



River Publishers

River Publishers Book Catalogue

Series in Computing and Information
Science and Technology

Quantum Computing and Other Transformative Technologies

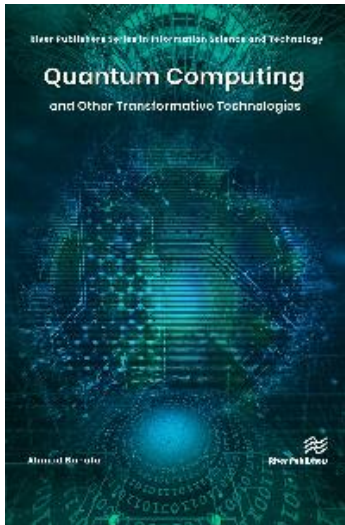
Author: Ahmed Banafa, San Jose State University, USA

ISBN: 9788770226844

e-ISBN: 9788770226837

Available From: September 2022

Price: € 95.00



Description:

This book explores quantum computing as a transformative technology and its applications in communications, cryptography, teleportation, IoT, AI, and blockchain, in addition to the revolutionary concept of quantum internet. It also explains the concept of dark, small, thick data, and clarifies what the concept of a data lake. Other exciting technologies like edge/fog computing, CDN, SDN, wearable technology and IoE topics are discussed in details in the book. Information security applications like zero trust model, zero-day vulnerability and heuristic analysis, and use of AI in cybersecurity are explored. Two of the most intriguing concepts in computing “affective computing” and “autonomic computing” are explained and simplified. The blockchain applications presented include blockchain and supply chain, crowdsourcing, cryptocurrency, and IoT. The book ends with a look at using technology to fight COVID-19 and future pandemics.

Keywords: Quantum Computing, Affective Computing, Fog Computing, Cloud Computing, Big Data, Small Data, Thick Data, Big Data Analytics, AI, Blockchain, Bitcoin, Ethereum, IoT, Internet of Things, Cybersecurity, Network Security, Zero-Trust Model, Deep Learning, Google, Facebook, Quantum Cryptography, Quantum Cryptography, Quantum Internet. Quantum teleportation, Dark Data, Data Lake, Wearable Computing Devices (WCD). Content Delivery Networks “CDNs, Autonomic Computing, Network Functions Virtualization (NFV) and Software-Defined Networking (SDN), The Internet of Everything, Cryptocurrency, COVID-19, Zero-Day Vulnerability and Heuristic Analysis Smart Contracts. Hybrid Cloud Computing, Private Cloud Computing, Hybrid Blockchain, Private Blockchain, Hybrid Blockchain, Superposition, Entanglement, Quantum Communications, VUI, Voice User Interface, Internet of Everything, VR, AR, 5G, Virtual Reality, Augment Reality, IIoT, Industrial Internet of Things, Robots, Crowdsourcing, Supply Chain, WHO, Open Source, Microsoft, Wearable Technology, Smart Devices, Alexa, Siri, R2D2, C3PO, Jarvis, Sci-Fi movies, Wi-Fi, 4G, LTE, IEEE.

Deep Learning for Video Analytics using Digital Twin

Editors:

Vimal Shanmuganathan, Ramco Institute of Technology, India

Seifidine Kadry, Noroff University, Norway

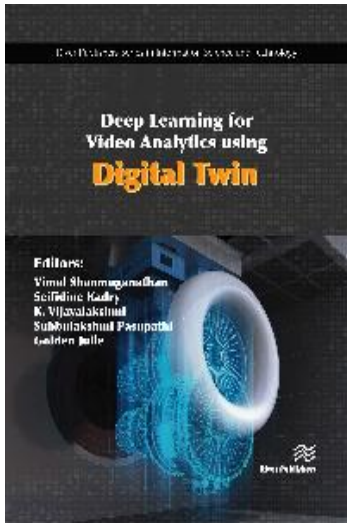
K. Vijayalakshmi, Ramco Institute of Technology, India Subbulakshmi Pasupathi, VIT University, India Golden Julie, Anna University, India

ISBN: 9788770226622

e-ISBN: 9788770226615

Available From: September 2022

Price: € 98.50



Description:

Over the recent years, a considerable amount of effort has been devoted, both in industry and academia on multimedia data handling. There is emerging technology for handling business analytics, using big multi modal data and AI techniques. There has been an expansion of video data used for modern surveillance and personal data captures. The processing of such large amounts of video data is a huge task. Deep learning based video data analytics is a major platform where most researchers focus on big visual data with modern real time applications. Video data is assumed to be needing a large spatial and temporal analysis which can be addressed easily with Deep Learning to provide the clear pixel level labels with AI based Deep video data analytics approaches. Also, Deep Learning is a useful approach to solve supervised and unsupervised learning problems and to address various issues arising due to GPU clusters.

This volume provides a forum for researchers, especially those with an interest in efficiency, to examine challenging research questions, showcase state-of-the-art, and share breakthroughs in Multimedia Data Handling using Digital Twin technology.

Technical topics discussed in the book include:

- Learning data representation from video based on supervised/unsupervised/semi-supervised learning
- Deep Learning on multi-modal social media disadvantages
- Data mining on big multi-modal social media networks using distributed analysis
- Social behavior modelling, understanding, and pattern mining with deep models using Digital Twin
- IoT based Video Analytics using Cloud based AI using distributed analysis
- Web video understanding using deep learning techniques, including classification, annotation, event detection and recognition, authoring and editing using Cloud based AI
- Video highlights, summary and storyboard generation using Cloud based AI using distributed analysis
- Digital Twin based Segmentation and tracking using Cloud based AI using distributed analysis
- Data collections, benchmarking, and performance evaluation with Cloud based AI using distributed analysis
- Human behavior analysis in real-time surveillance video surveillance using Cloud based AI

Keywords: Deep Video Analytics, Big Multimedia data ,High performance Computing, Cloud security

River Publishers Series in Computing and Information Science and Technology

IoT, Machine learning and Blockchain Technologies for Renewable Energy and Modern Hybrid Power Systems

Editors:

C. Sharmeela, Anna University, India

P. Sanjeevikumar, Aarhus University, Denmark

P. Sivaraman, Vestas Technology R&D Chennai Pvt. Ltd, India

Meera Joseph, Independent Institute of Education, South Africa

ISBN: 9788770227247

e-ISBN: 9788770227117

Available From: August 2022

Price: € 108.50



Description:

This edited book comprises chapters that describe the IoT, machine learning, and blockchain technologies for renewable energy and modern hybrid power systems with simulation examples and case studies.

After reading this book, users will understand recent technologies such as IoT, machine learning techniques, and blockchain technologies and the application of these technologies to renewable energy resources and modern hybrid power systems through simulation examples and case studies.

Keywords: Renewable energy, power systems, solar PV, wind energy conversion system, IoT, power quality, low voltage, IoT for renewable energy, smart distribution system, distribution transformer, machine learning techniques, machine learning techniques for renewable energy, hybrid power systems, capacitor banks, PSO, optimization techniques, blockchain technologies, blockchain for renewable energy, SHA

River Publishers Series in Computing and Information Science and Technology

Smart Urban Computing Applications

Editors:

M.A. Jabbar, Vardhaman College of Engineering, India

Sanju Tiwari, Universidad Autonoma de Tamaulipas, Mexico

Fernando Ortiz-Rodriguez, Tamaulipas Autonomous University Ciudad Victoria, Mexico

ISBN: 9788770227490

e-ISBN: 9788770227483

Available From: July 2022

Price: € 98.50



Description:

This edited book is a collection of quality research articles reporting research advances in the area of deep learning, IoT and urban computing. It describes new insights based on deep learning and IoT for urban computing and is useful for architects, engineers, policymakers, facility managers, academicians, and researchers who are interested in expanding their knowledge of the applications of deep learning trends involving urban computing.

