

S. Ceri, M. Brambilla, Politecnico di Milano, Italy (Eds)

## Search Computing

Broadening Web Search

### Features

► Clearly structured book containing detailed papers on search computing ► Provides useful insights on search computing problems and issues ► Papers contain the latest results in the field

### Contents

Web Data Reconciliation: Models and Experiences.- A Domain Independent Framework for Extracting Linked Semantic Data from Tables.- Knowledge Extraction from Structured Sources.- Google Fusion Tables: Making Sense of Heterogeneous Data.- Materialization of Web Data Sources.- Natural Language Interfaces to Data Services.- Mobile Multi-domain Search over Structured Web Data.- Clustering and Labeling of multi-dimensional mixed structured data.- Visualizing search results: engineering visual patterns development for the WebRober.- Extending SPARQL Algebra to Support Efficient Evaluation of Top-K SPARQL Queries.- Thematic Clustering and Exploration of Linked Data.- Support for reusable explorations of Linked Data in the Semantic Web.- A Survey on Proximity Measures for Social Networks.- Extending Search to Crowds.- Better-Relations: Collecting Association Strengths for Linked Data Triples with a Game.- An Incentive-Compatible RevenueSharing Mechanism for the Economic Sustainability of Multidomain Search Based on Advertising.

### Fields of interest

Information Systems Applications (incl.Internet); Information Storage and Retrieval; User Interfaces and Human Computer Interaction

### Target groups

Research

### Product category

Contributed volume

### Available

2012. XII, 255 p. 95 illus. (Lecture Notes in Computer Science / Information Systems and Applications, incl. Internet/Web, and HCI, Volume 7538) Softcover

► \*€ (D) 49,22 | € (A) 50,60 | sFr 61,50

► € 46,00 | £41.99

ISBN 978-3-642-34212-7

D. Cotroneo (Ed)

## Innovative Technologies for Dependable OTS-Based Critical Systems

Challenges and Achievements of the CRITICAL STEP Project

The demand for large-scale dependable, systems, such as Air Traffic Management, industrial plants and space systems, is attracting efforts of many world-leading European companies and SMEs in the area, and is expected to increase in the near future. The adoption of Off-The-Shelf (OTS) items plays a key role in such a scenario. OTS items allow mastering complexity and reducing costs and time-to-market; however, achieving these goals by ensuring dependability requirements at the same time is challenging. CRITICAL STEP project establishes a strategic collaboration between academic and industrial partners, and proposes a framework to support the development of dependable, OTS-based, critical systems. The book introduces methods and tools adopted by the critical systems industry, and surveys key achievements of the CRITICAL STEP project along four directions: fault injection tools, V&V of critical systems, run-time monitoring and evaluation techniques, and security assessment.

### Features

► It introduces methods and tools adopted by the critical systems industry ► Practical examples from the companies ► Practical advises for counseling

### Contents

Introduction to basic concepts.- V&V in Safety Critical Systems.- Fault Injection.- Security.- Monitoring and Diagnosing.

### Fields of interest

Performance and Reliability; Software Engineering/Programming and Operating Systems

### Target groups

Research

### Product category

Contributed volume

### Due December 2012

2012. VI, 244 p. 49 illus. Hardcover

► \*€ (D) 90,90 | € (A) 93,45 | sFr 113,50

► € 84,95 | £76.50

ISBN 978-88-470-2771-8

C. M. Kormanyos, Reutlingen, Germany

## Real-Time C++

Efficient Object-Oriented and Template Microcontroller Programming

### Features

► Step-by-step introduction to using real-time C++ for microcontrollers ► Accompanied by extensive sample code and online material (including three introductory projects and one reference project) ► Uses the most recent specification of C++11 in ISO/IEC 14882:2011 ► Puts special emphasis on performance, scalability, and portability Puts special emphasis on performance, scalability, and portability

### Contents

Part I Language Technologies for Real-Time C++.- Getting Started with Real-Time C++.- Working with a Real-Time C++ Program on a Board.- An Easy Jump-Start in Real-Time C++.- Object-Oriented Techniques for Microcontrollers.- C++ Templates for Microcontrollers.- Optimized C++ Programming for Microcontrollers.- Part II Components for Real-Time C++.- The Right Start.- Low-Level Hardware Drivers in C++.- Custom Memory Management.- C++ Multitasking.- Part III Mathematics and Utilities for Real-Time C++.- Floating-Point Mathematics.- Fixed-Point Mathematics.- High-Performance Digital Filters.- C++ Utilities.- Extending the C++ Standard Library and the STL.- Additional Reading.- Part IV Appendices.- A Tutorial for Real-Time C++.- A Robust Real-Time C++ Environment.- Building and Installing GNU GCC Cross-Compilers.- Building a Microcontroller Circuit.

