Springer Mathematics & Computer Science Preview

Top Frontlist July – September 2013

Computer Science
Economics
Mathematics
New Publications at the Forefront of Research & Development

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C. Aldrich, Curtin University, Perth, WA, Australia; L. Auret, University of Stellenbosch, Matieland, South Africa

Unsupervised Process Monitoring and Fault Diagnosis with Machine Learning Methods

Due June 2013
Monograph

2013. XIX, 374 p. 187 illus., 174 in color. (Advances in Computer Vision and Pattern Recognition) Hardcover
► €94,99 | £79.95
► *€ (D) 101,64 | € (A) 104,49 | sFr 126,50

L.-m. Ang, Edith Cowan University, Joondalup, WA, Australia; K. F. Seng, Sunway University, Selangor, Malaysia; L. W. Chew, Intel Corporation, Penang, Malaysia; L. S. Yeong, W. C. Chia, Sunway University, Selangor, Malaysia

Wireless Multimedia Sensor Networks on Reconfigurable Hardware

Information Reduction Techniques

This book shows how reconfigurable hardware technology like field-programmable gate arrays (FPGAs) offer cost-effective, flexible platforms for implementing WMSNs. Offers a complete specification of a low-complexity FPGA WMSN node processor, plus case studies.

Due August 2013
Monograph

2013. X, 276 p. 158 illus., 22 in color. Hardcover
► €89,99 | £81.00
► *€ (D) 96,29 | € (A) 98,99 | sFr 120,00
ISBN 978-3-642-38202-4

H. Blockeel, Katholieke Universiteit Leuven, Heverlee, Belgium; S. Džeroski, Jožef Stefan Institute, Ljubljana, Slovenia; J. Struyf, Katholieke Universiteit Leuven, Heverlee, Belgium; B. Zenko, Jožef Stefan Institute, Ljubljana, Slovenia

Predictive Clustering

This book presents a novel paradigm for machine learning and data mining called predictive clustering which covers a broad variety of learning tasks and offers a fresh perspective on existing techniques. Includes applications in ecology and bio-informatics.

Due October 2013
Professional book

► approx. €74,95 | £66.99
► approx. *€ (D) 80,20 | € (A) 82,45 | sFr 105,50

G. Andrienko, N. Andrienko, Fraunhofer IAIS, Sankt Augustin, Germany; P. Bak, IBM Haifa Research Lab, Israel; D. Keim, University of Konstanz, Germany; S. Wrobel, Fraunhofer IAIS, Sankt Augustin, Germany

Visual Analytics of Movement

This book introduces a general conceptual framework for the analysis of movement data from various sources. It illustrates all algorithms and methods with the help of sample applications from various domains.

Due June 2013
Monograph

2013. XIX, 374 p. 187 illus., 174 in color. (Advances in Computer Vision and Pattern Recognition) Hardcover
► €94,99 | £79.95
► *€ (D) 101,64 | € (A) 104,49 | sFr 126,50

M. Bernardo, E. de Vink, A. Di Pierro, H. Wiklicky (Eds)

Formal Methods for Dynamical Systems


Available
Contributed volume

2013. VIII, 181 p. 49 illus. (Lecture Notes in Computer Science / Programming and Software Engineering, Volume 7938) Softcover
► €46,00 | £41.99
► *€ (D) 49,22 | € (A) 50,60 | sFr 61,50
ISBN 978-3-642-38873-6

A. Bouguettaya, RMIT University, Melbourne, VIC, Australia; Q. Z. Sheng, University of Adelaide, SA, Australia; F. Daniel, University of Trento, Povo, Italy (Eds)

Web Services Foundations

Web services and Service-Oriented Computing (SOC) have become thriving areas of academic research, joint university/industry research projects, and novel IT products on the market.

Due July 2013
Contributed volume

2013. XX, 700 p. 205 illus. Hardcover
► €139,99 | £126.00
► *€ (D) 149,79 | € (A) 153,99 | sFr 186,50
ISBN 978-1-4614-7517-0
Advanced Web Services

Web services and Service-Oriented Computing (SOC) have become thriving areas of academic research, joint university/industry research projects, and novel IT products on the market.

Due July 2013
Contributed volume

2013. XIX, 612 p. 216 illus. Hardcover
 ► approx. € 139,99 | £126.50
 ► approx. * (D) 149,79 | (A) 153,99 | sFr 186,50

I. Cervesato, Carnegie Mellon University, Doha, Qatar

The Deductive Spreadsheet

This book describes recent multidisciplinary research at the confluence of the fields of logic programming, database theory and human-computer interaction.