Keywords: Smart City, Urban computing, Autonomous Driving, Self-sustainable Homes, Smart Living

River Publishers Series in Computing and Information Science and Technology

Artificial Intelligence, Blockchain and IoT for Smart Healthcare

Authors:

Hitesh Kumar Sharma, University of Petroleum and Energy Studies, India

Anuj Kumar, University of Petroleum and Energy Studies, India

Sangeeta Pant, University of Petroleum and Energy Studies, India

Mangey Ram, Graphic Era Deemed to be University, India

ISBN: 9788770227575

e-ISBN: 9788770227568

Price: £ 0.00 | \$ 0.00

Distributed exclusively by Routledge



Description:

The concepts of telemedicine and e-healthcare have eased as well as improved the reachability of experienced doctors and medical staff to remote patients. A patient who is living in a remote village area can directly connect to specialist doctors across the globe through his/her mobile phone using telemedicine systems and e-healthcare services.

In pandemic situations like COVID-19, these online platforms helped society to get medical treatment from their residence without any physical movement. Technology is transforming human lives by playing an important role in the planning, designing, and development of intelligent systems for better service.

This book presents a cross-disciplinary perspective on the concept of machine learning, blockchain and IoT by congregating cutting-edge research and insights. It also identifies and discusses various advanced technologies such as internet of things (IoT), big data analytics, machine learning, artificial intelligence, cyber security, cloud computing, sensors and so on that are vital to foster the development of smart healthcare and telemedicine systems by providing effective solutions to the medical challenges faced by humankind.

Keywords: Artificial intelligence, internet of things (IoT), blockchain, smart healthcare, e-hospital, telemedicine, electronic healthcare record (EHR), cloud computing.

Eye Tracking and Visual Analytics

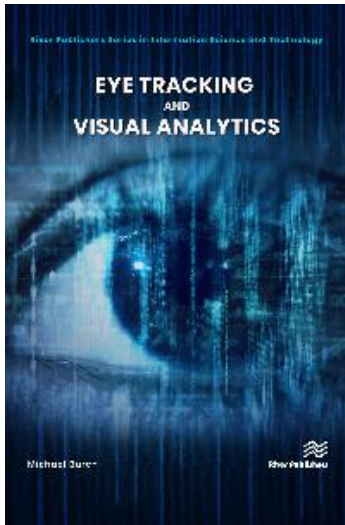
Author: Michael Burch, University of Applied Sciences, Switzerland

ISBN: 9788770224338

e-ISBN: 9788770224321

Available From: December 2021

Price: € 98.50



Description:

Visualization and visual analytics are powerful concepts for exploring data from various application domains. The endless number of possible parameters and the many ways to combine visual variables as well as algorithms and interaction techniques create lots of possibilities for building such techniques and tools.

The major goal of those tools is to include the human users with their tasks at hand, their hypotheses, and research questions to provide ways to find solutions to their problems or at least to hint them in a certain direction to come closer to a problem solution. However, due to the sheer number of design variations, it is unclear which technique is suitable for those tasks at hand, requiring some kind of user evaluation to figure out how the human users perform while solving their tasks.

The technology of eye tracking has existed for a long time; however, it has only recently been applied to visualization and visual analytics as a means to provide insights to the users' visual attention behavior. This generates another kind of dataset that has a spatio-temporal nature and hence demands for advanced data science and visual analytics concepts to find insights into the recorded eye movement data, either as a post process or even in real-time.

This book describes aspects from the interdisciplinary field of visual analytics, but also discusses more general approaches from the field of visualization as well as algorithms and data handling. A major part of the book covers research on those aspects under the light and perspective of eye tracking, building synergy effects between both fields - eye tracking and visual analytics - in both directions, i.e. eye tracking applied to visual analytics and visual analytics applied to eye tracking data.

Technical topics discussed in the book include:

- Visualization;
- Visual Analytics;
- User Evaluation;
- Eye Tracking;
- Eye Tracking Data Analytics;

Eye Tracking and Visual Analytics includes more than 500 references from the fields of visualization, visual analytics, user evaluation, eye tracking, and data science, all fields which have their roots in computer science.

Eye Tracking and Visual Analytics is written for researchers in both academia and industry, particularly newcomers starting their PhD, but also for PostDocs and professionals with a longer research history in one or more of the covered research fields. Moreover, it can be used to get an overview about one or more of the involved fields and to understand the interface and synergy effects between all of those fields. The book might even be used for teaching lectures in the fields of information visualization, visual analytics, and/or eye tracking.

Keywords: Visualization, visual analytics, user evaluation, usability, eye tracking, visual attention, data analytics, human-computer interaction

Denmark Head Office
Alsbjergvej 10
9260 Gistrup
Denmark
www.riverpublishers.com
Email: info@riverpublishers.com

USA Office
Indianapolis, IN
USA
Tel.: +1-3176899634
Email: rajeev.prasad@riverpublishers.com

UK Office
River Publishers
Email: philippa.jefferies@riverpublishers.com

Game-playing for active ageing and healthy lifestyles

Author: Ana Isabel Veloso, University of Aveiro - DigiMedia, Portugal

Liliana Vale Costa, University of Aveiro - DigiMedia, Portugal

ISBN: 9788770224376

e-ISBN: 9788770224369

Available From: October 2021

Price: € 95.00



Description:

Given the increase in the ageing population and the evolution of the Human-Computer Interaction field to a much more humanistic approach, debate is ongoing about designing technology-enabled products for active ageing and healthy lifestyles. Indeed, the mainstream game industry has been challenged with the emergence of an older target group, the advancements in gamification and the proliferation of SMART devices.

Previous experience in the field has revealed that for many older adult gamers, games had a therapeutic effect through them being both cognitively challenged and rewarded. However it has also revealed that the gaming industry was not fulfilling their other motivations and accessibility needs.

Furthermore, research to date has focused on the physical and cognitive effects of video games in the aging process. Up to now, the use of other active ageing dimensions that go beyond the health domains (i.e. sense of security, and participation in society) in games addressed to this target group remain unexplored.

Topics discussed in the book include:

- Development of products for the Silver Market;
- The older adult consumer and the advertisement industry;
- Differences between informational literacy and digital inclusion;
- Lifestyle-monitoring technologies and technological determinism;
- Positive computing and behavioral design;
- Game Design and Active Ageing;
- Application of games in rehabilitation;
- Gamification, Senior Tourism and the wellness market;
- Techniques used for assessing games for active ageing

This book differs from current books on the market by focusing on games and the main implications to design for active ageing in terms of the market perspective, the information and communication society, behavioral design, mobility, urban and city planning, accessibility and assessment. The information presented in this book not only relies on case studies but also on the authors' previous experience in co-designing digitally-mediated products with both adult learners at the Universities of the Third Age and older adults at retirement homes.

Keywords: Games, Active Ageing, Gamification, Wellbeing, Senior Tourism, Informational Literacy, Wellness Market, game design

Developing an Enterprise Continuity Program

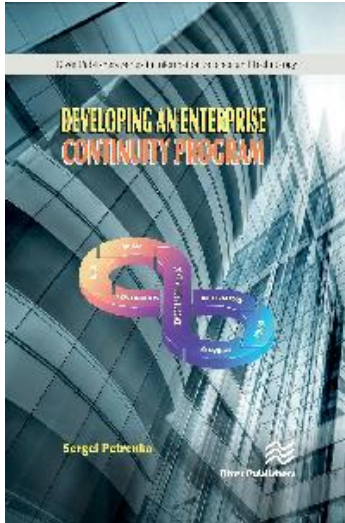
Author: Sergei Petrenko, Innopolis University, Russia

ISBN: 9788770223973

e-ISBN: 9788770223966

Available From: July 2021

Price: € 110.00



Description:

The book discusses the activities involved in developing an Enterprise Continuity Program (ECP) that will cover both Business Continuity Management (BCM) as well as Disaster Recovery Management (DRM).

The creation of quantitative metrics for BCM are discussed as well as several models and methods that correspond to the goals and objectives of the International Standards Organisation (ISO) Technical Committee ISO/TC 292 "Security and resilience". Significantly, the book contains the results of not only qualitative, but also quantitative, measures of Cyber Resilience which for the first time regulates organizations' activities on protecting their critical information infrastructure.

