Collaborative Web Hosting
Challenges and Research Directions

This brief presents a peer-to-peer (P2P) web-hosting infrastructure (named pWeb) that can transform networked, home-entertainment devices into lightweight collaborating Web servers for persistently storing and serving multimedia and web content. The issues addressed include ensuring content availability, Plexus routing and indexing, naming schemes, web ID, collaborative web search, network architecture and content indexing. In pWeb, user-generated voluminous multimedia content is proactively uploaded to a nearby network location (preferably within the same LAN or at least, within the same ISP) and a structured P2P mechanism ensures Internet accessibility by tracking the original content and its replicas. This new paradigm of information management strives to provide low or no-cost cloud storage and entices the end users to upload voluminous multimedia content to the cloud data centers. However, it leads to difficulties in privacy, network architecture and content availability. Concise and practical, this brief examines the benefits and pitfalls of the pWeb web-hosting infrastructure. It is designed for advanced-level students studying networks or and web management and is also a useful resource for professionals and practitioners working on P2P and web management and is also a useful resource for advanced-level students studying networks or multimedia.

Contents

Fields of interest
Computer Communication Networks; Multimedia Information Systems; Information Systems Applications (incl. Internet)

Target groups
Research

Discount group
Professional Non-Medical

Due January 2014
2014. X, 60 p. 11 illus. (SpringerBriefs in Computer Science) Softcover
► $54.99
ISBN 978-3-319-03806-3

Due December 2013
2013. XI, 213 p. 3 illus. (Lecture Notes in Computer Science / Programming and Software Engineering, Volume 8338) Softcover
► $72.00
ISBN 978-3-642-45209-3

Due January 2014
2014. X, 359 p. 91 illus., 1 in color. (Computer Communications and Networks) Hardcover
► $79.99

K. C. Budka, J. G. Deshpande, M. Thottan, Alcatel-Lucent, Murray Hill, NJ, USA

Communication Networks for Smart Grids
Making Smart Grid Real

This book presents an application-centric approach to the development of smart grid communication architecture.

Features
► Provides communication network architecture and network design principles to support the high performance, reliability, and security requirements of smart grid and power utility applications
► Presents a detailed roadmap for electric power utilities to migrate from existing multiple disparate networks to an integrated network
► Proposes guidelines on planning networks, with special emphasis on wireless broadband networks

Contents

Fields of interest
Computer Communication Networks; Data Encryption; Power Electronics, Electrical Machines and Networks

Target groups
Graduate

Discount group
Professional Non-Medical

J. Barnes, John Barnes Informatics, Reading, UK

Ada 2012 Rationale
The Language -- The Standard Libraries

Ada 2012 is the latest version of the international standard for the programming language Ada. It is designated ISO/IEC 8652:2012 (E) and is a new edition replacing the 2005 version. The primary goals for the new version were to further enhance its capabilities particularly in those areas where its reliability and predictability are of great value. Many important new features have been included such as those defining dynamic contracts and for handling multiprocessors and are integrated within the existing language framework in an elegant and coherent manner. The Ada 2012 Rationale describes not only the changes from Ada 2005 but also the reason for the changes. It starts with an introduction providing a general overview and this is followed by seven chapters focusing on contracts and aspects; extended expressions; structure and visibility; tasking and real time; iterators and pools; predefined library and containers. The book concludes with an epilogue largely concerned with compatibility issues.

Features
► This overview of Ada 2012 programming language describes the important new features in Ada 2012
► Introduces many new features for containers, pre and post conditions added to have facilities for multiprocessors
► Contains a foreword by the president of Ada-Europe

Contents

Fields of interest
Programming Languages, Compilers, Interpreters; Operating Systems; Programming Techniques

Target groups
Research

Discount group
Professional Non-Medical
**Transactions on Large-Scale Data- and Knowledge-Centered Systems XI**

Special Issue on Advanced Data Stream Management and Continuous Query Processing

This, the 11th issue of Transactions on Large-Scale Data- and Knowledge-Centered Systems, contains five selected papers focusing on Advanced Data Stream Management and Processing of Continuous Queries.

**Features**
- Constitutes the 11th issue of the Transactions on Large-Scale Data- and Knowledge-Centered Systems
- Contains five lengthy, in-depth papers covering all aspects of advanced data stream management and continuous query management
- Includes a detailed preface by the guest editors introducing the papers, freely available on SpringerLink

**Contents**

**Fields of interest**
Database Management; Data Mining and Knowledge Discovery

**Target groups**
Research

**Discount group**
Professional Non-Medical

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**Concise Computer Vision**
An Introduction into Theory and Algorithms

This textbook provides an accessible general introduction to the essential topics in computer vision. Classroom-tested programming exercises and review questions are also supplied at the end of each chapter.

**Features**
- Presents an accessible general introduction to the essential topics in computer vision
- Provides classroom-tested programming exercises and review questions at the end of each chapter
- Includes supporting information on historical context, suggestions for further reading and hints on mathematical subjects under discussion

**Contents**

**Fields of interest**
Image Processing and Computer Vision; Computing Methodologies

**Target groups**
Upper undergraduate

**Discount group**
Professional Non-Medical

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**Modeling and Simulation in the Systems Engineering Life Cycle**

There are numerous resources available on modeling and simulation, yet each typically only focuses on a narrow slice of this broad discipline. However, systems engineers need to understand the breadth of technologies, methodologies and uses of modeling and simulation to be effective in their jobs. This book comprehensively covers all of this information, placing it in the context of the systems engineering life cycle. The text is based on the lead author’s extensive experience of teaching in this area, supplemented with detailed contributions from experts in modeling and simulation from both industry and academia.