### Fields of interest

Special Purpose and Application-Based Systems; System Performance and Evaluation; Computer System Implementation

### Target groups

Professional/practitioner

### Product category

Monograph

### Due December 2012

2012. X, 370 p. 20 illus., 3 in color. Hardcover

► \*€ (D) 53,45 | € (A) 54,95 | sFr 66,50

► € 49,95 | £44.99

ISBN 978-3-642-34687-3



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J. Lu, Renmin University of China, Beijing, China. (Ed)

## An Introduction to XML Query Processing and Keyword Search

„An Introduction to XML Query Processing and Keyword Search“ systematically and comprehensively covers the latest advances in XML data searching. It presents an extensive overview of the current query processing and keyword search techniques on XML data, including XML labeling schemes, indexing, processing on order and un-order XML tree patterns, XML query optimization, results estimation, and XML keyword searches, which are elaborated in separate chapters. Graduate students and researchers in the field of XML data searching will find this book an invaluable resource. Prof. Jiaheng Lu is an associate professor at Renmin University of China's School of Information.

### Features

► Provides an overview of searching techniques on XML data ► Includes the new and key technologies on XML data storage ► Describe XML query processing algorithms

### Contents

Introduction.- XML labeling scheme.- XML data indexing.- XML tree pattern processing.- Ordered and Generalized XML Tree Pattern Processing.- Effective XML Keyword Search.- XML Keyword Pattern Refinement.- LCRA: XML Keyword Search System and Lotusx: Graphical Query Processing System.- Summary and The Road Ahead.

### Fields of interest

Database Management; Information Storage and Retrieval; Information Systems Applications (incl. Internet)

### Target groups

Research

### Product category

Monograph

N.-T. Nguyen, Wroclaw University of Technology, Poland (Ed)

## Transactions on Computational Collective Intelligence VI

The LNCS journal Transactions on Computational Collective Intelligence (TCCI) focuses on all facets of computational collective intelligence (CCI) and their applications in a wide range of fields such as the Semantic Web, social networks and multi-agent systems. TCCI strives to cover new methodological, theoretical and practical aspects of CCI understood as the form of intelligence that emerges from the collaboration and competition of many individuals (artificial and/or natural). The application of multiple computational intelligence technologies such as fuzzy systems, evolutionary computation, neural systems, consensus theory, etc., aims to support human and other collective intelligence and to create new forms of CCI in natural and/or artificial systems. This, the sixth issue of Transactions on Computational Collective Intelligence contains 10 selected papers, focusing on the topics of classification, agent cooperation, paraconsistent reasoning and agent distributed mobile interaction.

### Features

► Journal-like reviewing process ► State of the art research ► Deals with emerging topics in the fields of semantic web, social networks, multi-agent systems

### Fields of interest

Artificial Intelligence (incl. Robotics); Computer Communication Networks; Information Systems Applications (incl. Internet)

### Target groups

Research

### Product category

Contributed volume

N.-T. Nguyen, University of Technology, Wroclaw, Poland (Ed)

## Transactions on Computational Collective Intelligence VIII

These Transactions publish research in computer-based methods of computational collective intelligence (CCI) and their applications in a wide range of fields such as the Semantic Web, social networks and multiagent systems.

### Features

► Fast conference proceedings  
► State-of-the-art report ► Up to date results

### Contents

Introduction to Active Sets and Unification.- Modeling a Teacher in a Tutorial-like System Using Learning Automata.- Power Network Reliability Computations Using Multi-agent Simulation.- Sequence Automata for Researching Consensus Levels.- An Analysis of the Influence of Fundamental Indexing on Financial Markets through Agent-Based Modeling: The Fundamentalist and Fundamental Indexing.- Agent-Driven Integration Architecture for Component-Based Software Development.- Adaptive Tutoring in an Intelligent Conversational Agent System.- Biological and Computational Perspectives on the Emergence of Social Phenomena: Shared Understanding and Collective Power.- Agent-Based Crowd Simulation in Airports Using Games Technology.- Approximate Algorithms for Solving O1 Consensus Problems Using Complex Tree Structure.- Author Index.

