation. Important algorithms are described in detailed tables which allow the reader to verify learned concepts. The book covers the family of LMS and algorithms as well as set-membership, sub-band, blind, IIR adaptive filtering, and more. The book is also supported by a web page maintained by the author.

Trelliscodierung Johannes Huber 2013-03-09

Adaptive Filters: Structures, Algorithms and Applications Michael S. Honig 1984-09-30

Optimal and Adaptive Signal Processing Peter M. Clarkson 2017-11-01 Optimal and Adaptive Signal Processing covers the theory of optimal and adaptive signal processing using examples and computer

simulations drawn from a wide range of applications, including speech and audio, communications, reflection seismology and sonar systems. The material is presented without a heavy reliance on mathematics and focuses on one-dimensional and array processing results, as well as a wide range of adaptive filter algorithms and implementations. Topics discussed include random signals and optimal processing, adaptive signal processing with the LMS algorithm, applications of adaptive filtering, algorithms and structures for adaptive filtering, spectral analysis, and array signal processing. Optimal and Adaptive Signal Processing is a valuable guide for scientists and engineers, as well as an excellent text for senior undergraduate/graduate level students in electrical engineering.

Optimal and Adaptive Signal Processing Peter M. Clarkson 2017-11-01 Optimal and Adaptive Signal Processing covers the theory of optimal and adaptive signal processing using examples and computer simulations drawn from a wide range of applications, including speech and audio, communications, reflection seismology and sonar systems. The material is presented without a heavy reliance on mathematics and focuses on one-dimensional and array processing results, as well as a wide range of adaptive filter algorithms and implementations. Topics discussed include random signals and optimal processing, adaptive signal processing with the LMS algorithm, applications of adaptive filtering, algorithms and structures for adaptive filtering, spectral analysis, and array signal processing. Optimal and Adaptive Signal Processing is a valuable guide for scientists and engineers, as well as an excellent text for senior undergraduate/graduate level students in electrical engineering.

Advanced Concepts in Adaptive Signal Processing W. Kenneth Jenkins 2012-12-06 Although adaptive filtering and adaptive array processing began with research and development efforts in the late 1950's and early 1960's, it was not until the publication of the pioneering books by Honig and Messerschmitt in 1984 and Widrow and Stearns in 1985 that the field of adaptive signal processing began to emerge as a distinct discipline in its own right. Since 1984 many new books have been published on adaptive signal processing, which serve to define what we will refer to throughout this book as conventional adaptive signal processing. These books deal primarily with basic architectures and algorithms for adaptive filtering and adaptive array processing, with many of them emphasizing practical applications. Most of the existing textbooks on adaptive signal processing focus on finite impulse response (FIR) filter structures that are trained with strategies based on steepest descent optimization, or more precisely, the least mean square (LMS) approximation to steepest descent. While literally hundreds of archival research papers have been published that deal with more advanced adaptive filtering concepts, none of the current books attempt to treat these advanced concepts in a unified framework. The goal of this new book is to present a number of important, but not so well known, topics that currently exist scattered in the research literature. The book also documents some new results that have been conceived and developed through research conducted at the University of Illinois during the past five years.

Adaptive Filters Ali H. Sayed 2011-10-11 Adaptive filtering is a topic of immense practical and theoretical value, having applications in areas ranging from digital and wireless communications to biomedical systems. This book enables readers to gain a gradual and solid introduction to the subject, its applications to a variety of topical problems, existing limitations, and extensions of current theories. The book consists of eleven parts?each part containing a series of focused lectures and ending with bibliographic comments, problems, and computer projects with MATLAB solutions.