The book discusses the recommendations of the ISO 22301: 2019 standard "Security and resilience" Business continuity management systems "Requirements" for improving the BCM of organizations based on the well-known "Plan-Do-Check-Act" (PDCA) model. It also discusses the recommendations of the following ISO management systems standards that are widely used to support BCM. The ISO 9001 standard "Quality Management Systems"; ISO 14001 "Environmental Management Systems"; ISO 31000 "Risk Management", ISO/IEC 20000-1 "Information Technology - Service Management", ISO/IEC 27001 "Information Management security systems", ISO 28000 "Specification for security management systems for the supply chain", ASIS ORM.1-2017, NIST SP800-34, NFPA 1600: 2019, COBIT 2019, RESILIA, ITIL V4 and MOF 4.0, etc.

The book expands on the best practices of the British Business Continuity Institute's Good Practice Guidelines (2018 Edition), along with guidance from the Disaster Recovery Institute's Professional Practices for Business Continuity Management (2017 Edition). Possible methods of conducting ECP projects in the field of BCM are considered in detail. Based on the practical experience of the author there are examples of Risk Assessment (RA) and Business Impact Analysis (BIA), examples of Business Continuity Plans (BCP) & Disaster Recovery Plans (DRP) and relevant BCP & DRP testing plans.

This book will be useful to Chief Information Security Officers, internal and external Certified Information Systems Auditors, senior managers within companies who are responsible for ensuring business continuity and cyber stability, as well as teachers and students of MBA's, CIO and CSO programs.

Keywords: Business Continuity ; Management systems ; Disaster Recovery Management ; Cybersecurity Plans; Critical Infrastructure Planning

River Publishers Series in Computing and Information Science and Technology

Applications of Machine Learning in Big-Data Analytics and Cloud Computing

Editors:

Subhendu Kumar Pani, Principal, Krupajal Computer Academy, India

Somanath Tripathy, Indian Institute of Technology, India

George Jandieri, Georgian Technical University, Russia

Sumit kundu, National Institute of Technology Durgapur, India

Talal Ashraf Butt, The American University in the Emirates, UAE

ISBN: 9788770221825

e-ISBN: 9788770221818

Available From: June 2021

Price: € 95.00



Description:

Cloud Computing and Big Data technologies have become the new descriptors of the digital age. The global amount of digital data has increased more than nine times in volume in just five years and by 2030 its volume may reach a staggering 65 trillion gigabytes. This explosion of data has led to opportunities and transformation in various areas such as healthcare, enterprises, industrial manufacturing and transportation. New Cloud Computing and Big Data tools endow researchers and analysts with novel techniques and opportunities to collect, manage and analyze the vast quantities of data. In Cloud and Big Data Analytics, the two areas of Swarm Intelligence and Deep Learning are a developing type of Machine Learning techniques that show enormous potential for solving complex business problems. Deep Learning enables computers to analyze large quantities of unstructured and binary data and to deduce relationships without requiring specific models or programming instructions. This book introduces the state-of-the-art trends and advances in the use of Machine Learning in Cloud and Big Data Analytics. The book will serve as a reference for Data Scientists, systems architects, developers, new researchers and graduate level students in Computer and Data science. The book will describe the concepts necessary to understand current Machine Learning issues, challenges and possible solutions as well as upcoming trends in Big Data Analytics.

Keywords: Big Data sources, Performance Modelling and Analysis, Clouds and Clusters, Programming Systems, Supply Chain in the Cloud, Machine Learning ; Deep Learning ; Swarm Intelligence ; Bayesian methods : Data Clusters ; Resource scheduling ; Hybrid Clouds ; Blockchain ; Fog computing

Digital Innovation and the Future of Work

Editors:

Hans Schaffers, Adventure Research, The Netherlands

Matti Vartiainen, Aalto University, Finland

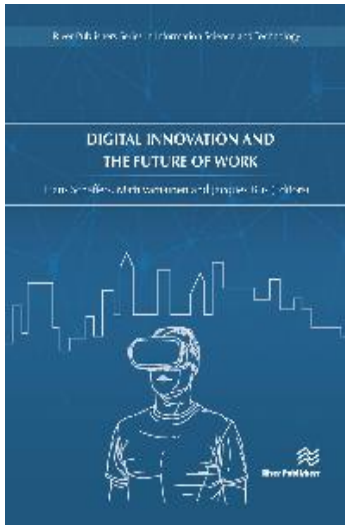
Jacques Bus, Digital Enlightenment Forum, The Netherlands

ISBN: 9788770222204

e-ISBN: 9788770222198

Available From: December 2020

Price: € 95.00



Description:

The concept of digitalization captures the widespread adoption of digital technologies in our lives, in the structure and functioning of organizations and in the transformation of our economy and society. Digital technologies for data processing and communication underly high-impact innovations including the Internet of Things, wireless multimedia, artificial intelligence, big data, enterprise platforms, social networks and blockchain. These digital innovations not only bring new opportunities for prosperity and wellbeing but also affect our behaviors, activities, and daily lives. They enable and shape new forms of production and new working practices in sectors such as manufacturing, healthcare, logistics and supply chains, energy, and public and business services. Digital innovations are not purely technological but form part of comprehensive systemic innovations of a sociotechnical and networked nature, requiring the alignment of technology, processes, organizations, and humans. Examples are platform-based work, customer driven value creating networks, and urban public service systems. Building on widespread networking, algorithmic decisions and sharing of personal data, these innovations raise intensive societal and ethical debates regarding key issues such as data sovereignty and privacy intrusion, business models based on data surveillance and negative externalization, quality of work and jobs, and market dominance versus regulation. In this context, this book focuses on the implications of digitalization for the domain of work. The book studies the changing nature of work as well as new forms of digitally enabled organizations, work practices and cooperation. The book sheds light on the technological, economic, and political forces shaping the new world of work and on the prospects for human-centric and responsible innovations. To this end, the book brings together a number of studies in five major topics: 1. The evolution of digital technology impacting ways of working; 2. The role of artificial intelligence in new ways of working; 3. Transformation of work, jobs and employment; 4. Digitalization and need for skills and competencies; and 5. New forms of decentralized working and cooperation.

Keywords: Digitalization, Digital innovation, Future of Work, Ethics; Workplace innovation, Employment, Game-changing Technologies, Artificial Intelligence, Platform Work; Open Innovation

Artificial Intelligence in Wireless Robotics

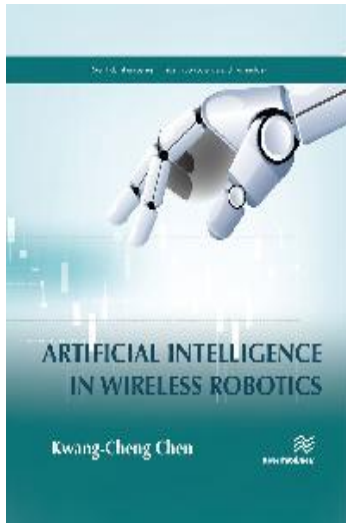
Author: Kwang-Cheng Chen, University of South Florida, USA

ISBN: 9788770221184

e-ISBN: 9788770221177

Available From: October 2020

Price: € 95.00



Description:

Robots, autonomous vehicles, unmanned aerial vehicles, and smart factory, will significantly change human living style in digital society. Artificial Intelligence in Wireless Robotics introduces how wireless communications and networking technology enhances facilitation of artificial intelligence in robotics, which bridges basic multi-disciplinary knowledge among artificial intelligence, wireless communications, computing, and control in robotics. A unique aspect of the book is to introduce applying communication and signal processing techniques to enhance traditional artificial intelligence in robotics and multi-agent systems.

The technical contents of this book include fundamental knowledge in robotics, cyber-physical systems, artificial intelligence, statistical decision and Markov decision process, reinforcement learning, state estimation, localization, computer vision and multi-modal data fusion, robot planning, multi-agent systems, networked multi-agent systems, security and robustness of networked robots, and ultra-reliable and low-latency machine-to-machine networking. Examples and exercises are provided for easy and effective comprehension.