### Fields of interest

Artificial Intelligence (incl. Robotics); Information Storage and Retrieval; Computation by Abstract Devices

### Target groups

Professional/practitioner

### Product category

Contributed volume

Due December 2012

Distribution rights in China: Tsinghua University Press

2012. Approx. 300 p. 45 illus. Hardcover

► approx. \*€ (D) 106,95 | € (A) 109,95 | sFr 133,50

► approx. € 99,95 | £90.00

ISBN 978-3-642-34554-8

Available

2012. XII, 224 p. 67 illus. (Lecture Notes in Computer Science / Transactions on Computational Collective Intelligence, Volume 7190) Softcover

► \*€ (D) 67,41 | € (A) 69,30 | sFr 84,00

► € 63,00 | £56.99

ISBN 978-3-642-29355-9

Available

2012. X, 229 p. 82 illus. (Lecture Notes in Computer Science / Transactions on Computational Collective Intelligence, Volume 7430) Softcover

► \*€ (D) 67,41 | € (A) 69,30 | sFr 84,00

► € 63,00 | £56.99

ISBN 978-3-642-34644-6



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K. Pohl, Universität Duisburg-Essen, Germany; H. Hönniger, Robert Bosch GmbH, Schwieberdingen, Germany; R. Achatz, Siemens AG, Munich, Germany; M. Broy, TU Munich, Germany (Eds)

## Model-Based Engineering of Embedded Systems

### The SPES 2020 Methodology

#### Contents

Part I Starting Situation.- Challenges in Engineering for Software-Intensive Embedded Systems.- Requirements from the Application Domains.- Part II The SPES Modeling Framework.- Introduction to the SPES Modeling Framework.- Requirements Viewpoint.- Functional Viewpoint.- Logical Viewpoint.- Technical Viewpoint.- Modeling Quality Aspects: Safety.- Modeling Quality Aspects: Real-Time.- Part III Application and Evaluation of the SPES Modeling Framework.- Overview of the SPES Evaluation Strategy.- Application and Evaluation in the Automation Domain.- Application and Evaluation in the Automotive Domain.- Application and Evaluation in the Avionics Domain.- Application and Evaluation in the Energy Domain.- Application and Evaluation in the Healthcare Domain.- Evaluation Summary.- Part IV Impact of the SPES Modeling Framework.- Lessons Learned.- Outlook.

#### Fields of interest

Software Engineering; Special Purpose and Application-Based Systems; Automotive Engineering

#### Target groups

Professional/practitioner

#### Product category

Professional book

Due November 2012

2012. XII, 301 p. 78 illus. Hardcover  
 ▶ \*€ (D) 53,45 | € (A) 54,95 | sFr 66,50  
 ▶ € 49,95 | £44.99  
 ISBN 978-3-642-34613-2



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P. Rausch, Georg Simon Ohm University of Applied Sciences, Nuremberg, Germany; A. F. Sheta, Taif University, Saudi Arabia; A. Ayesh, De Montfort University, Leicester, UK (Eds)

## Business Intelligence and Performance Management

### Theory, Systems and Industrial Applications

#### Contents

Preface.- Part I: Introduction.- Business Intelligence and Performance Management: An Introduction.- Part II: BI/PM in Business Analytics, Strategy and Management.- An Integrated Business Intelligence Framework: Closing the Gap between IT Support for Management and for Production.- Linking the Operational, Tactic and Strategic Level by Means of CPM: An Example of the Construction Industry.- Adaptive Business Intelligence: The Integration of Data Mining and Systems Engineering into an Advanced Decision Support as an Integral Part of the Business Strategy.- How to Introduce KPIs and Scorecards in IT Management.- Part III: BI/PM Applications to Business Development.- Data Mining Detection of Incidents in Networks.- Exploring the Differences Between the Cross Industry Process for Data Mining and the National Intelligence Model Using a Self Organizing Map Case Study.- Business Planning and Support by IT-Systems.- Planning Purchase Decisions with Advanced Neural Networks.- Part IV: Methodologies.- Financial Time Series Processing: A Roadmap of Online and Offline Methods.- Data Supply for Planning and Budgeting Processes under Uncertainty.- Minimizing the Total Cost in Production and Transportation Planning – A Fuzzy Approach. [...]

#### Fields of interest

Information Systems Applications (incl.Internet); Business Information Systems; Applications of Mathematics

#### Target groups

Graduate

#### Product category

Contributed volume

Due March 2013

2013. Approx. 250 p. 60 illus. (Advanced Information and Knowledge Processing) Hardcover  
 ▶ approx. \*€ (D) 85,55 | € (A) 87,95 | sFr 106,50  
 ▶ approx. € 79,95 | £59.95  
 ISBN 978-1-4471-4865-4

R. Schumacker, S. Tomek, University of Alabama, Tuscaloosa, AL, USA

## Understanding Statistics Using R

This book was written to provide resource materials for teachers to use in their introductory or intermediate statistics class. The chapter content is ordered along the lines of many popular statistics books so it should be easy to supplement the content and exercises with class lecture materials. The book contains R script programs to demonstrate important topics and concepts covered in a statistics course, including probability, random sampling, population distribution types, role of the Central Limit Theorem, creation of sampling distributions for statistics, and more. The chapters contain T/F quizzes to test basic knowledge of the topics covered. In addition, the book chapters contain numerous exercises with answers or solutions to the exercises provided.

