New and Important Titles In Signal Processing

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Professor A. Manikas holds the Chair of Communications & Array Processing in the Department of Electrical & Electronic Engineering, Imperial College London and he is currently the Technical Chair/Lead of the University Defence Research Centre in Signal Processing (DSTL/EPSRC). He is on the editorial board of IET Proceedings Signal Processing and has held a number of research consultancies for the EU, industry and government organisations. Also, he has had various technical chairs at international conferences, has been a TPC member of major IEEE conferences. Professor Manikas is a Senior Member of IEEE and a Fellow of IET.

Professor A.G. Constantinides holds the chair in Signal Processing in the Department of Electrical & Electronic Engineering, Imperial College London and he is the Director of the University Defence Research Centre in Signal Processing (DSTL/EPSRC). He has been actively involved with research in various aspects of digital filter design, digital signal processing, and communications for more than 30 years. He is a Fellow of the Institute of Electrical and Electronics Engineers (USA) and of the Institution of Electrical Engineers (UK), as well as of the Royal Society of Engineering. He holds honorary doctorates from European and Far Eastern Universities, several Visiting Professorships, Distinguished Lectureships, Fellowships and other honours around the world.

Communications and Signal Processing - Vol. 1

JOINT SOURCE-CHANNEL CODING OF DISCRETE-TIME SIGNALS WITH CONTINUOUS AMPLITUDES

by **Norbert Goertz** *(The University of Edinburgh, UK)*

This book provides the first comprehensive and easy-to-read discussion of joint source-channel encoding and decoding for source signals with continuous amplitudes. It is a state-of-the-art presentation of this exciting, thriving field of research, making pioneering contributions to the new concept of source-adaptive modulation. Specialized chapters deal with practically relevant scenarios such as iterative source-channel decoding and its optimization for a given encoder, and also improved encoder designs by channel-adaptive quantization or source-adaptive modulation.

Readership: Students at advanced undergraduate and graduate level; practitioners and academics in Electrical and Communications Engineering, Information Technology and Computer Science.

208pp	**Sep 2007**	
978-1-86094-845-9	**US$65**	**£33**
978-1-86094-846-6 (ebook)	**US$85**	

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Communications and Signal Processing - Vol. 2

QUASI-ORTHOGONAL SPACE-TIME BLOCK CODE

by **Chau Yuen** *(Institute for Infocomm Research, Singapore)*, **Yong Liang Guan** *(Nanyang Technological University, Singapore)*, & **Tjeng Thiang Tjhung** *(Institute for Infocomm Research, Singapore)*

"... this monograph will give the readers a comprehensive and integrated picture of the many recent advances in the class of space-time code, and spur further innovations to unlock the full potential of MIMO communication for realizing mankind's dream of the Wireless Utopia." ***Zentralblatt MATH***

Readership: Academics and graduate-level research students and developers of next-generation wireless systems.

208pp	**Nov 2007**	
978-1-86094-868-8	**US$100**	**£55**
978-1-86094-869-5 (ebook)	**US$130**	

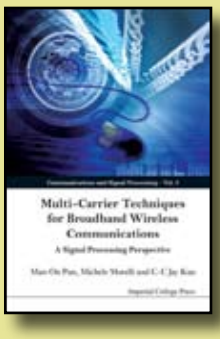
:: Highly Recommended

Communications and Signal Processing - Vol. 3

MULTI-CARRIER TECHNIQUES FOR BROADBAND WIRELESS COMMUNICATIONS: A Signal Processing Perspective

by **Man-On Pun** *(Princeton University, USA)*, **Michele Morelli** *(University of Pisa, Italy)*, & **C-C Jay Kuo** *(University of Southern California, USA)*

Multi-Carrier Techniques for Broadband Wireless Communications provides an accessible introduction to OFDM-based systems from a signal processing perspective. The first part presents a concise treatment of some fundamental concepts related to wireless communications and multicarrier systems, while the second offers a comprehensive survey of recent developments on a variety of critical design issues.



Readership: Graduate students, design engineers in the telecommunications industry and researchers in academia.