Due July 2013
Monograph

2013. XXI, 404 p. 98 illus. (Cognitive Technologies) Hardcover
 ► € 94,99 | £85.50
 ► * (D) 101,64 | (A) 104,49 | sFr 126,50
ISBN 978-3-642-37746-4

Data Mining for Geoinformatics

Methods and Applications

The rate at which geospatial data is being generated exceeds our computational capabilities to extract patterns for the understanding of a dynamically changing world. Geoinformatics and data mining focuses on the development and implementation of computational algorithms to solve these problems.

Due August 2013
Contributed volume

2014. XX, 172 p. 63 illus., 35 in color. Hardcover
 ► € 84,99 | £76.50
 ► * (D) 90,94 | (A) 93,49 | sFr 113,50
ISBN 978-1-4641-7668-9

Belief-based Stability in Coalition Formation with Uncertainty

An Intelligent Agents’ Perspective

This book extends the classic stability concept of the non-transferable utility core, proposing new belief-based stability criteria under uncertainty and showing use of the concept to analyze the stability of a new type of belief-based coalition forming game.

Due September 2013
Monograph

Distribution rights in China: Higher Education Press

2013. 200 p. 20 illus. Hardcover
 ► approx. € 79,95 | £72.00
 ► approx. * (D) 85,55 | (A) 87,95 | sFr 115,00
ISBN 978-3-642-38214-7

R. Chbeir, University of Pau et Adour Countries, Anglet, France; B. Al Bouna, Antonine University, Baabda, Lebanon (Eds)

Security and Privacy Preserving in Social Networks

Drawing on a range of expert contributions, this book assesses current approaches and technologies related to the security and privacy of social networks, outlines major challenges and offers perspectives on the direction of future research on the topic.

Due August 2013
Monograph

2013. X, 310 p. 107 illus., 66 in color. (Lecture Notes in Social Networks) Hardcover
 ► € 94,99 | £85.50
 ► * (D) 101,64 | (A) 104,49 | sFr 126,50
ISBN 978-3-7091-0893-2

C.-k. Chan, The Hong Kong Polytechnic University, China; H.-f. Leung, The Chinese University of Hong Kong, China

P. Campisi, Roma Tre University, Rome, Italy (Ed)

Security and Privacy in Biometrics

This book describes applications from face and fingerprint recognition to biometrics-based electronic documents, discusses ethical implications of biometrics, offers advice on best practices for processing of biometric data in a legal framework and more.

Due July 2013
Monograph

 ► € 94,99 | £85.50
 ► * (D) 101,64 | (A) 104,49 | sFr 126,50
ISBN 978-3-642-38214-7

G. Cervone, J. Lin, N. Waters, George Mason University, Fairfax, VA, USA (Eds)

Belief-based Stability in Coalition Formation with Uncertainty

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ISBN 978-3-7091-0893-2
C. Chen, Drexel University, Philadelphia, PA, USA

**Mapping Scientific Frontiers**
The Quest for Knowledge Visualization

In its revised edition, this book examines the history and current developments in knowledge visualization from an interdisciplinary perspective, from theories of invisible colleges and competing paradigms to practical applications of visualization techniques.

**Due July 2013**
Monograph

2nd ed. 2013. XV, 259 p. 205 illus., 156 in color. Hardcover

- € 94,99 | £85.95
- * (D) 101,64 | (A) 104,49 | sFr 126,50

M. Childs, Coventry University, UK; A. Peachey, The Open University, Milton Keynes, UK (Eds)

**Understanding Learning in Virtual Worlds**

This book explores the philosophical and methodological underpinnings of understanding learning in virtual worlds. It includes case studies that demonstrate some of the various ways in which virtual worlds can be applied to facilitate learning and teaching.

**Due July 2013**
Contributed volume

2014. XII, 170 p. 35 illus. in color. (Human–Computer Interaction Series) Hardcover

- € 84,99 | £59.95
- * (D) 90,94 | (A) 93,49 | sFr 113,50
ISBN 978-1-4471-5369-6

X. Chen, University of Science and Technology of China, Hefei, China; P. Stone, The University of Texas at Austin, TX, USA; L. E. Sucar, Instituto Nacional de Astrofísica, Óptica y Electrónica, Puebla, Mexico; T. van der Zant, University of Groningen, The Netherlands (Eds)

**RoboCup 2012: Robot Soccer World Cup XVI**

**Due June 2013**
Contributed volume

2013. XII, 394 p. 183 illus. (Lecture Notes in Computer Science / Lecture Notes in Artificial Intelligence, Volume 7500) Softcover

- € 62,00 | £55.99
- * (D) 66,34 | (A) 68,20 | sFr 83,00
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F. Cicalese, Università degli Studi di Salerno, Italy

**Fault-Tolerant Search Algorithms**

Reliable Computation with Unreliable Information

This book examines approaches to fault-tolerance in the context of algorithmic search theory.