**Features**
- Describes how systems engineering principles can be used in the development of models and simulations
- Addresses how modeling and simulation is used in each phase of the systems engineering life cycle
- Discusses a wide variety of methodologies, examining the types of problems each method is best suited to address, rather than focusing on one specific methodology

**Field of interest**
Simulation and Modeling

**Target groups**
Research

**Discount group**
Professional Non-Medical
Data-driven Generation of Policies

This Springer Brief presents a basic algorithm that provides a correct solution to finding an optimal state change attempt, as well as an enhanced algorithm that is built on top of the well-known trie data structure. It explores correctness and algorithmic complexity results for both algorithms and experiments comparing their performance on both real-world and synthetic data. Topics addressed include optimal state change attempts, state change effectiveness, different kinds of effect estimators, planning under uncertainty and experimental evaluation. These topics will help researchers analyze tabular data, even if the data contains states (of the world) and events (taken by an agent) whose effects are not well understood. Event DBs are omnipresent in the social sciences and may include diverse scenarios from political events and the state of a country to education-related actions and their effects on a school system. With a wide range of applications in computer science and the social sciences, the information in this Springer Brief is valuable for professionals and researchers dealing with tabular data, artificial intelligence and data mining.

Contents


Fields of interest

Artificial Intelligence (incl. Robotics); Data Mining and Knowledge Discovery; Database Management

Target groups

Research

Discount group

Professional Non-Medical

Due January 2014

2014. VI, 60 p. 15 illus. (SpringerBriefs in Computer Science) Softcover
► $54.99
ISBN 978-1-4939-0273-6

Due February 2014

2014. XXII, 260 p. 59 illus., 44 in color. Hardcover
► $109.00
ISBN 978-3-319-03800-1

Due April 2014

2014. X, 390 p. 100 illus. Softcover
► $45.00


H. Strange, R. Zwiggelaar, Aberystwyth University, UK

Open Problems in Spectral Dimensionality Reduction

The last few years have seen a great increase in the amount of data available to scientists, yet many of the techniques used to analyse this data cannot cope with such large datasets. Therefore, strategies need to be employed as a pre-processing step to reduce the number of objects or measurements whilst retaining important information. Spectral dimensionality reduction is one such tool for the data processing pipeline. Numerous algorithms and improvements have been proposed for the purpose of performing spectral dimensionality reduction, yet there is still no gold standard technique. This book provides a survey and reference aimed at advanced undergraduate and postgraduate students as well as researchers, scientists, and engineers in a wide range of disciplines. Dimensionality reduction has proven useful in a wide range of problem domains and so this book will be applicable to anyone with a solid grounding in statistics and computer science seeking to apply spectral dimensionality to their work.

Features
► Provides a clear and concise overview of spectral dimensionality reduction
► Offers uniquely practical knowledge without requiring a background in the area
► Suggests interesting starting points for future research in this area

Contents

Fields of interest
Artificial Intelligence (incl. Robotics); Data Structures; Algorithm Analysis and Problem Complexity

Target groups
Research

Discount group
Professional Non-Medical

Due February 2014
► $54.99

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Recommender Systems for Location-based Social Networks

Online social networks collect information from users’ social contacts and their daily interactions (co-tagging of photos, co-rating of products etc.) to provide them with recommendations of new products or friends. Lately, technological progressions in mobile devices (i.e. smart phones) enabled the incorporation of geo-location data in the traditional web-based online social networks, bringing the new era of Social and Mobile Web. The goal of this book is to bring together important research in a new family of recommender systems aimed at serving Location-based Social Networks (LBSNs). The chapters introduce a wide variety of recent approaches, from the most basic to the state-of-the-art, for providing recommendations in LBSNs. The book is organized into three parts. Part 1 provides introductory material on recommender systems, online social networks and LBSNs. Part 2 presents a wide variety of recommendation algorithms, ranging from basic to cutting edge, as well as a comparison of the characteristics of these recommender systems.

Contents

Fields of interest
Data Mining and Knowledge Discovery; Artificial Intelligence (incl. Robotics); Information Systems Applications (incl.Internet)

Target groups
Research

Discount group
Professional Non-Medical
D. Vohra, White Rock, BC, Canada

**JRuby Rails Web Application Development**

This SpringerBrief explains how to create a Rails web application with JRuby, a 100% Java implementation for Ruby. This brief demonstrates how Oracle® WebLogic servers and JBoss® application servers deploy the JRuby application, how JRuby runs on the Java® Virtual Machine, and how JRuby is the basis for popular websites including LinkedIn, Oracle Mix, and Mingle. The Oracle® database and Oracle® MySQL database are used as the basis for the JRuby Rails application. Chapters also cover enabling Flash, developing the JRuby application using Ruby syntax, and deploying applications through Java EE WAR. Hands-on and practical, this SpringerBrief is designed for web developers and researchers interested in JRuby. It is also a useful guide for advanced-level students interested in creating a new web application.

**Contents**

- Installing JRuby
- Running a JRuby Script
- Setting the Environment for a JRuby Web Application
- Creating a JRuby Rails Application
- Configuring Databases for a JRuby Web Application
- Creating Scaffolding for a JRuby Rails Application
- Creating Database Tables by Running Migrations
- Pre-compiling CSS and JavaScript Assets
- Enabling Flash
- Packaging the JRuby Application as a Java EE Web Application
- Running the Web Application in Oracle WebLogic Server
- Running the Web Application in JBoss Application Server 7
- Using JDBC Data Source with a JNDI
- Fixing Common Issues in JRuby Web Application Development

**Fields of interest**

- Programming Languages, Compilers, Interpreters
- Information Systems Applications (incl. Internet)
- Programming Techniques

**Target groups**

- Research

**Discount group**

- Professional Non-Medical