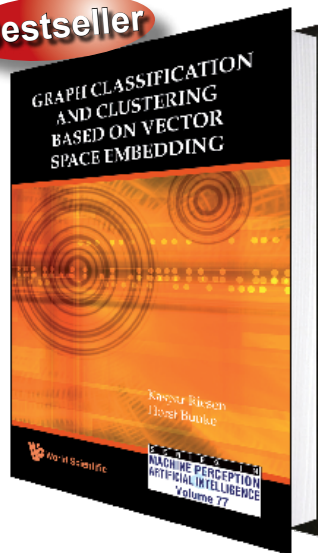


New and Forthcoming Pattern Recognition and Computer Vision 2011/12

Bestseller



Series in Machine Perception and Artificial Intelligence - Vol. 77
**GRAPH CLASSIFICATION AND CLUSTERING
 BASED ON VECTOR SPACE EMBEDDING**
 by **Kaspar Riesen** (*University of Bern, Switzerland*) &
Horst Bunke (*University of Bern, Switzerland*)

This book is concerned with a fundamentally novel approach to graph-based pattern recognition based on vector space embedding of graphs. It aims at condensing the high representational power of graphs into a computationally efficient and mathematically convenient feature vector. This volume utilizes the dissimilarity space representation originally proposed by Duin and Pekalska to embed graphs in real vector spaces. Such an embedding gives one access to all algorithms developed in the past for feature vectors, which has been the predominant representation formalism in pattern recognition and related areas for a long time.

Readership: Professionals, academics, researchers and students in pattern recognition, machine perception/computer vision and artificial intelligence.

348pp **Apr 2010**
 978-981-4304-71-9 **US\$99 £68**
 978-981-4304-72-6(ebook) **US\$129**

HIGHLIGHTS

Series in Computer Vision - Vol. 1
**EMERGING TOPICS IN
 COMPUTER VISION AND
 ITS APPLICATIONS**
 edited by **C H Chen**
 (*University of Massachusetts
 Dartmouth, USA*)

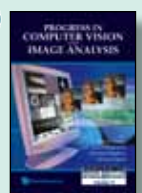
Pg 2

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*)

Pg 3

Series in Machine Perception and
 Artificial Intelligence - Vol. 73
**PROGRESS IN COMPUTER
 VISION AND IMAGE ANALYSIS**
 edited by **Horst Bunke**
 (*University of Bern, Switzerland*),
Juan José Villanueva (*Universitat Autònoma de
 Barcelona, Spain*), **Gemma Sánchez** (*Universitat
 Autònoma de Barcelona, Spain*) & **Xavier Otazu**
 (*Universitat Autònoma de Barcelona, Spain*)

Pg 5



**Bestselling
 Handbook**



HANDBOOK OF PATTERN RECOGNITION AND COMPUTER VISION (4th Edition)

edited by **C H Chen** (*University of Massachusetts Dartmouth, USA*)

Both pattern recognition and computer vision have experienced rapid progress in the last twenty-five years. This book provides the latest advances on pattern recognition and computer vision along with their many applications. It features articles written by renowned leaders in the field while topics are presented in readable form to a wide range of readers. The book is divided into five parts: basic methods in pattern recognition, basic methods in computer vision and image processing, recognition applications, life science and human identification, and systems and technology.

Readership: Graduate students, academics, practitioners, researchers, computer scientists, electrical and medical engineers.

796pp **Oct 2009**
 978-981-4273-38-1 **US\$197 £136**
 978-981-4273-39-8(ebook) **US\$256**

THE HANDBOOK ON REASONING- BASED INTELLIGENT SYSTEMS

edited by **Kazumi Nakamatsu** (*University of Hyogo, Japan*)
 & **Lakhmi C Jain** (*University of South Australia, Australia*)

This book consists of various contributions in conjunction with the keywords "reasoning" and "intelligent systems", which widely covers theoretical to practical aspects of intelligent systems. Therefore, it is suitable for researchers or graduate students who want to study intelligent systems generally.

Readership: Graduate students, software engineers and researchers in theoretical computer science, artificial intelligence and neural networks.

700pp **Aug 2011**
 978-981-4329-47-7 **US\$198 £123**
 978-981-4329-48-4(ebook) **US\$257**

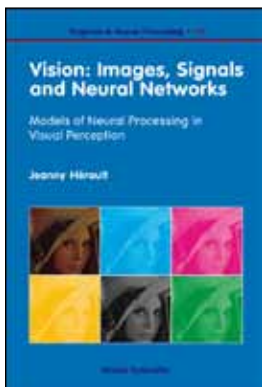
**Highly
 Recommended**

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*)

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. As a target of retinal information, the primary visual area is presented as a bank of filters able to extract valuable descriptors of images, suitable for categorization and recognition and also for local information extraction such as saliency and perspective. 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**

Series in Computer Vision - Vol. 1

EMERGING TOPICS IN COMPUTER VISION AND ITS APPLICATIONS

edited by **C H Chen** (*University of Massachusetts Dartmouth, USA*)

This book gives a comprehensive overview of the most advanced theories, methodologies and applications in computer vision. Particularly, it gives an extensive coverage of 3D and robotic vision problems. Example chapters featured are Fourier methods for 3D surface modeling and analysis, use of constraints for calibration-free 3D Euclidean reconstruction, novel photogeometric methods for capturing static and dynamic objects, performance evaluation of robot localization methods in outdoor terrains, integrating 3D vision with force/tactile sensors, tracking via in-floor sensing, self-calibration of camera networks, etc. Some unique applications of computer vision in marine fishery, biomedical issues, driver assistance, are also highlighted.