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Monograph


- approx. € 79,95 | £72.00
- approx. * (D) 85,55 | (A) 87,95 | sFr 115,00
ISBN 978-3-642-17326-4

S. J. Cowley, University of Hertfordshire, Hatfield, UK; F. Vallée-Tourangeau, Kingston University, Kingston-upon-Thames, UK (Eds)

**Cognition Beyond the Brain**

Computation, Interactivity and Human Artifice

**Due June 2013**
Contributed volume

2013. VIII, 291 p. 52 illus. Hardcover

- € 94,99 | £85.95
- * (D) 101,64 | (A) 104,49 | sFr 126,50
ISBN 978-1-4471-5124-1
J. Derrick, University of Sheffield, UK; E. A. Boiten, University of Kent, UK

Refinement in Z and Object-Z
Foundations and Advanced Applications

This book covers data refinement and its application to Z; generalisations of refinement that change the interface and atomicity of operations; refinement in Object-Z; and modelling state and behaviour by combining Object-Z with CSP.

Due August 2013
Monograph

2nd ed. 2014. XVIII, 500 p. 47 illus. Hardcover
► € 94,99 | £85.95
► *E (D) 101,64 | E (A) 104,49 | sFr 126,50

S. J. Dickinson, University of Toronto, ON, Canada; Z. Pizlo, Purdue University, West Lafayette, IN, USA (Eds)

Shape Perception in Human and Computer Vision
An Interdisciplinary Perspective

Due June 2013
Contributed volume

2013. XVII, 504 p. 231 illus., 36 in color. (Advances in Computer Vision and Pattern Recognition) Hardcover
► € 109,99 | £99.95
► *E (D) 117,69 | E (A) 120,99 | sFr 146,50
ISBN 978-1-4471-5194-4

W. Effelsberg, R. Steinmetz, T. Strufe, TU Darmstadt, Germany (Eds)

Benchmarking Peer-to-Peer Systems
Understanding Quality of Service in Large-Scale Distributed Systems

This book provides concepts for benchmarking peer-to-peer systems, emphasizing collection of characteristic benchmarking results. Topical sections include fundamentals of Benchmarking in P2P Systems; Synthetic Benchmarks and Application Benchmarks.

Due September 2013
Contributed volume

2013. VIII, 197 p. (Lecture Notes in Computer Science / Computer Communication Networks and Telecommunications, Volume 7847) Softcover
► € 46,00 | £41.99
► *E (D) 49,22 | E (A) 50,60 | sFr 61,50
ISBN 978-3-642-38672-5

J. Euzenat, INRIA Rhône-Alpes, St Ismier, France; P. Shvaiko, Informatica Trentina SpA, Trento, Italy

Ontology Matching

This book explores ontology matching as a solution to the semantic heterogeneity problem faced by computer systems. Also covers emerging topics such as data interlinking, ontology partitioning and pruning, and user involvement in matching.

Due August 2013
Monograph

2nd ed. 2013. Approx. 400 p. Hardcover
► € 69,99 | £62.99
► *E (D) 74,89 | E (A) 76,99 | sFr 93,50
ISBN 978-3-642-38720-3

Ö. Ergül, Middle East Technical University, Ankara, Turkey

Guide to Programming and Algorithms Using R

This easy-to-follow book provides a student-friendly introduction to programming and algorithms, using an active learning style in which deeper understanding is gained from evaluating, questioning and discussing the material, practiced with hands-on exercises.

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Undergraduate textbook

2014. X, 190 p. 28 illus. Hardcover
► € 39,99 | £35.99
► *E (D) 42,79 | E (A) 43,99 | sFr 53,50
ISBN 978-1-4471-5327-6

S. J. Dickinson, University of Toronto, ON, Canada; Z. Pizlo, Purdue University, West Lafayette, IN, USA

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ISBN 978-1-4471-5327-6

U. Gellert, A. D. Cristea, S+P LION AG, Heddesheim, Germany

Web Dynpro ABAP for Practitioners

This book offers a step-by-step-introduction into Web Dynpro ABAP. It details how to design a Web Dynpro component, data binding and interface methods and view controller methods. Each chapter includes practical examples.

Due August 2013
Professional book

► € 59,99 | £53.99
► *E (D) 64,19 | E (A) 65,99 | sFr 80,00
ISBN 978-3-642-38246-8
C. Gerth, University of Paderborn, Germany

Business Process Models
Change Management

This monograph presents a generally applicable framework for process model change management, which provides easy-to-use comparison and merging capabilities for the integration of different process model versions.