272pp	**Dec 2007**	
978-1-86094-946-3	**US$100**	**£55**
978-1-86094-947-0 (ebook)	**US$130**	

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Communications and Signal Processing - Vol. 4

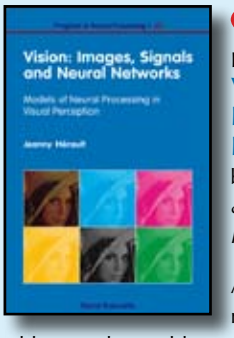
AUDIO VISUAL PERSON TRACKING: A Practical Approach

by **Fotios Talantzis** *(Athens Information Technology, Greece)*, **Aristodemos Pnevmatikakis** *(Athens Information Technology, Greece)*, & **Anthony G Constantinides** *(Imperial College London, UK)*

This book deals with the creation of the algorithm backbone that enables a computer to perceive humans in a monitored space, by processing the signals that humans use in order to perform a task, i.e., audio and video. To do so, computers use sensors and algorithms to detect and track multiple interacting humans, by way of their faces and hands or their voices. This application domain is challenging, because audio and visual signals are cluttered by both background and foreground objects. Instead of offering a monolithic approach to the tracking problem, this book also focuses on implementation by providing MATLAB code for every presented component. This way, the reader can connect every presented concept with a corresponding piece of code that follows immediately after the theory.

Readership: Graduate students, academics and researchers in signal processing, machine perception/computer vision and electrical & electronic engineering.

250pp	**May 2011**	
978-1-84816-581-6	**US$56**	**£37**
978-1-84816-582-3 (ebook)	**US$73**	



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Progress in Neural Processing - Vol. 19

VISION: IMAGES, SIGNALS AND NEURAL NETWORKS: Models of Neural Processing in Visual Perception

by **Jeanny Hérault** *(University Joseph Fourier & Institut National Polytechnique of Grenoble, France)*

At the fascinating frontiers of neurobiology, mathematics and psychophysics, this book addresses the problem of human and computer vision on the basis of cognitive modeling. After recalling the physics of light and its transformation through media and optics, Hérault presents the principles of the primate's visual system in terms of anatomy and functionality. All along the book, many comparisons between the models and human perception are discussed as well as detailed applications to computer vision.

Readership: Students, teachers and researchers in human vision modeling.

308pp	**Mar 2010**	
978-981-4273-68-8	**US$65**	**£43**

:: Highly Recommended

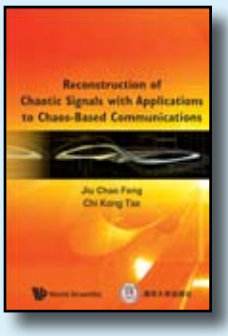
MICROSTRIP PATCH ANTENNAS

by **Kai Fong Lee** *(The University of Mississippi, USA)* & **Kwai Man Luk** *(City University of Hong Kong, Hong Kong)*

Microstrip patch antennas have become the favorite of antenna designers because of its versatility and advantages of planar profile, ease of fabrication, compatibility with integrated circuit technology, and conformability with a shaped surface. As there is currently an urgent need for graduate students and practicing engineers to gain an in-depth understanding of this subject, this book was written with this purpose in mind. The authors are IEEE Fellows who have made significant contributions to their fields of expertise. Professor K F Lee was the recipient of the 2009 John Kraus Antenna Award of the IEEE Antennas and Propagation Society.

Readership: Graduate students, professors, antenna designers in industry.

600pp (approx.)	**Scheduled Fall 2010**	
978-1-84816-453-6	**US$105**	**£79**



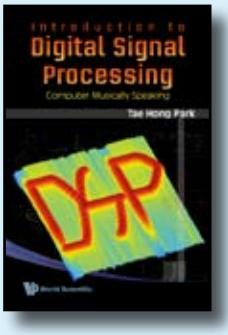
RECONSTRUCTION OF CHAOTIC SIGNALS WITH APPLICATIONS TO CHAOS-BASED COMMUNICATIONS

by **Jiu Chao Feng** *(South China University of Technology, Guangzhou, China)* & **Chi Kong Tse** *(The Hong Kong Polytechnic University, Hong Kong)*

This book provides a systematic review of the fundamental theory of signal reconstruction and the practical techniques used in reconstructing chaotic signals. Specific applications of signal reconstruction methods in chaos-based communications are expounded in full detail, along with examples illustrating the various problems associated with such applications.

Readership: Advanced undergraduate and graduate students in electronic and communication engineering, physics, automatic control, and applied mathematics; non-experts interested in nonlinear science.