Readership: Researchers, professionals and academics in pattern recognition and image analysis, robotics & automation, software engineering, numerical and computational mathematics, and computer engineering.

520pp **Dec 2011**
978-981-4340-99-1 **US\$148** **£96**
978-981-4343-00-8(ebook) **US\$192**

IISc Lecture Notes Series

PATTERN RECOGNITION: An Algorithmic Approach

by **M Narasimha Murty** (*Indian Institute of Science, India*) & **Der V Susheela Devi** (*Indian Institute of Science, India*)

This book adopts a detailed and methodological algorithmic approach to explain the concepts of pattern recognition. While the text provides a systematic account of its major topics such as pattern representation and nearest neighbour based classifiers, current topics — neural networks, support vector machines and decision trees — attributed to the recent vast progress in this field are also dealt with. Pattern Recognition: An Algorithmic Approach will equip readers, especially senior computer science undergraduates, with a deeper understanding of the subject matter.

Readership: Academics and working professionals in computer science.

300pp **Dec 2011**
978-981-4335-45-4 **US\$108** **£67**
978-981-4335-46-1(ebook) **US\$140**

COMPUTATIONAL INTELLIGENCE AND ITS APPLICATIONS

Evolutionary Computation, Fuzzy Logic, Neural Network and Support Vector Machine Techniques
edited by **H K Lam** (*King's College London, UK*), **Steve S H Ling** (*University of Technologies Sydney, Australia*) & **Hung T Nguyen** (*University of Technologies Sydney, Australia*)

This book focuses on computational intelligence techniques and their applications — fast-growing and promising research topics that have drawn a great deal of attention from researchers over the years. It brings together many different aspects of the current research on intelligence technologies such as neural networks, support vector machines, fuzzy logic and evolutionary computation, and covers a wide range of applications from pattern recognition and system modeling, to intelligent control problems and biomedical applications.

Readership: Graduates and researchers in computer science, especially those specialising in artificial intelligence, neural networks, fuzzy logic and pattern recognition.

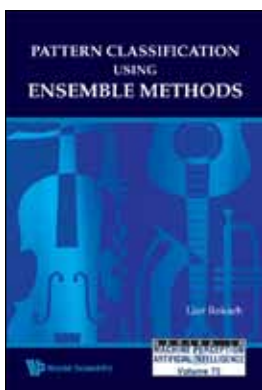
300pp **Sep 2011**
978-1-84816-691-2 **US\$95** **£59**
978-1-84816-692-9(ebook) **US\$124**

Series in Machine Perception and Artificial Intelligence - Vol. 75

PATTERN CLASSIFICATION USING ENSEMBLE METHODS

by **Lior Rokach** (*Ben-Gurion University of the Negev, Israel*)

The book describes in detail the classical methods, as well as the extensions and novel approaches developed recently. Along with algorithmic descriptions of each method, it also explains the circumstances in which this method is applicable and the consequences and the trade-offs incurred by using the method.



Readership: Researchers, advanced undergraduate and graduate students in machine learning and pattern recognition.

244pp **Nov 2009**
978-981-4271-06-6 **US\$85** **£58**
978-981-4271-07-3(ebook) **US\$111**

ADVANCED TOPICS IN BIOMETRICS

edited by **Haizhou Li** (*Institute for Infocomm Research, Singapore*), **Liyuan Li** (*Institute for Infocomm Research, Singapore*) & **Kar-Ann Toh** (*Yonsei University, Korea*)

In this book, the editors provide both a concise and accessible introduction to the field as well as a detailed coverage on the unique research problems with their solutions in a wide spectrum of biometrics research ranging from voice, face, fingerprint, iris, handwriting, human behavior to multimodal biometrics. The contributions also present the pioneering efforts and state-of-the-art results, with special focus on practical issues concerning system development. This book is a valuable reference for established researchers and it also gives an excellent introduction for beginners to understand the challenges.

Readership: Information scientists and engineers specializing in this field.

600pp **Nov 2011**
978-981-4287-84-5 **US\$144** **£100**
978-981-4287-85-2(ebook) **US\$187**

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. 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 **Jan 2011**
978-1-84816-581-6 **US\$56** **£37**

**CLUSTER COMPUTING FOR ROBOTICS
AND COMPUTER VISION**

by **Damian M Lyons** (Fordham University, USA)

In this book, we look at how cluster technology can be leveraged to build better robots. Algorithms and approaches in key areas of robotics and computer vision, such as map building, path planning, target tracking, action selection and learning, are reviewed and cluster implementations for these are presented. The objective of the book is to give professionals working in the beowulf cluster or robotics and computer vision fields a concrete view of the strong synergy between the areas as well as to spur further fruitful exploitation of this connection.