Engineers wishing to extend knowledge in the robotics, AI, and wireless communications, would be benefited from this book. In the meantime, the book is ready as a textbook for senior undergraduate students or first-year graduate students in electrical engineering, computer engineering, computer science, and general engineering students. The readers of this book shall have basic knowledge in undergraduate probability and linear algebra, and basic programming capability, in order to enjoy deep reading.

Keywords: Wireless robotics, robotic communication, reinforcement learning, artificial intelligence, multi-agent system, machine-to-machine communication

Big Data Concepts, Warehousing, and Analytics

Authors:

Maribel Yasmina Santos, University of Minho, Portugal

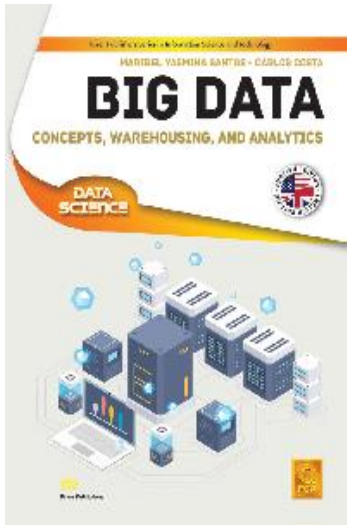
Carlos Costa, University of Minho, Portugal

ISBN: 9788770221849

e-ISBN: 9788770221832

Available From: March 2020

Price: € 95.00



Description:

Big Data is a concept of major relevance in today's world, sometimes highlighted as a key asset for productivity growth, innovation, and customer relationship, whose popularity has increased considerably during the last years. Areas like smart cities, manufacturing, retail, finance, software development, environment, digital media, among others, can benefit from the collection, storage, processing, and analysis of Big Data, leveraging unprecedented data-driven workflows and considerably improved decision-making processes.

The concept of a Big Data Warehouse (BDW) is emerging as either an augmentation or a replacement of the traditional Data Warehouse (DW), a concept that has a long history as one of the most valuable enterprise data assets. Nevertheless, research in Big Data Warehousing is still in its infancy, lacking an integrated and validated approach for designing and implementing both the logical layer (data models, data flows, and interoperability between components) and the physical layer (technological infrastructure) of these complex systems.

This book addresses models and methods for designing and implementing Big Data Systems to support mixed and complex decision processes, giving special attention to BDWs as a way of efficiently storing and processing batch or streaming data for structured or semi-structured analytical problems.

Keywords: Big Data; Big Data Warehouse; Analytics; BDWing; DWing; OLTP; Logical architectures; Technological infrastructures; Data modelling method; Data models; Analytical applications

River Publishers Series in Computing and Information Science and Technology

Getting Started for Internet of Things with Launch Pad and ESP8266

Authors:

Rajesh Singh, Lovely Professional University, India
Anita Gehlot, Lovely Professional University, India
Lovi Raj Gupta, Lovely Professional University, India
Bhupendra Singh, Schematics Microelectronics, India
Priyanka Tyagi, Zapptitude Inc., USA

ISBN: 9788770220682

e-ISBN: 9788770220675

Available From: March 2019

Price: € 95.00



Description:

Getting Started for Internet of Things with Launch Pad and ESP8266 provides a platform to get started with the Ti launch pad and IoT modules for Internet of Things applications. The book provides the basic knowledge of Ti launch Pad and ESP8266 based customized modules with their interfacing, along with the programming.

The book discusses the application of Internet of Things in different areas. Several examples for rapid prototyping are included, this to make the readers understand the concept of IoT.

The book comprises of twenty-seven chapters, which are divided into four sections and which focus on the design of various independent prototypes. Section-A gives a brief introduction to Ti launch pad (MSP430) and Internet of Things platforms like GPRS, NodeMCU and NuttyFi (ESP8266 customized board), and it shows steps to program these boards. Examples on how to interface these boards with display units, analog sensors, digital sensors and actuators are also included, this to make reader comfortable with the platforms. Section-B discusses the communication modes to relay the data like serial out, PWM and I2C. Section-C explores the IoT data loggers and shows certain steps to design and interact with the servers. Section-D includes few IoT based case studies in various fields.

This book is based on the practical experience of the authors while undergoing projects with students and partners from various industries.

Keywords: Internet of Things, ESP8266, NodeMCU, NuttyFi, Analog sensor, Digital sensor, IoT applications

River Publishers Series in Computing and Information Science and Technology

Dependable IoT for Human and Industry **Modeling, Architecting, Implementation**

Editors:

Vyacheslav Kharchenko, National Aerospace University KhAI, Ukraine

Ah Lian Kor, Leeds Beckett University, UK

Andrzej Rucinski, University of New Hampshire, USA

ISBN: 9788770220149

e-ISBN: 9788770220132

Available From: December 2018

Price: € 95.00



Description:

There are numerous publications which introduce and discuss the Internet of Things (IoT). In the midst of these, this work has several unique characteristics which should change the reader's perspective, and in particular, provide a more profound understanding of the impact of the IoT on society.

Dependable IoT for Human and Industry covers the main aspects of Internet of Things and IoT based systems such as global issues of applications, modeling, development and implementation of dependable IoT for different human and industry domains.

Technical topics discussed in the book include:

- Introduction in Internet of vital and trust Things
- Modelling and assessment techniques for dependable and secure IoT systems
- Architecting and development of IoT systems
- Implementation of IoT for smart cities and drone fleets; business and blockchain, transport and industry
- Training courses and education experience on Internet and Web of Thing

The book contains chapters which have their roots in the International Conference IDAACS 2017, and Workshop on Cyber Physical Systems and IoT Dependability CyberIoT-DESSERT 2017.

Keywords: Internet and web of Things; dependable and secure IoT systems development; simulation and Markovian chains, Fault/Attack Tree Analysis, Queueing Theory based modelling of IoT systems; IoT for smart cities and transport, block chain drone fleets, business, industry; training courses and education experience on IoT

River Publishers Series in Computing and Information Science and Technology

Secure and Smart Internet of Things (IoT) Using Blockchain and AI

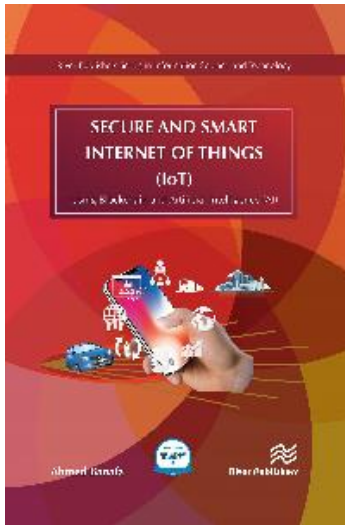
Author: Ahmed Banafa, San Jose State University, USA and Instructor at Stanford University, USA

ISBN: 9788770220309

e-ISBN: 9788770220293

Available From: November 2018

Price: € 90.00



Description:

By 2020, experts forecast that up to 28 billion devices will be connected to the Internet with only one third of them being computers, smartphones and tablets. The remaining two thirds will be other "devices" - sensors, terminals, household appliances, thermostats, televisions, automobiles, production machinery, urban infrastructure and many other "things" - which traditionally have not been Internet enabled.

This "Internet of Things" (IoT) represents a remarkable transformation of the way in which our world will soon interact. Much like the World Wide Web connected computers to networks, and the next evolution connected people to the Internet and other people, IoT looks poised to interconnect devices, people, environments, virtual objects and machines in ways that only science fiction writers could have imagined. In a nutshell the Internet of Things (IoT) is the convergence of connecting people, things, data and processes is transforming our life, business and everything in between. Secure and Smart Internet of Things explores many aspects of the Internet of Things and explain many of the completed principles of IoT and the new advances in IoT including using Fog Computing , AI and Blockchain technology.