#### Features

▶ Provides strong fundamental Background in statistics and probability through simulation exercises ▶ Perfect resource for advanced undergraduates and professionals. Anyone who has at least taken one course with experience/knowledge in linear regression ▶ R software code utilized throughout for assessment and interpretation of data and data mining exercises

#### Contents

R Fundamentals.- Probability.- Statistical Theory.- Frequency Distributions.- Central Tendency and Dispersion.- Statistical Distributions.- Hypothesis Testing.- Chi-Square Test.- z-test.- t-test.- F-test.- Correlation.- Linear Regression.- Replication of Results.- Synthesis of Findings.- Glossary.- Appendix.- Author Index.- Subject Index.

#### Fields of interest

Probability and Statistics in Computer Science; Simulation and Modeling; Models and Principles

#### Target groups

Upper undergraduate

#### Product category

Graduate/Advanced undergraduate textbook

Due February 2013

2013. X, 365 p. 70 illus., 20 in color. Hardcover  
 ▶ \*€ (D) 64,15 | € (A) 65,95 | sFr 80,00  
 ▶ € 59,95 | £53.99  
 ISBN 978-1-4614-6226-2



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A. Shabtai, Y. Elovici, Ben-Gurion University, Beer-Sheva, Israel; L. Rokach, Ben-Gurion University, Beer-Sheva, Israel

## A Survey of Data Leakage Detection and Prevention Solutions

SpringerBriefs present concise summaries of cutting-edge research and practical applications across a wide spectrum of fields. Featuring compact volumes of 50 to 100 pages (approximately 20,000- 40,000 words), the series covers a range of content from professional to academic. Briefs allow authors to present their ideas and readers to absorb them with minimal time investment. As part of Springer's eBook collection, SpringBriefs are published to millions of users worldwide. Information/Data Leakage poses a serious threat to companies and organizations, as the number of leakage incidents and the cost they inflict continues to increase. Whether caused by malicious intent, or an inadvertent mistake, data loss can diminish a company's brand, reduce shareholder value, and damage the company's goodwill and reputation. This book aims to provide a structural and comprehensive overview of the practical solutions and current research in the DLP domain.

### Contents

Introduction to Information Security.- Data Leakage.- A Taxonomy of Data Leakage Prevention Solutions.- Data Leakage Detection / Prevention Solutions.- Data Leakage / Misuse Scenarios.- Privacy, Data Anonymization, and Secure Data Publishing.- Case studies.- Future Trends in Data Leakage.- References.

### Fields of interest

Systems and Data Security; Data Structures, Cryptology and Information Theory; Database Management

### Target groups

Professional/practitioner

### Product category

Brief

### Available

2012. VIII, 92 p. 9 illus. (SpringerBriefs in Computer Science) Softcover

► \*€ (D) 42,75 | € (A) 43,95 | sFr 39,50

► € 39,95 | £26.99

ISBN 978-1-4614-2052-1



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H. Skubch, Kassel, Deutschland

## Modelling and Controlling of Behaviour for Autonomous Mobile Robots

As research progresses, it enables multi-robot systems to be used in more and more complex and dynamic scenarios. Hence, the question arises how different modelling and reasoning paradigms can be utilised to describe the intended behaviour of a team and execute it in a robust and adaptive manner. Hendrik Skubch presents a solution, ALICA (A Language for Interactive Cooperative Agents) which combines modelling techniques drawn from different paradigms in an integrative fashion. Hierarchies of finite state machines are used to structure the behaviour of the team such that temporal and causal relationships can be expressed. Utility functions weigh different options against each other and assign agents to different tasks. Finally, non-linear constraint satisfaction and optimisation problems are integrated, allowing for complex cooperative behaviour to be specified in a concise, theoretically well-founded manner.

### Feature

► Publication in the field of technical sciences

### Contents

Task Allocation.- Distributed Constraint Solving.- Multi-Robot Systems.- Cooperation.- Plan Execution.- Behaviour Modelling.