Readership: Academics and professionals in robotics & automated systems, machine perception/computer vision, supercomputing, artificial intelligence and neural networks.

200pp **Sep 2011**
978-981-283-635-9 **US\$61** **£42**
978-981-283-636-6(ebook) **US\$79**

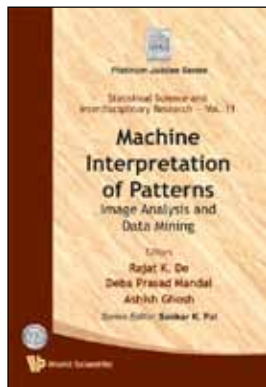
Statistical Science and Interdisciplinary Research - Vol. 11

**MACHINE INTERPRETATION OF PATTERNS:
Image Analysis and Data Mining**

edited by **Rajat K De**, **Deba Prasad Mandal** & **Ashish Ghosh**
(Indian Statistical Institute, India)

This review volume provides from both theoretical and application points of views, recent developments and state-of-the-art reviews in various areas of pattern recognition, image processing, machine learning, soft computing, data mining and web intelligence.

Readership: Researchers, professionals and advanced students of computer science, mathematics and life sciences.



316pp **Jun 2010**
978-981-4299-18-3 **US\$130** **£89**
978-981-4299-19-0(ebook) **US\$169**

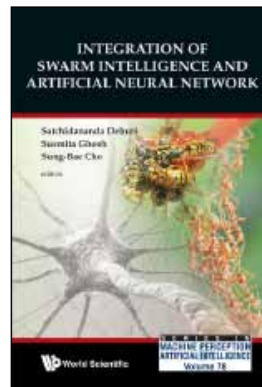
Series in Machine Perception and Artificial Intelligence

**INTEGRATION OF SWARM INTELLIGENCE AND
ARTIFICIAL NEURAL NETWORK**

edited by **Satchidananda Dehuri** (Fakir Mohan University, India),
Susmita Ghosh (Jadavpur University, India) & **Sung-Bae Cho** (Yonsei
University, South Korea)

This book provides a new forum for the dissemination of knowledge in both theoretical and applied research on swarm intelligence (SI) and artificial neural network (ANN). It accelerates interaction between the two bodies of knowledge and fosters a unified development in the next generation of computational model for machine learning. To the best of our knowledge, the integration of SI and ANN is the first attempt to integrate various aspects of both the independent research area into a single volume.

Readership: Researchers, academics and graduate students in neural networks, machine vision, artificial intelligence, electrical & electronic engineering and industrial engineering.



400pp **Jan 2011**
978-981-4280-14-3 **US\$111** **£76**

Atlantis Ambient and Pervasive Intelligence - Vol. 4

**ACTIVITY RECOGNITION IN PERVASIVE
INTELLIGENT ENVIRONMENTS**

by **Liming Chen** (University of Ulster, UK), **Chris D Nugent** (University of
Ulster, UK), **Jit Biswas** (Institute of Infocomm Research (I²R), Singapore)
& **Jesse Hoey** (University of Dundee, Scotland)

Specifically, the book addresses four different aspects of activity recognition, namely activity modelling, representation and reasoning; activity recognition methods and algorithms; novel architectures, technologies and tools for activity recognition; and representative applications of activity recognition in intelligent environments.

Readership: Researchers, technology and application developers in related communities and application domains.

280pp **Feb 2011**
978-90-78677-35-2 **US\$115** **£76**



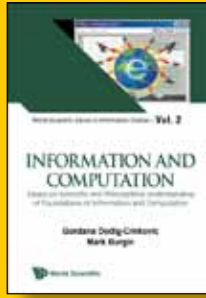
**HOLOGRAPHIC MICROSCOPY OF PHASE
MICROSCOPIC OBJECTS: Theory and Practice**

by **Natalya Kizilova** (V N Karazin Kharkiv National University, Ukraine) &
Tatyana Tishko (V N Karazin Kharkiv National University, Ukraine)

This book presents a clear and comprehensive review of the current status of three-dimensional (3D) digital holographic imaging of phase microscopic objects, with insightful discussions on the positive and negative features of classical, electronic and holographic microscopy. The technical details and results of the restoration of the 3D shapes of red blood cells, bacteria, yeasts, thin films and other micro-objects are presented. Clear evidence of the pathological flattened shape of the erythrocytes relevant to different pathologies is given by detailed measurements on the 3D images.

Readership: Students, professionals and general public.