232pp	**Sep 2008**	
978-981-277-113-1	**US$73**	**£40**
978-981-277-114-8 (ebook)	**US$95**	



:: Bestseller

INTRODUCTION TO DIGITAL SIGNAL PROCESSING: Computer Musically Speaking

by **Tae Hong Park** *(Tulane University, USA)*

"... complementing Mr Park's multi-modal pedagogical approach, every chapter concludes with musical examples where one might viscerally experience the concepts covered. This works remarkably well and is a fun and engaging method to bring additional insights on the material at hand. Overall, Mr Park's introduction to the fundamentals of signal processing with emphasis on audio, written with a subtle, wry humor and an awareness of musical aesthetics, is an engaging and practical textbook for students and a practical reference for veterans as well." ***Computer Music Journal***

Readership: Undergraduate and graduate students, researchers and academics in digital audio and multimedia as well as music.

452pp	**Nov 2009**	
978-981-279-027-9	**US$85**	**£64**
978-981-279-028-6 (ebook)	**US$111**	

:: Highly Recommended

ULTRAWIDEBAND ANTENNAS: Design and Applications

by **Daniel Valderas**, **Juan Ignacio Sancho** *(University of Navarra, Spain)*, **David Puente** *(Universidad Politécnica de Madrid, Spain)*, **Chen Xiaodong** *(University of London, UK)* & **Cong Ling** *(Imperial College London, UK)*

This breathtaking resource builds upon the basics of Ultrawideband (UWB) technology to provide a complete compilation of figures of merit along with a vital state-of-the-art of the different antenna alternatives that are to be employed according to the specific application. Without excessive recourse to mathematics, this volume emphasizes on the UWB antenna design and equips readers with practical prediction techniques based on simple formulas and models.

Readership: R&D organizations, researchers, practitioners, consultants, RF professionals and communication engineers.

210pp (approx.)	**Scheduled Fall 2010**	
978-1-84816-491-8	**US$80**	**£60**

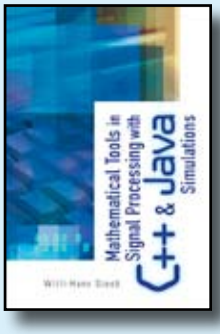
DIGITAL SIGNAL PROCESSING: Theory and Practice

by **D Sundararajan** *(Newtech Software Pte Ltd, India)*

This concise and clear text is intended for a senior undergraduate and graduate level, one-semester course on digital signal processing. Emphasis on the use of the discrete Fourier transform (the heart of practical digital signal processing) and comprehensive coverage of the design of commonly used digital filters are the key features of the book. The large number of visual aids such as figures, flow graphs, and tables makes the mathematical topic easy to learn. The numerous examples and the set of Matlab programs (a supplement to the book) for the design of optimal equiripple FIR digital filters help greatly in understanding the theory and algorithms. Solution Manual to the questions (as a separate volume) is available to instructors or lecturers.

Readership: Upper level undergraduates, graduate students, lecturers and researchers in engineering and applied mathematics.

292pp	**Jan 2003**	
978-981-238-216-0	**US$53**	**£37**



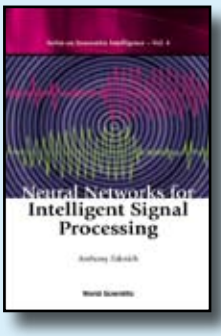
MATHEMATICAL TOOLS IN SIGNAL PROCESSING WITH C++ AND JAVA SIMULATIONS

by **Willi-Hans Steeb** *(University of Johannesburg, South Africa)*

"This book provides an excellent balance between theory and applications and can serve as a good textbook or a reference for students and beginners in signal processing. The materials of the book are presented in a self-contained way and can be easily understood at the undergraduate level. The provided C++ and Java codes are quite helpful for students and practitioners in signal processing and applied mathematics." ***Zentralblatt MATH***

Readership: Electronic engineers, computer scientists, physicists and mathematicians.

300pp	**Sep 2005**	
978-981-256-500-6	**US$107**	**£63**



Series on Innovative Intelligence - Vol. 4

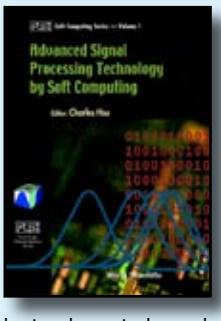
NEURAL NETWORKS FOR INTELLIGENT SIGNAL PROCESSING

by **Anthony Zaknich** *(The University of Western Australia, Australia)*

This book provides a thorough theoretical and practical introduction to the application of neural networks to pattern recognition and intelligent signal processing. It has been tested on students, unfamiliar with neural networks, who were able to pick up enough details to successfully complete their masters or final year undergraduate projects. The text also presents a comprehensive treatment of a class of neural networks called common bandwidth spherical basis function NNs, including the probabilistic NN, the modified probabilistic NN and the general regression NN.