### Field of interest

Artificial Intelligence (incl. Robotics)

### Target groups

Research

### Product category

Monograph

### Due December 2012

2013. XVII, 259 p. 46 illus., 16 in color. Softcover

► \*€ (D) 74,85 | € (A) 76,95 | sFr 93,50

► € 69,95 | £62.99

ISBN 978-3-658-00810-9



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M. Wiertelwski, Northwestern University, Evanston, IL, USA

## Reproduction of Tactual Textures

### Transducers, Mechanics and Signal Encoding

Texture accounts for an important part of the realism of simulated experiences, and it is most certainly true during tactile interaction. We usually experience roughness by running our fingers onto the explored surface. The perception of this fine texture is mediated by the vibrations generated by the encounters of the skin and the asperities of the surfaces. Reproduction of Tactual Textures presents factors that contribute to the mechanics of the interaction between a bare finger and a surface with a view to their artificial reproduction.

### Features

► Introduces a comprehensive review of the sense of touch from the psychophysical, biomechanical and technological viewpoints ► Provides a framework for sensing the fingertip interaction and rendering realistic tactual textures ► Presents guidelines for mechatronics design and the control of high-fidelity vibrotactile devices, and their psychophysical evaluation

### Contents

Foreword.- Introduction.- Literature Review.- Causality Inversion in the Reproduction of Roughness.- The Spatial Spectrum of Tangential Skin Displacement.- Transducer for Mechanical Impedance Testing Over a Wide Frequency Range.- Mechanical Behavior of the Fingertip in Lateral Traction.- Vibrations of a Finger Sliding on Flat and Wavy Surfaces.- Conclusions.

### Fields of interest

User Interfaces and Human Computer Interaction; Mechatronics; Psychology, general

### Target groups

Research

### Product category

Monograph

### Due February 2013

2013. X, 143 p. 52 illus. (Springer Series on Touch and Haptic Systems) Hardcover

► approx. \*€ (D) 90,90 | € (A) 93,45 | sFr 113,50

► approx. € 84,95 | £76.50

ISBN 978-1-4471-4840-1



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## New Series

### Advanced Studies Mobile Research Center Bremen

M. Lawo, C. Görg, H. Otthein (Eds)

Das Mobile Research Center Bremen (MRC) im Technologie-Zentrum Informatik und Informationstechnik (TZI) der Universität Bremen erforscht, entwickelt und erprobt in enger Zusammenarbeit mit der Wirtschaft mobile Informatik-, Informations- und Kommunikationstechnologien. Als Forschungs- und Transferinstitut des Landes Bremen vernetzt und koordiniert das MRC hochschulübergreifend eine Vielzahl von interdisziplinären Arbeitsgruppen, die sich mit der Entwicklung und Anwendung mobiler Lösungen beschäftigen. Die Reihe „Advanced Studies“ präsentiert ausgewählte hervorragende Arbeitsergebnisse aus der Forschungstätigkeit der Mitglieder des MRC. In close collaboration with the industry, the Mobile Research Center Bremen (MRC), a division of the Center for Computing and Communication Technologies (TZI) of the University of Bremen, investigates, develops and tests mobile computing, information and communication technologies. This research cluster of the state of Bremen links and coordinates interdisciplinary research teams from different universities and institutions, which are concerned with the development and application of mobile solutions. The series “Advanced Studies” presents a selection of outstanding results of MRC’s research projects.

Y. Zaki, Bremen, Germany

## Future Mobile Communications

### LTE Optimization and Mobile Network Virtualization

The key to a successful future mobile communication system lies in the design of its radio scheduler. One of the key challenges of the radio scheduler is how to provide the right balance between Quality of Service (QoS) guarantees and the overall system performance. Yasir Zaki proposes innovative solutions for the design of the Long Term Evolution (LTE) radio scheduler and presents several LTE radio scheduler analytical models that can be used as efficient tools for radio dimensioning. The author also introduces a novel wireless network virtualization framework and highlights the potential gains of using this framework for the future network operators. This framework enables the operators to share their resources and reduce their cost, thus achieving a better overall system performance and radio resource utilization.

#### Feature

- Publication in the field of technical sciences

#### Contents

Long Term Evolution (LTE).- LTE Radio Scheduler.- Wireless Network Virtualization.- Continuous Time Markov Chain (CTMC).- Radio Scheduler Analytical Models.- LTE Network Simulator.

#### Field of interest

Information Systems and Communication Service

#### Target groups

Research

#### Product category

Monograph

Due November 2012

2013. XXVI, 173 p. 95 illus. (Advanced Studies Mobile Research Center Bremen, Volume 1) Softcover

► \*€ (D) 74,85 | € (A) 76,95 | sFr 93,50

► € 69,95 | £62.99

ISBN 978-3-658-00807-9



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