200pp **May 2011**
978-981-4289-54-2 **US\$89** **£61**
978-981-4289-55-9(ebook) **US\$116**



World Scientific Series in Information Studies - Vol. 2

INFORMATION AND COMPUTATION: Essays on Scientific and Philosophical Understanding of Foundations of Information and Computation

edited by **Gordana Dodig-Crnkovic** (Mälardalen University, Sweden) & **Mark Burgin** (University of California, Los Angeles, USA)

Information is a basic structure of the world, while computation is a process of the dynamic change of information. This book provides a cutting-edge view of world's leading authorities in fields where information and computation play a central role. It sketches the contours of the future landscape for the development of our understanding of information and computation, their mutual relationship and the role in cognition, informatics, biology, artificial intelligence, and information technology. This book is an utterly enjoyable and engaging read which gives readers an opportunity to understand and relate phenomena seemingly unrelated in a completely new light — especially the connections between information, computation, cognition and life.

Readership: Students and professionals in information and computation.

520pp **Apr 2011**
978-981-4295-47-5 **US\$157** **£97**
978-981-4295-48-2(ebook) **US\$204**

Statistical Science and Interdisciplinary Research - Vol. 10

MULTIMEDIA INFORMATION EXTRACTION AND DIGITAL HERITAGE PRESERVATION

edited by **Usha Mujoo Munshi** (Indian Institute of Public Administration, India) & **Bidyut Baran Chaudhuri** (Indian Statistical Institute, India)

This book contains efforts on digital preservation of both textual and non-textual matters. In addition, it focuses on digital content and community building for archiving and global sharing of cultural and heritage resources. It contains work ranging from multimedia digital library development, image retrieval from traditional metadata-based to content-based indexing and retrieval, making it a blend of traditional and contemporary issues in the digital preservation and information extraction of heritage documents.

Readership: Researchers, postgraduates, policy makers, archivist, curators engaged in museums, archives, long term preservation digitization and access to digital resources.

400pp **Mar 2011**
978-981-4307-25-3 **US\$133** **£92**
978-981-4307-26-0(ebook) **US\$173**

COMPUTATIONAL ANALYSIS OF THE HUMAN EYE WITH APPLICATIONS

edited by **Sumeet Dua** (Louisiana Tech University, USA), **Rajendra Acharya U** (Ngee Ann Polytechnic, Singapore) & **E Y K Ng** (Nanyang Technological University, Singapore)

This book is a novel and well-timed endeavor to present, in an amalgamated format, computational image modeling methods as applied to various extrinsic scientific problems in ophthalmology. It is self-contained and presents a highly comprehensive array of image modeling algorithms and methodologies relevant to ophthalmologic problems. The book is the first of its kind, bringing eye imaging and multi-dimensional hyperspectral imaging and data fusion of the human eye, into focus.

Readership: Senior students and researchers from ophthalmology, biomedical engineering, computer science and clinical informatics fields.

500pp **Dec 2010**
978-981-4340-29-8 **US\$150** **£93**

Science, Engineering, and Biology Informatics - Vol. 8

DATABASE TECHNOLOGY FOR LIFE SCIENCES AND MEDICINE

edited by **Claudia Plant** (Technische Universität München, Germany) & **Christian Böhm** (Ludwig-Maximilians Universität München, Germany)

This book presents innovative approaches from database researchers supporting the challenging process of knowledge discovery in biomedicine. Ranging from how to effectively store and organize biomedical data via data quality and case studies to sophisticated data mining methods, this book provides the state-of-the-art of database technology for life sciences and medicine.

Readership: Professionals, researchers and academics in databases, artificial intelligence, bioinformatics and pattern recognition.

388pp **Aug 2010**
978-981-4307-70-3 **US\$108** **£67**
978-981-4307-71-0(ebook) **US\$140**

EDITOR'S PICK

Series in Machine Perception and Artificial Intelligence - Vol. 76

AUTOMATED DATABASE APPLICATIONS TESTING: Specification Representation for Automated Reasoning

by **Rana Farid Mikhail**, **Donald Berndt** & **Abraham Kandel** (University of South Florida, USA)

This book introduces SpecDB, an intelligent database created to represent and host software specifications in a machine-readable format, based on the principles of artificial intelligence and unit testing database operations. SpecDB is demonstrated via two automated intelligent tools. The first automatically generates database constraints from a rule-base in SpecDB. The second is a reverse engineering tool that logs the actual execution of the program from the code.

Readership: Researchers and graduate students in database, software testing or software design courses.

212pp **Jan 2010**
978-981-283-728-8 **US\$85** **£58**

BESTSELLER

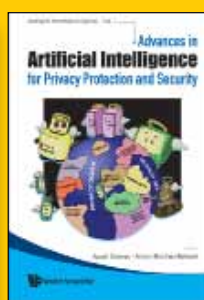
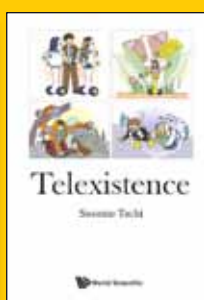
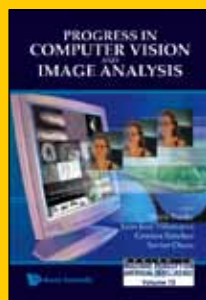
INTRODUCTION TO DIGITAL SIGNAL PROCESSING: Computer Musically Speaking

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

"...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\$96** **£66**



Bestselling Titles

Series in Machine Perception and Artificial Intelligence - Vol. 73

PROGRESS IN COMPUTER VISION AND IMAGE ANALYSIS

edited by **Horst Bunke** (*University of Bern, Switzerland*),
Juan José Villanueva (*Universitat Autònoma de Barcelona, Spain*),
Gemma Sánchez (*Universitat Autònoma de Barcelona, Spain*) &
Xavier Otazu (*Universitat Autònoma de Barcelona, Spain*)

This book is a collection of scientific papers published during the last five years, showing a broad spectrum of actual research topics and techniques used to solve challenging problems in the areas of computer vision and image analysis.