The topics discussed in the book include:

- Internet of Things (IoT)
- Industrial Internet of Things (IIoT)
- Fog Computing
- Artificial Intelligence
- Blockchain Technology
- Network Security
- Zero-Trust Model
- Data Analytics
- Digital Transformation
- DDoS
- Smart Devices
- Cybersecurity

Keywords: Internet of Things (IoT), DDoS, Fog Computing, Artificial Intelligence (AI), Digital Transformation, Data Analysis, Privacy, Standardization, Blockchain, Bitcoin, Industrial Internet of Things (IIoT), Security, Networks, Communications, Telecommunications, M2M, Machine Learning, Smart Devices, Smart Cities, Smart Cars, Zero-Trust Model, Cybersecurity

Computer Systems for Healthcare and Medicine

Editors:

Piotr Bilski, Warsaw University of Technology, Poland

Francesca Guerriero, University of Calabria, Italy

ISBN: 9788793519312

e-ISBN: 9788793519305

Available From: March 2017

Price: € 75.00



Description:

The development of modern civilization leads to us having to solve new problems which did not exist before. The contemporary world faces a great challenge of aging societies, where the increasing number of citizens requires constant medical attention. To ensure safety and wellbeing of elderly people, patients in hospitals and disabled persons, advanced technologies can be implemented. These include both sophisticated data acquisition systems and data processing algorithms, aiming at the constant and discreet monitoring of persons whilst raising alarm if immediate attention is required.

Computer Systems for Healthcare and Medicine presents a novel look at the introduced problems, including proposed solutions in the form of automated data acquisition and processing systems, which were tested in various environments. Characteristic features include a wide range of sensors used to monitor the situation of the person, and accurate decision making algorithms, often based on the computational intelligence domain.

Technical topics discussed in the book include application for the healthcare of the following:

- Infrared sensors
- MEMS
- Ultra wideband radars
- Deep learning
- Decision trees
- Artificial neural networks
- Gabor filters
- Decision support systems

Keywords: Infrared sensors, radars, machine learning, artificial neural networks, decision trees, wireless monitoring, ultra wideband radar, deep learning, Gabor filters

Web Mining: A Synergic Approach Resorting to Classifications and Clustering

Authors:

V.S. Kumbhar, Shivaji University, Kolhapur, India

K.S. Oza, Shivaji University, Kolhapur, India

R.K. Kamat, Shivaji University, Kolhapur, India

ISBN: 9788793379831

e-ISBN: 9788793379848

Available From: November 2016

Price: € 75.00



Description:

Web mining is the application of data mining strategies to excerpt learning from web information, i.e. web content, web structure, and web usage data. With the emergence of the web as the predominant and converging platform for communication, business and scholastic information dissemination, especially in the last five years, there are ever increasing research groups working on different aspects of web mining mainly in three directions. These are: mining of web content, web structure and web usage. In this context there are good number of frameworks and benchmarks related to the metrics of the websites which is certainly weighty for B2B, B2C and in general in any e-commerce paradigm. Owing to the popularity of this topic there are few books in the market, dealing more on such performance metrics and other related issues. This book, however, omits all such routine topics and lays more emphasis on the classification and clustering aspects of the websites in order to come out with the true perception of the websites in light of its usability.

In nutshell, *Web Mining: A Synergic Approach Resorting to Classifications and Clustering* showcases an effective methodology for classification and clustering of web sites from their usability point of view. While the clustering and classification is accomplished by using an open source tool WEKA, the basic dataset for the selected websites has been emanated by using a free tool site-analyzer. As a case study, several commercial websites have been analyzed. The dataset preparation using site-analyzer and classification through WEKA by embedding different algorithms is one of the unique selling points of this book. This text projects a complete spectrum of web mining from its very inception through data mining and takes the reader up to the application level.

Salient features of the book include:

- Literature review of research work in the area of web mining
- Business websites domain researched, and data collected using site-analyzer tool
- Accessibility, design, text, multimedia, and networking are assessed
- Datasets are filtered further by selecting vital attributes which are Search Engine Optimized for processing using the Weka attributed tool
- Dataset with labels have been classified using J48, RBFNetwork, NaïveBayes, and SMO techniques using Weka
- A comparative analysis of all classifiers is reported
- Commercial applications for improving website performance based on SEO is given

Keywords: Web Mining, Weka, Clustering, Classification, J48 algorithm, RBFNetwork, NaïveBayes, and SMO techniques

Acceleration of Biomedical Image Processing with Dataflow on FPGAs

Authors:

Frederik Grüll, Goethe University Frankfurt, Germany

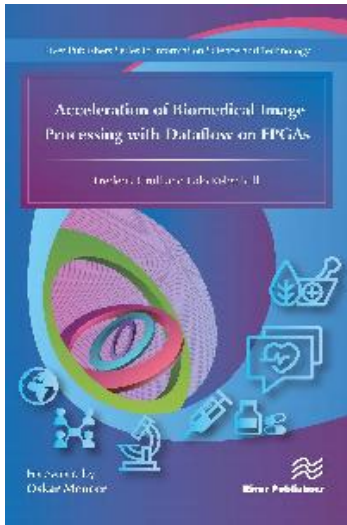
Udo Kebschull, Goethe University Frankfurt, Germany

ISBN: 9788793379367

e-ISBN: 9788793379350

Available From: June 2016

Price: € 65.00



Description:

Short compute times are crucial for timely diagnostics in biomedical applications, but lead to a high demand in computing for new and improved imaging techniques. In this book reconfigurable computing with FPGAs is discussed as an alternative to multi-core processing and graphics card accelerators. Instead of adjusting the application to the hardware, FPGAs allow the hardware to also be adjusted to the problem.

Acceleration of Biomedical Image Processing with Dataflow on FPGAs covers the transformation of image processing algorithms towards a system of deep pipelines that can be executed with very high parallelism. The transformation process is discussed from initial design decisions to working implementations. Two example applications from stochastic localization microscopy and electron tomography illustrate the approach further.

Topics discussed in the book include:

- Reconfigurable hardware
- Dataflow computing
- Image processing
- Application acceleration

Keywords: FPGAs, reconfigurable hardware, dataflow computing, image processing, high-performance computing

Educational Data Mining with R and Rattle

Authors:

R.S. Kamath, Chhatrapati Shahu Institute of Business Education and Research, Kolhapur, India

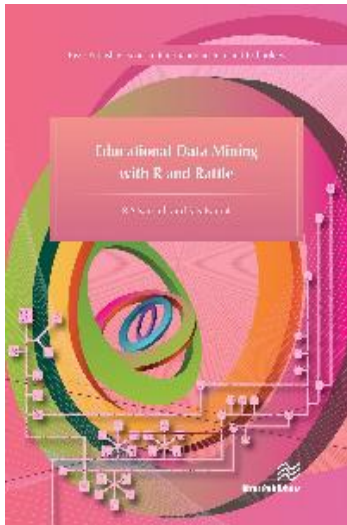
R.K. Kamat, Shivaji University, Kolhapur, India

ISBN: 9788793379312

e-ISBN: 9788793379305

Available From: March 2016

Price: € 65.00



Description:

Educational Data Mining (EDM) is one of the emerging fields in the pedagogy and andragogy paradigm, it concerns the techniques which research data coming from the educational domain. EDM is a promising discipline which has an imperative impact on predicting students' academic performance. It includes the transformation of existing, and the innovation of new approaches derived from multidisciplinary spheres of influence such as statistics, machine learning, psychometrics, scientific computing etc.

An archetype that is covered in this book is that of learning by example. The intention is that reader will easily be able to replicate the given examples and then adapt them to suit their own needs of teaching-learning. The content of the book is based on the research work undertaken by the authors on the theme "Mining of Educational Data for the Analysis and Prediction of Students' Academic Performance". The basic know-how presented in this book can be treated as guide for educational data mining implementation using R and Rattle open source data mining tools. .