Readership: Students and professionals in computer science and engineering.

508pp	**Jan 2003**	
978-981-238-305-1	**US$100**	**£75**
978-981-279-685-1(ebook)	**US$98**	



Fuzzy Logic Systems Institute (FLSI) Soft Computing Series - Vol. 1

ADVANCED SIGNAL PROCESSING TECHNOLOGY BY SOFT COMPUTING

edited by **Charles Hsu** *(Trident Systems Inc, USA)*

This book presents worldwide outstanding research and recent progress in the applications of neural networks, fuzzy logic, chaos, independent component analysis, etc to fields related to speech recognition enhancement, supervised Fourier demixing noise elimination, acoustic databases, the human hearing system, cancer detection, image processing, and visual communications.

Readership: Upper level undergraduates, graduate students, researchers, academic lecturers and senior engineers in fuzzy logic, machine perception and pattern recognition.

308pp	**Nov 2000**	
978-981-02-4461-3	**US$87**	**£60**
978-981-27-9210-5 (ebook)	**US$113**	

:: Bestseller

Advanced Series in Electrical and Computer Engineering - Vol. 6

INTRODUCTORY SIGNAL PROCESSING

by **Roland Priemer** *(Univ. Illinois at Chicago)*

Some special features of this book are: (1) gradual and step-by-step development of the mathematics for signal processing, (2) numerous examples and homework problems, (3) evolutionary development of Fourier series, Discrete Fourier Transform, Fourier Transform, Laplace Transform, and Z-Transform, (4) emphasis on the relationship between continuous and discrete time signal processing, (5) many examples of using the computer for applying the theory, (6) computer based assignments to gain practical insight, (7) a set of computer programs to aid the reader in applying the theory.

Readership: Engineers and computer scientists.

752pp	**Nov 1990**	
978-9971-5-0919-4	**US$101**	**£75**
978-9971-5-0920-0(pbk)	**US$61**	**£46**

Journal of Circuits, Systems, and Computers (JCSC)

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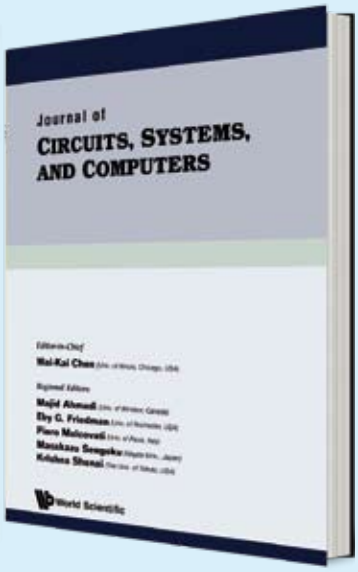

About JCSC: Aims & Scope

Journal of Circuits, Systems and Computers is published eight times a year, and covers a wide scope, ranging from mathematical foundations to practical engineering design in the general areas of circuits, systems, and computers. Although primary emphasis will be on research papers, survey, expository and tutorial papers are also welcome. The journal consists of two sections:

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Signal Processing Articles

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- NEW SAMPLING METHOD TO IMPROVE THE SFDR OF WIDE BANDWIDTH ADC DEDICATED TO NEXT GENERATION WIRELESS TRANSCEIVER
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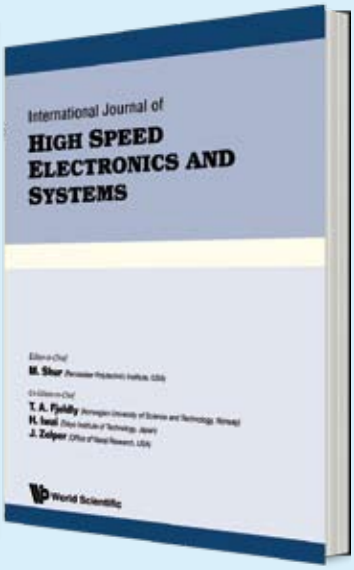

About IJHSES: Aims & Scope

Launched in 1990, the International Journal of High Speed Electronics and Systems (IJHSES) has served graduate students and those in R&D, managerial and marketing positions by giving state-of-the-art data, and the latest research trends. Its main charter is to promote engineering education by advancing interdisciplinary science between electronics and systems and to explore high speed technology in photonics and electronics.

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- INSPEC
- Compendex

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