Readership: Researchers, technicians and graduate students in computer vision and artificial intelligence.

592pp **Aug 2009**
978-981-283-445-4 **US\$140** **£96**
978-981-283-446-1(ebook) **US\$182**

TELEXISTENCE

by **Susumu Tachi** (*The University of Tokyo, Japan & Keio University, Japan*)

Telexistence is a fundamental concept which refers to the general technology that enables a human being to have a real-time sensation of being at a place other than where he or she actually exists, while being able to interact with the remote environment, which may be real, virtual, or a combination of both. Telexistence in the real remote environment through a virtual environment is also possible. This book is the first book on telexistence written by the inventor of the concept of this emerging technology.

Readership: Researchers and graduate students in robotics and automated systems, computer engineering, mechanical engineering, systems engineering and electrical & electronic engineering.

212pp **Sep 2009**
978-981-283-633-5 **US\$85** **£58**
978-981-283-634-2(ebook) **US\$111**

Series in Machine Perception and Artificial Intelligence - Vol. 74

WAVELET THEORY APPROACH TO PATTERN RECOGNITION (2nd Edition)

by **Yuan Yan Tang** (*Chongqing University, China & Hong Kong Baptist University, Hong Kong*)

The 2nd edition is an update of the book Wavelet Theory and its Application to Pattern Recognition published in 2000. Three new chapters, which are research results conducted during 2001-2008, are added. The book consists of three parts — the first presents a brief survey of the status of pattern recognition with wavelet theory; the second contains the basic theory of wavelet analysis; the third includes applications of wavelet theory to pattern recognition.

Readership: Researchers, academics and postgraduate students in pattern recognition/image analysis; machine perception, artificial intelligence and electrical & electronic engineering.

484pp **Jul 2009**
978-981-4273-95-4 **US\$144** **£100**
978-981-4273-96-1(ebook) **US\$187**

Intelligent Information Systems - Vol. 1

ADVANCES IN ARTIFICIAL INTELLIGENCE FOR PRIVACY PROTECTION AND SECURITY

edited by **Agusti Solanas** (*Rovira i Virgili University, Spain*) &
Antoni Martínez-Ballesté (*Rovira i Virgili University, Spain*)

In this book, we aim to collect the most recent advances in artificial intelligence techniques (i.e. neural networks, fuzzy systems, multi-agent systems, genetic algorithms, image analysis, clustering, etc), which are applied to the protection of privacy and security. The symbiosis between these fields leads to a pool of invigorating ideas, which are explored in this book. On the one hand, individual privacy protection is a hot topic and must be addressed in order to guarantee the proper evolution of a modern society. On the other, security can invade individual privacy, especially after the appearance of new forms of terrorism.

Readership: Researchers, academics and graduate students in artificial intelligence, security and privacy.

404pp **Aug 2009**
978-981-279-032-3 **US\$99** **£68**
978-981-279-033-0(ebook) **US\$129**

Series in Machine Perception and Artificial Intelligence - Vol. 32

INTRODUCTION TO PATTERN RECOGNITION

Statistical, Structural, Neural and Fuzzy Logic Approaches
by **Menahem Friedman** (*Nuclear Research Center-Negv, Israel*)
& **Abraham Kandel** (*University of South Florida, USA & Tel-Aviv University, Israel*)

This book is an introduction to pattern recognition, meant for undergraduate and graduate students in computer science and related fields in science and technology. Most of the topics are accompanied by detailed algorithms and real world applications. In addition to statistical and structural approaches, novel topics such as fuzzy pattern recognition and pattern recognition via neural networks are also reviewed.

Readership: Undergraduate and graduate students in computer science and related fields in science and technology.

344pp **Mar 1999**
978-981-02-3312-9 **US\$54** **£37**

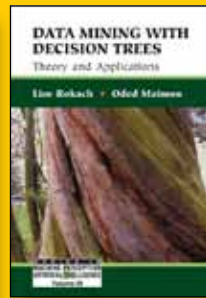
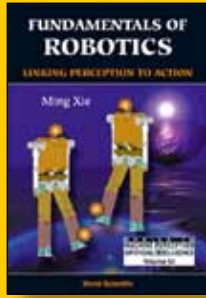
DYNAMIC VISION: From Images to Face Recognition

by **Shaogang Gong** (*Queen Mary and Westfield College*),
Stephen J McKenna (*University of Dundee*) &
Alexandra Psarrou (*University of Westminster*)

"Dynamic Vision is a unique book. To my knowledge, there is no comparable book that covers the broad and complex domain of adaptive visual recognition in such a readable way. The clear presentation style helps the reader to appreciate the painstaking work involved in making the automatic recognition of faces possible." **Cognitive Systems Research**

Readership: Researchers in image processing, computer vision, neural networks, artificial intelligence, pattern recognition, robotics and real-time systems.