Technical topics discussed in the book include:

- Emerging Research Directions in Educational Data Mining
- Design Aspects and Developmental Framework of the System
- Model Development - Building Classifiers
- Educational Data Analysis: Clustering Approach

Keywords: Educational Data Mining, R Systems, Rattle, EDM Process, Data Exploration, Descriptive and Predictive Analytics, Classifiers, Clustering, Decision Tree, Artificial Neural Network, Naïve Bayes Classifier, K-Means, Hierarchical Clustering, Student Segmentation

River Publishers Series in Computing and Information Science and Technology

'C' Programming in an Open Source Paradigm

Authors:

K.S. Oza, Shivaji University, Kolhapur, India

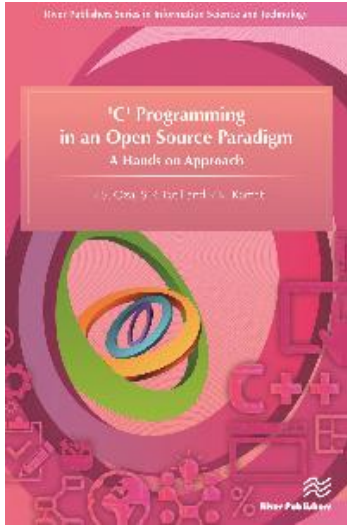
S.R Patil, Shivaji University, Kolhapur, India

R.K. Kamat, Shivaji University, Kolhapur, India

ISBN: 9788793237674

Available From: September 2015

Price: € 65.00



Description:

Over the period of last few decades, the 'C' language has become an icon for computer programmers. The field of computer science has undergone tremendous change, and the rate of obsolescence of concepts, programming platforms, tools and utilities is extremely high. However, in spite of such vast changes, the only thing that has retained its stability is the 'C' language. Even today, millions of students, hobbyists and professional programmers enjoy the sturdiness, reliability and user friendliness of the 'C' language. Today 'C' enjoys the undisputable recognition in the computing paradigm for diversified applications, from the basic programming, microcontrollers, and spreadsheets to system programming.

In this book, most of the usual theoretical features have been skipped, for these have been widely published in previous books. Rather than introducing the underpinning theory, the authors approach has been "learning-through-doing", which is one that often appeals to programmers. Theory is followed by practical implementation, and in this way the book will cover programming aspects in a self-tutor manner providing an excellent overview, from basic to advance programming.

Topics discussed include:

- GCC interface
- First time 'C' User
- Decision and looping structures
- Arrays and pointers
- Functions, structures and union
- Linear data structures

Keywords: GCC, Linux, Makefile, data types, decision statements, Loop structures, Array, Pointers, Functions, Structures, Union, Dynamic memory, Data structures, Stack, Queue, Linked List

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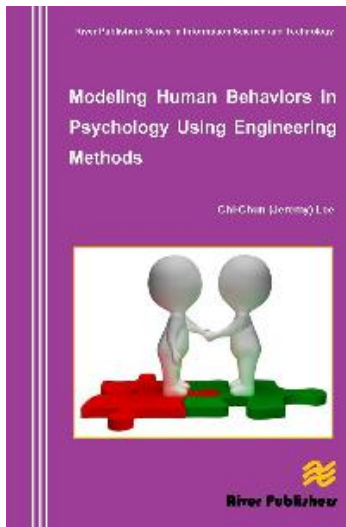
Modeling Human Behaviors in Psychology Using Engineering Methods

Author: Chi-Chun (Jeremy) Lee, University of Southern California, USA

ISBN: 9788793102606

Available From: June 2014

Price: € 90.00



Description:

The main purpose of the work is to showcase the interdisciplinary engineering approaches in modeling and understanding human behaviors during interpersonal interactions those that could be typical, distressed, or atypical. The ability to measure human behaviors quantitatively has been a core component and a major research direction in both fields of engineering and psychology – though often with distinct approaches designed for different targeted applications.

Engineering methods often strive to achieve high predictive accuracies using behavioral informatics techniques; these techniques employ a combination of behavior measures derived using automated signal based descriptors, and of statistical frameworks modeled using machine learning techniques. These approaches are often distinct from the observational approaches the gold standard for the past three decades in the study of psychology, even in clinical settings. The observational approaches are largely based on human subjective judgments.

Modeling Human Behaviors in Psychology Using Engineering Methods will first provide an introduction on some of the ingredients of such engineering approaches (what is needed) and the rationale and impact of such interdisciplinary effort (why is it necessary); then, it will discuss sample research works in affective computing, e.g., automated emotion recognition, and in mental health, e.g., assessing distressed behaviors in couples therapy sessions; finally, it will conclude with a roadmap for many possible future research endeavor for creating enduring and highly positive impact on humans' mental health and wellbeing

Keywords: Behavioral Signal Processing, Behavior Informatics, Affective Computing, Couple Therapy, Dyadic Interactions, Speech Processing

Advanced Data Acquisition and Intelligent Data Processing

Applications In Monitoring, Measuring and Diagnostics Systems

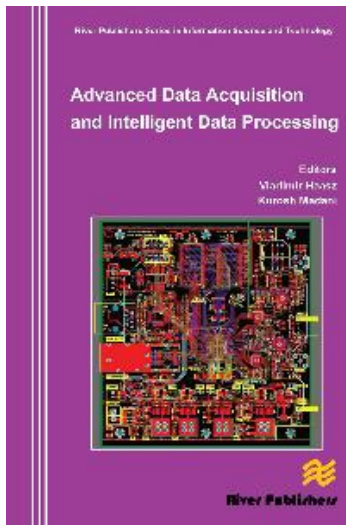
Editors:

Vladimír Haasza & Kurosh Madani, Czech Technical University in Prague, Czech Republic & University PARIS-EST Créteil (UPEC), France

ISBN: 9788793102736

Available From: May 2014

Price: € 90.00



Description:

DAQ and data processing is a basic part of all automated production systems, diagnostic systems, watching over quality of production, energy distribution, transport control or in various other areas. Demands on the speed, accuracy and reliability increase in general. It is possible to achieve not only using superior (but also more expensive) hardware, but also applying advanced data acquisition and intelligent data processing. It deals e.g. optimal data fusion of a number of sensors, new stochastic methods for accuracy increasing, new algorithms for acceleration of data processing, etc. These are the grounds for publishing this book.

Advanced Data Acquisition and Intelligent Data Processing offers 10 up-to-date examples of different applications of advanced data acquisition and intelligent data processing used in monitoring, measuring and diagnostics systems. The book arose based on the most interesting papers from this area published at IDAACS?2013 conference. However, the individual chapters include not only designed solution in wider context but also relevant theoretical parts, achieved results and possible future ways.

Technical topics discussed in this book include:

- advanced methods of data acquisition in application that are not routine;
- measured data fusion using up-to-date advanced data processing;
- nonlinear dynamical systems identification;
- multidimensional image processing.

Advanced Data Acquisition and Intelligent Data Processing is ideal for personnel of firms deals with advanced instrumentation, energy consumption monitoring, environment monitoring, non-destructive diagnostics robotics, etc., as well as academic staff and postgraduate students in electrical, control and computer engineering.

Content:

1. Introduction;
2. Waveform acquisition with resolutions exceeding those of the ADC employed;
3. Different Disaggregation Algorithms in Non-Intrusive Home Energy Monitoring Systems;
4. Design and testing of an electronic nose system sensitive to the aroma of truffles;
5. DAQ System for Ultrasonic Transducer Evaluation under Spread Spectrum Excitation;
6. Optimal Data Fusion in Decentralized Stochastic Unknown Input Observers;
7. Odor Classification by Neural Networks;
8. ANFIS Based Approach for Improved Multisensors Signal Processing;
9. Neuro-Fuzzy Sensor's Linearization Based FPGA;
10. Interpolation Method of Nonlinear Dynamical Systems Identification Based on Volterra Model in Frequency Domain ;
11. Training Cellular Automata for Hyperspectral Image Segmentation

Keywords: data acquisition, smart metering, sensor; sensor network; neural networks; adaptive neuro-fuzzy system, identification, prediction,

correction, calibration, FPGA; linearization; nonlinear dynamic systems; polyharmonic signals; hyperspectral imaging;

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Alsbjergvej 10
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River Publishers Series in Computing and Information Science and Technology

Language and Godels Theorem: A Revised Edition

Author: Bradley S. Tice, Advanced Human Design, USA

ISBN: 9788792329110

Available From: July 2013

Price: € 40.00



Description:

The monograph is a 'de-construction' of Kurt Godel's Incompleteness Theorem's paradox sentence's used to prove that no formal systems of logic or mathematics can exist. The semantic valuation of the 'meaning' behind the sentences used for the paradox is challenged and revised using other words that change the very nature of the sentences used in the paradox. These 'semantic' changes result in new meanings for the sentences used for the paradoxes and forms new interpretations of examining Godel's Incompleteness Theorem as it related to David Hilbert's unifying plan for a Formalized mathematics.