Available
Monograph
2013. XVI, 218 p. 125 illus. (Lecture Notes in Computer Science / Information Systems and Applications, incl. Internet/Web, and HCI, Volume 7849) Softcover
► €46,00 | £41.99
► *€ (D) 49,22 | € (A) 50,60 | sFr 61,50 ISBN 978-3-642-38603-9

W. Huang, CSIRO ICT Center, Marsfield, NSW, Australia (Ed)

Handbook of Human Centric Visualization

Visualizations are visual representations of non-visual data. They are produced for people to interact with and to make sense of the underlying data. Rapid advances in display technology and computer power have enabled researchers to produce visually appealing pictures.

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Handbook
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J. Graba, Sheffield Hallam University, UK

An Introduction to Network Programming with Java
Java 7 Compatible

Here is a useful, practical guide to network programming for both undergraduates and busy IT professionals. This third edition has been fully updated to incorporate Java 7 compatibility and features code examples, screenshots and exercises.

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R. Jiang, X. Zhang, Tsinghua University, Beijing, China; M. Q. Zhang, Cold Spring Harbor, New York, NY, USA (Eds)

Basics of Bioinformatics
Lecture Notes of the Graduate Summer School on Bioinformatics of China
Due August 2013
Monograph
Distribution in China: Tsinghua University Press
2013. XII, 262 p. 136 illus., 89 in color. Hardcover
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R. Y. Lee, Central Michigan University, Mount Pleasant, MI, USA

Software Engineering: A Hands-On Approach

This book provides a progressive approach to the teaching of software engineering. It features over 70 easy-to-follow diagrams and tables depicting concepts and tools used in software engineering and is ideal for learning core concepts and practical skills.

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ISBN 978-3-642-38639-8

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ISBN 978-94-007-6832-1

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Parallel Programming for Multicore and Cluster Systems

Innovations in hardware architecture, like hyper-threading or multicore processors, mean that parallel computing resources are available for inexpensive desktop computers.

Due June 2013
Graduate/Advanced undergraduate textbook

Introduction to Bioinformatics Using Bacterial Genomics

This book introduces bioinformatics techniques and programming using bacterial genomics. The strategy is to lead the reader to progressively more complex steps in the analysis of a bacterial genome, introducing new bioinformatics techniques at each step.

Due July 2013
Professional book

M. Raynal, Université de Rennes, France
Distributed Algorithms for Message-Passing Systems

This book presents core concepts and algorithms of distributed computing, covering distributed graph algorithms; logical time and global states; mutual exclusion and resource allocation; high-level communication abstractions; distributed shared memory and more.

Due July 2013
Graduate/Advanced undergraduate textbook

S. Sharoff, University of Leeds, UK; R. Rapp, University of Mainz, Germany; P. Zweigenbaum, LIMSI-CNRS, Paris, France; P. Fung, The Hong Kong University of Science (Eds)
BUCC – Building and Using Comparable Corpora

Due June 2013
Contributed volume

S. V. Subramanian, Cisco Systems, Inc., Raleigh, NC, USA; R. Dutta, North Carolina State University, Raleigh, NC, USA
Measuring SIP Proxy Server Performance

Internet Protocol (IP) telephony is an alternative to the traditional Public Switched Telephone Networks (PSTN), and the Session Initiation Protocol (SIP) is quickly becoming a popular signaling protocol for VoIP-based applications.
Fast Algorithms for Stereo Matching

This book presents fast and reliable algorithms for dense stereo matching – for every point on the image – and optical-flow estimations using a general language, such as C, optimize computations in an existing processor.

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Manual

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ISBN 978-0-387-95424-0

Optimization for Computer Vision
An Introduction to Core Concepts and Methods

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Monograph

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► *€ (D) 101,64 | € (A) 104,49 | sFr 126,50
ISBN 978-1-4471-5282-8

Computer Arithmetic: A Complete Reference

This is a collection of the key papers in floating-point arithmetic. The focus is on hardware implementation using VLSI circuits. Although some of the papers are written by academics, many are by people from industry describing real chips.

Due September 2013
Collection of essays

2014. Approx. 1090 p. Hardcover
► approx. € 192,50 | £227.50
► approx. *€ (D) 205,98 | € (A) 211,75 | sFr 415,00

Massively Parallel Evolutionary Computation on GPGPUs

Recent advances in general-purpose computing on graphics processing units (GPGPU) have opened up the possibility for parallel evolutionary algorithms. This book details this exciting new approach, with emphasis on solving practical problems.

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J. Baldeaux, E. Platen, University of Technology Sydney, Haymarket, NSW, Australia
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A. K. Gupta, Bowling Green State University, OH, USA; T. Varga, Damjanich, Budapest, Hungary; T. Bodnar, Stiftung European University Viadrina, Frankfurt, Germany

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