364pp **May 2000**
978-1-86094-181-8 **US\$71** **£49**



Series in Machine Perception and Artificial Intelligence - Vol. 54

FUNDAMENTALS OF ROBOTICS: Linking Perception to Action

by **Ming Xie** (*Singapore-MIT Alliance & Nanyang Technological University, Singapore*)

This book will guide you, the curious beginner, from yesterday to tomorrow. The book will cover practical knowledge in understanding, developing, and using robots as versatile equipment to automate a variety of industrial processes or tasks. But, the book will also discuss the possibilities we can look forward to when we are capable of creating a vision-guided, learning machine.

Readership: Upper-level undergraduates, graduates and researchers in robotics & automated systems, artificial intelligence, machine perception and computer vision.

716pp	Apr 2003	
978-981-238-313-6	US\$167	£115
978-981-238-335-8(pbk)	US\$82	£57

FUZZY LOGIC FOR BEGINNERS

by **Masao Mukaidono** (*Meiji University, Japan*)

There are many uncertainties in the real world. Fuzzy theory treats a kind of uncertainty called fuzziness, where it shows that the boundary of yes or no is ambiguous and appears in the meaning of words or is included in the subjunctives or recognition of human beings. Fuzzy theory is essential and is applicable to many systems — from consumer products like washing machines or refrigerators to big systems like trains or subways. Recently, fuzzy theory has been a strong tool for combining new theories (called soft computing) such as genetic algorithms or neural networks to get knowledge from real data.

Readership: Undergraduates in engineering and computer science, as well as general readers.

116pp	Feb 2001	
978-981-02-4534-4(pbk)	US\$23	£16
978-981-4340-66-3(ebook)	US\$30	

Series in Machine Perception and Artificial Intelligence - Vol. 57

DATA MINING IN TIME SERIES DATABASES

edited by **Mark Last** (*Ben-Gurion University of the Negev, Israel*), **Abraham Kandel** (*Tel-Aviv University Israel & University of South Florida, USA*) & **Horst Bunke** (*University of Bern, Switzerland*)

Adding the time dimension to real-world databases produces Time Series Databases (TSDB) and introduces new aspects and difficulties to data mining and knowledge discovery. This book covers the state-of-the-art methodology for mining time series databases. The novel data mining methods presented in the book include techniques for efficient segmentation, indexing, and classification of noisy and dynamic time series. A graph-based method for anomaly detection in time series is described and the book also studies the implications of a novel and potentially useful representation of time series as strings. The problem of detecting changes in data mining models that are induced from temporal databases is additionally discussed.

Readership: Graduate students, researchers and practitioners in the fields of data mining, machine learning, databases and statistics.

204pp	Jun 2004	
978-981-238-290-0	US\$108	£75
978-981-256-540-2(ebook)	US\$140	

Series in Machine Perception and Artificial Intelligence - Vol. 69

DATA MINING WITH DECISION TREES: Theory and Applications

by **Lior Rokach** (*Ben-Gurion University, Israel*) & **Oded Maimon** (*Tel-Aviv University, Israel*)

"... the book is a very useful and nice coverage of the field ... It is highly recommendable for people who want to begin working in this field and need guidance to start into the large area of applying these methods." **Zentralblatt MATH**

Readership: Researchers, graduate and undergraduate students in information systems, engineering, computer science, statistics and management.

264pp	Dec 2007	
978-981-277-171-1	US\$111	£76

HANDBOOK OF TEXTURE ANALYSIS

edited by **Majid Mirmehdi** (*University of Bristol, UK*), **Xianghua Xie** (*University of Swansea, UK*) & **Jasjit Suri** (*Eigen LLC, USA*)

Currently, the main approaches to texture analysis must be sought out through a variety of research papers. This collection of chapters brings together in one handy volume the major topics of importance, and categorizes the various techniques into comprehensible concepts. The methods covered will not only be relevant to those working in computer vision, but will also be of benefit to the computer graphics, psychophysics, and pattern recognition communities, academic or industrial.

Readership: Graduate students, academics and researchers in the machine vision industry and the security and surveillance industry, as well as vision scientists including psychophysicists.