The monograph includes an unpublished paper on the reason 'why' behind the writing of this monograph in the Appendix section as well as a copy of my original mathematics dissertation from which this monograph is derived that is also located in the Appendix section of this monograph.

The monograph includes a chapter on 'machine intelligence' and is a culmination of my thoughts on language, machines and artificial intelligence as a whole. Technical papers on the subject are included in the Appendix section of this monograph.

Content: Abstract, Preface, Introduction, The Incompleteness Theorem, Hilbert's Axiomatic System for Mathematics, Of Two Words, Language and Godel's Theorem, Can Machines Think?, Conclusions, Summary, References, Notes, Appendix and Index.

Keywords: Incompleteness Theorem, Semantics, Paradox, Foundations of Mathematics, Formalism, Logic, David Hilbert, Kurt Godel, Word Games and Axiomatic Systems.

E Governance Data Center, Data Warehousing and Data Mining: Vision to Realities

Authors:

Sonali Agarwal & M. D. Tiwari, . Indian Institute of Information Technology, Allahabad, India,
Iti Tiwari, UPRTOU, Allahabad, India

ISBN: 9788792982728

Available From: June 2013

Price: € 90.00



Description:

India is showing incredibly strong appearance in Information Technology (IT) sector worldwide, but the benefits of IT revolution have not actually percolated into the everyday life of the common man, particularly in rural areas. National E Governance Plan is a major initiative of the Government of India, the first time under which a concerted effort is being made to take Information Technology to the masses in areas of concern to the common man. It aims to make services available online, ensuring that all citizens would have access to them, thereby improving the quality of basic governance on an unprecedented scale.

This book attempts to disseminate information about several E Governance projects and possible Data Mining benefits which are the future of good governance in India. Strategic Management of these projects through Data Mining would certainly encourage policy makers to understand better models of E Governance, thorough evaluation of projects, perceptive interrelations between projects, keeping track of the objectives and outcomes and to develop a more collaborative approach towards implementation of the National e- Governance Plan. This revolutionary approach will help the government in assessing the upcoming requirements and developing competencies for further project management, thereby making a difference in the lives of millions. It will help innovators to find out optimum solutions to achieve the end objectives of E Governance.

Technical topics discussed in the book include:

- E Governance
- Fundamental of Data, Data Warehousing, Data Mining, E Governance
- World Wide Status of E Governance
- Status of E Governance projects in India
- E Governance Data Management Framework
- E Governance Data Center
- Perspective Application of Data Warehousing and Data Mining in E Governance
- Case Studies on Education and Health Data Mining
- E Governance Data Mining Applications in Various Government Departments, Public Sector, Private Sector
- SWOT and PESTLE Analysis for Data Warehousing, Data Mining, E Governance

Data Warehousing and Data Mining are related technologies which have seen a significant boost in the last decades, in a way that many of their concepts and techniques have reached a significant level of maturity. They are applied today in most fields of human activity, from commercial to scientific or industrial areas. Today, decision support, data mining, trend analysis and pattern discovery have a large impact on businesses and science alike. Given this evolution, it is important to understand the potential advantages of Data Mining and Data Warehousing and their positive effects on E Governance applications.

The book “**E Governance Data Center, Data Warehousing and Data Mining: Vision to Realities**” is useful for students,

application developers, government officials, policy makers, as well as researchers involved in E Governance and Data Mining Applications. This book presents an overall picture of the E Governance Data Mining applications, including Data Management Framework, Data Center and Data Warehousing applications along with possible research directions. An important motivation for writing this book was the need to build an organized framework for E Governance using Data Mining—a challenging task, owing to the extensive multidisciplinary nature of this fastdeveloping field. We hope that this book will encourage people with different backgrounds and experiences to exchange their views regarding Data Mining applications in E Governance so as to contribute toward the establishment of good governance for the developed society.

Keywords: E Governance, World Wide Status of E Governance, E Governance in India, Data Management Framework, Data Centre, E Governance Data Warehousing and Data Mining, Case Studies On Education and Health, Data Mining Applications, Data Warehousing Applications, SWOT and PESTLE Analysis

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9260 Gistrup
Denmark
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River Publishers Series in Computing and Information Science and Technology

Internet of Things and M2M Communications

Editor: Fabrice Theoleyre, CNRS, University of Strasbourg, France and Ai-Chun Pang, National Taiwan University, Taiwan

ISBN: 9788792982483

Available From: May 2013

Price: € 90.00



Description:

The Internet of Things is the emerging technology which interconnects smart objects using wireless communications. After having been extensively studied in academic labs, the Internet of Things is now widely applied in the industrial world (e.g. domestic automation, smart metering, smart cities).

Internet of Things and M2M Communications presents the key concepts used in the Internet of Things. In particular, Machine to Machine (M2M) communications have to be energy efficient so that all the smart objects may operate for years on a single battery. Besides, whilst constructing an efficient global digital world combining personal/private and external/general data, security and privacy issues have also to be covered adequately.

Contents:

Part I. Energy Constrained IoT

Effect of Data Aggregation in M2M Networks

OR-AHad: An Opportunistic Routing Algorithm for Energy Harvesting WSN

An Off-line Tool for Accurately Estimating the Lifetime of a Wireless Mote

Part II. Transmission Scheduling

Delay-Constrained Scheduling in Wireless Sensor Networks

Distributed Scheduling for Cooperative Tracking in Hierarchical Wireless Sensor Networks

Time Synchronization on Cognitive Radio Ad Hoc Networks: A Bio-Inspired Approach

Part III. Security & Tests

Secure Access Control and Authority Delegation Based on Capability and Context Awareness for Federated IoT

Jamming and Physical Layer Security for Cooperative Wireless Communication Performance Modeling and Simulation of Machine-to-Machine (M2M) Systems

Keywords: Internet of Things, protocols, security, green networking, Wireless Sensor Networks

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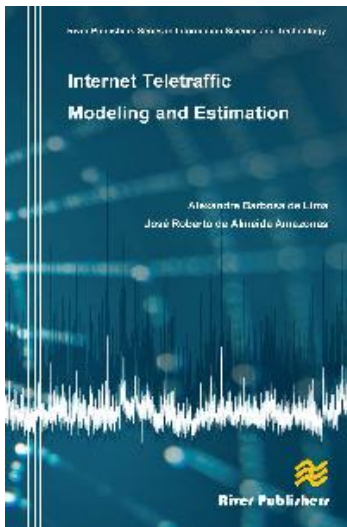
Internet Teletraffic Modeling and Estimation

Author: Alexandre Barbosa de Lima and José Roberto de Almeida Amazonas, Escola Politécnica of the University of São Paulo

ISBN: 9788792982100

Available From: February 2013

Price: € 90.00



Description:

Network traffic has fractal properties such as impulsiveness, selfsimilarity, and long-range dependence over several time scales, from milliseconds to minutes. These features have motivated the development of new traffic models and traffic control algorithms. This book presents a new statespace model for Internet traffic, which is based on a finite-dimensional representation of the Autoregressive Fractionally Integrated Moving Average (ARFIMA) random process. The modeling via Autoregressive (AR) processes is also investigated.