424pp	Oct 2008	
978-1-84816-115-3	US\$228	£157
978-1-84816-116-0(ebook)	US\$296	

Series in Machine Perception and Artificial Intelligence - Vol. 70

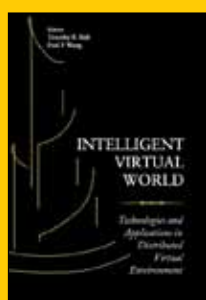
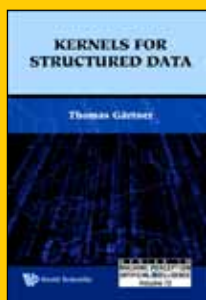
PERSONALIZATION TECHNIQUES AND RECOMMENDER SYSTEMS

edited by **Gulden Uchyigit** (*Imperial College, UK*) & **Matthew Y Ma** (*Scientific Works, USA*)

The book is the first of its kind, representing research efforts in the diversity of personalization and recommendation techniques. These include user modeling, content, collaborative, hybrid and knowledge-based recommender systems. It presents theoretic research in the context of various applications from mobile information access, marketing and sales and web services, to library and personalized TV recommendation systems. This volume will serve as a basis to researchers who wish to learn more in the field of recommender systems, and also to those intending to deploy advanced personalization techniques in their systems.

Readership: Researchers and graduate students in machine learning and databases/information science.

336pp	Apr 2008	
978-981-279-701-8	US\$108	£75
978-981-279-702-5(ebook)	US\$140	



Series in Machine Perception and Artificial Intelligence - Vol. 72

KERNELS FOR STRUCTURED DATA

by **Thomas Gärtnner** (*Fraunhofer Institute Intelligent Analysis and Information Systems IAIS, Germany*)

This book provides a unique treatment of an important area of machine learning and answers the question of how kernel methods can be applied to structured data. Kernel methods are a class of state-of-the-art learning algorithms that exhibit excellent learning results in several application domains. Originally, kernel methods were developed with data in mind that can easily be embedded in a Euclidean vector space. Much real-world data does not have this property but is inherently structured. An example of such data, often consulted in the book, is the (2D) graph structure of molecules formed by their atoms and bonds. The book guides the reader from the basics of kernel methods to advanced algorithms and kernel design for structured data. It is thus useful for readers who seek an entry point into the field as well as experienced researchers.

Readership: Researchers, academics, graduate and advanced undergraduates in machine learning and artificial intelligence.

216pp **Aug 2008**
978-981-281-455-5 **US\$82** **£57**
978-981-281-456-2(ebook) **US\$107**

Series on Innovative Intelligence - Vol. 7

INTELLIGENT WATERMARKING TECHNIQUES (With CD-Rom)



edited by **Jeng-Shyang Pan** (*National Kaohsiung University of Applied Sciences, Taiwan*), **Hsiang-Cheh Huang** (*National Chiao Tung University, Taiwan*) & **Lakhmi C Jain** (*University of South Australia, Australia*)

This book presents the recent advances in the theory and implementation of watermarking techniques. It brings together, for the first time, the successful applications of intelligent paradigms (including comparisons with conventional methods) in many areas. The accompanying CD-Rom provides readers with source codes and executables to put into practice general topics in watermarking.

Readership: Upper-level undergraduates, graduate students and researchers interested in digital watermarking techniques.

852pp **Feb 2004**
978-981-238-757-8 **US\$161** **£111**
978-981-256-252-4(ebook) **US\$209**

INTELLIGENT VIRTUAL WORLD: Technologies and Applications in Distributed Virtual Environment

edited by **Timothy K Shih** (*Tamkang University, Taiwan*) & **Paul P Wang** (*Duke University, USA*)

This important book summarizes recent research topics, focusing on four major areas: (1) intelligent content-based information retrieval and virtual world, (2) quality-of-services of multimedia data, (3) intelligent techniques for distance education, and (4) intelligent agents for e-commerce. This book has been selected for coverage in: • CC / Engineering, Computing & Technology and Index to Scientific Book Contents® (ISBC)

Readership: Electrical and computer engineers, computer scientists, artificial intelligence scientists, multimedia product developers, and researchers in the image processing and computer vision fields.

408pp **Jul 2004**
978-981-238-618-2 **US\$172** **£118**
978-981-256-263-0(ebook) **US\$224**

VLSI DESIGN OF WAVELET TRANSFORM

Analysis, Architecture, and Design Examples

by **Liang-Gee Chen** (*National Taiwan University, Taiwan*), **Chao-Tsung Huang** (*National Taiwan University, Taiwan*), **Ching-Yeh Chen** (*National Taiwan University, Taiwan*) & **Chih-Chi Cheng** (*National Taiwan University, Taiwan*)

The book provides a comprehensive analysis and discussion of DWTs and their applications including important materials and the newest developments in wavelet processing. For example, the architecture designs of 2D DWT in JPEG 2000 and the development of motion-compensated temporal filtering (MCTF) are explored.

Readership: Graduate students, academics and researchers in electrical & electronic engineering, algebra & number theory, and pattern recognition/image analysis.

300pp **Dec 2006**
978-1-86094-673-8 **US\$98** **£56**

Series in Machine Perception and Artificial Intelligence - Vol. 55

WEB DOCUMENT ANALYSIS: Challenges and Opportunities

edited by **Apostolos Antonacopoulos** (*University of Liverpool, UK*) & **Jianying Hu** (*IBM T J Watson Research Center, USA*)

This book provides the first comprehensive look at the emerging field of web document analysis. It sets the scene in this new field by combining state-of-the-art reviews of challenges and opportunities with research papers by leading researchers. Readers will find in-depth discussions on the many diverse and interdisciplinary areas within the field, including web image processing, applications of machine learning and graph theories for content extraction and web mining, adaptive web content delivery, multimedia document modeling and human interactive proofs for web security.

Readership: Graduate students and researchers in document-analysis and web communities.

344pp **Dec 2003**
978-981-238-582-6 **US\$135** **£93**
978-981-277-537-5(ebook) **US\$176**

For more information, visit:
www.worldscibooks.com

Journals



International Journal of Pattern Recognition and Artificial Intelligence (IJPRAI)

<http://www.worldscinet.com/ijprai/>

About IJPRAI: Aims & Scope

This journal publishes both applications and theory-oriented articles on new developments in the fields of pattern recognition and artificial intelligence, and is of interest to both researchers in industry and academia. From the beginning, there has always been a close relationship between the disciplines of pattern recognition and artificial intelligence. The recognition and understanding of sensory data like speech or images, which are major concerns in pattern recognition, have always been considered as important subfields of artificial intelligence. On the other hand, topics like knowledge representation, inference, search or learning that belong to the center of artificial intelligence, have constantly attracted the attention of researchers working in pattern recognition. IJPRAI is the first to cover both fields in one periodical, and particular emphasis is put on papers which are in the intersection of both fields. However, it is open to articles from "pure" pattern recognition and "pure" artificial intelligence as well.

Abstracting/Indexing

- SciSearch®
- ISI Alerting Services
- CompuMath Citation Index®
- Current Contents®/Engineering, Computing & Technology
- INSPEC
- io-port.net
- Compendex
- Computer Abstracts



International Journal of Computational Geometry and Applications (IJCGA)

<http://www.worldscinet.com/ijcga>

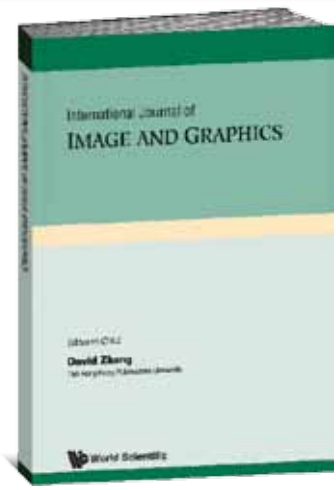
About IJCGA: Aims & Scope

The International Journal of Computational Geometry & Applications (IJCGA) is a bimonthly journal devoted to the field of computational geometry within the framework of design and analysis of algorithms.

Emphasis is placed on the computational aspects of geometric problems that arise in various fields of science and engineering including computer-aided geometry design (CAGD), computer graphics, constructive solid geometry (CSG), operations research, pattern recognition, robotics, solid modelling, VLSI routing/layout, and others. Research contributions ranging from theoretical results in algorithm design – sequential or parallel, probabilistic or randomized algorithms – to applications in the above-mentioned areas are welcome. Research findings or experiences in the implementations of geometric algorithms, such as numerical stability, and papers with a geometric flavour are also welcome.

Abstracting/Indexing

- Current Contents®/Engineering, Computing & Technology
- ISI Alerting Services
- Science Citation Index Expanded (also known as SciSearch®)
- CompuMath Citation Index®
- Mathematical Reviews
- INSPEC
- DBLP Bibliography Server
- Zentralblatt MATH
- Computer Abstracts



International Journal of Image and Graphics (IJIG)

<http://www.worldscinet.com/ijig>

About IJIG: Aims & Scope

International Journal of Image and Graphics (IJIG) will emphasize on efficient and effective image and graphics technologies and systems. This journal covers the following research and application issues:

- Image Processing
- Image Analysis and Understanding
- Pattern Recognition Application
- Computer Vision
- Graphics Modeling, Rendering and Animation
- Visualization, Virtual Reality and Augmented Reality
- Multimedia Systems and Techniques
- Graphics User Interface
- Image and Graphics Applications

Abstracting/Indexing

- DBLP Bibliography Server
- io-port.net



For orders or enquiries, please contact any of our offices below or visit us at: www.worldscientific.com

• NORTH & SOUTH AMERICA	World Scientific Publishing Co. Inc. 27 Warren Street, Suite 401-402, Hackensack, NJ 07601, USA Toll-free fax: 1 888 977 2665 Toll-free: 1 800 227 7562 Email: sales@wspc.com
• EUROPE & THE MIDDLE EAST	World Scientific Publishing (UK) Ltd. c/o Marston Book Services, P O Box 269, Abingdon, Oxon OX14 4YN, UK Fax: 44 (0) 123 546 5555 Tel: 44 (0) 123 546 5500 Email: direct.orders@marston.co.uk
• ASIA & THE REST OF THE WORLD	World Scientific Publishing Co. Pte. Ltd. Farrer Road, P O Box 128, SINGAPORE 912805 Fax: 65 6467 7667 Tel: 65 6466 5775 Email: sales@wspc.com.sg

* Prices subject to change without prior notice