Content: Introduction, The Fractal Nature of Network Traffic, Modeling of Long- Range Dependent Teletraffic, State-Space Modeling, Modeling of Internet Traffic

Keywords: forecast, long memory, long-range dependence, network traffic, prediction, self-similar

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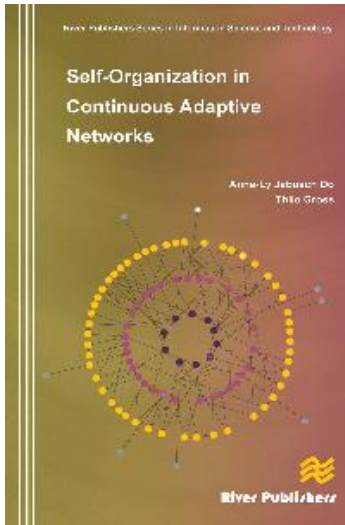
Self-Organization in Continuous Adaptive Networks

Author: Anne-Ly Do, Max Planck Institute for the Physics of Complex Systems, Germany and Thilo Gross, University of Bristol, UK

ISBN: 9788792329455

Available From: September 2012

Price: € 80.00



Description:

In the last years, adaptive networks have been discovered simultaneously in different fields as a universal framework for the study of self-organization phenomena. Understanding the mechanisms behind these phenomena is hoped to bring forward not only empirical disciplines such as biology, sociology, ecology, and economy, but also engineering disciplines seeking to employ controlled emergence in future technologies.

This volume presents new analytical approaches, which combine tools from dynamical systems theory and statistical physics with tools from graph theory to address the principles behind adaptive self-organization. It is the first class of approaches that is applicable to continuous networks.

The volume discusses the mechanisms behind three emergent phenomena that are prominently discussed in the context of biological and social sciences:

- synchronization,
- spontaneous diversification, and
- self-organized criticality.

Self-organization in continuous adaptive networks contains extended research papers. It can serve as both, a review of recent results on adaptive self-organization as well as a tutorial of new analytical methods

Self-organization in continuous adaptive networks is ideal for academic staff and master/research students in complexity and network sciences, in engineering, physics and maths.

Contents: Introduction; 1. Concepts and Tools; 2. Topological stability criteria for synchronized states; 3. Patterns of cooperation; 4. Self-organized criticality; 5. Conclusions and future research; Bibliography; Keyword Index; List of abbreviations.

Keywords: adaptive networks, weighted networks, interplay of structure and dynamics, synchronization, self-organized criticality, engineering complexity, structural and functional self-organization

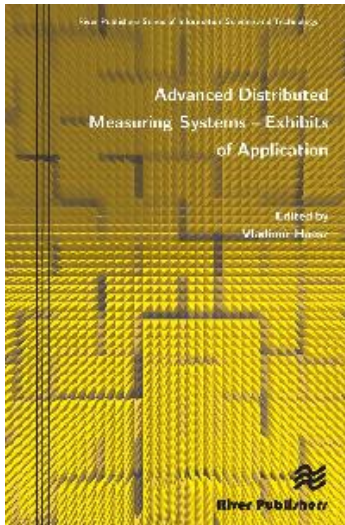
Advanced Distributed Measuring Systems - Exhibits of Application

Editor: Vladimír Haasz , Czech Technical University, Prague, CZ

ISBN: 9788792329721

Available From: March 2012

Price: € 90.00



Description:

Measuring systems are an essential part of all automated production systems, they also serve to ensure quality of production or they are used to assure the reliability and safety in various areas. The same applies in principle likewise for fields of telecommunication, energy production and distribution, health care etc. Similarly no serious scientific research in the field of natural and technical sciences can be performed without objective data about the investigated object, which are usually acquired using measuring system. Demands on the speed and accuracy of measurement increase in all areas in general. These are the grounds for publishing this book.

The book "Advanced distributed measuring systems - exhibits of application" offers 8 up-to-date examples of typical laboratory, industrial and biomedical applications of advanced measuring and information systems including virtual instrumentation. It arose based on the most interesting papers from this area published at IDAACS'2011 conference. However, single chapters include not only system design solution in wider context but also relevant theoretical parts, achieved results and possible future ways of design and development.

Technical topics discussed in the book include:

- embedded applications;
- small distributed systems;
- automotive distributed system;
- distributed monitoring systems based on wireless networks;
- synchronisation in large DAQ systems;
- virtual instrumentation.

"Advanced distributed measuring systems - exhibits of application" is ideal for personnel of firms deals with control systems, automotive electronics, airspace instrumentation, health care technology etc. as well as academic staff and postgraduate students in electrical, control and computer engineering.

Keywords: distributed measuring systems, wireless sensor network, fast data acquisition, synchronisation in large systems, automotive distributed systems, virtual instrumentation, micro electromechanical systems, real-time monitoring

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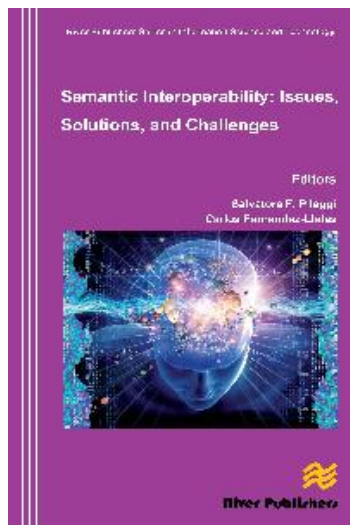
Semantic Interoperability: Issues, Solutions, Challenges

Author: Salvatore F. Pileggi and Carlos Fernandez-Llatas, ITACA-TSB, Universidad Politécnica de Valencia, Spain

ISBN: 9788792329790

Available From: February 2012

Price: € 85.00



Description:

Semantic technologies are experimenting an increasing popularity in the context of different domains and applications. The understanding of any class of system can be significantly changed under the assumption any system is part of a global ecosystem known as Semantic Web.

The Semantic Web would be an evolving extension of current Web model (normally referred as Syntactic Web) that introduces a semantic layer in which semantics, or meaning of information, are formally defined.

So, semantics should integrate web-centric standard information infrastructures improving several aspects of interaction among heterogeneous systems. This is because common interoperability models are progressively becoming obsolete if compared with the intrinsic complexity and always more distributed focus that feature modern systems. For example, the basic interoperability model, that assumes the interchange of messages among systems without any interpretation, is simple but effective only in the context of close environments. Also more advanced models, such as the functional interoperability model that integrates basic interoperability model with the ability of interpreting data context under the assumption of a shared schema for data fields accessing, appears not able to provide a full sustainable technologic support for open systems.

The Semantic Interoperability model would improve common interoperability models introducing the interpretation of means of data. Semantic interoperability is a concretely applicable interaction model under the assumption of adopting rich data models (commonly called Ontology) composed of concepts within a domain and the relationships among those concepts.

In practice, semantic technologies are partially inverting the common view at actor intelligence: intelligence is not implemented (only) by actors but it is implicitly resident in the knowledge model. In other words, schemas contain information and the "code" to interpretate it.

Keywords: Semantic Interoperability: Issues, Solutions, Challenges

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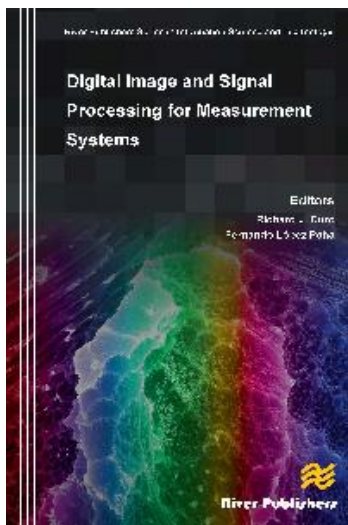
Digital Image and Signal Processing for Measurement Systems

Editor: Richard J. Duro and Fernando López Peña, University of Corunna, Spain

ISBN: 9788792329295

Available From: January 2012

Price: € 90.00



Description:

This book provides an overview of advanced digital image and signal processing techniques that are currently being applied in the realm of measurement systems. The book is a selection of extended versions of the best papers presented at the Sixth IEEE International Workshop on Intelligent Data Acquisition and Advanced Computing Systems: Technology and Applications IDAACS 2011 related to this topic and encompass applications that go from multidimensional imaging to evoked potential detection in brain computer interfaces. The objective was to provide a broad spectrum of measurement applications so that the different techniques and approaches could be presented.

Digital Image and Signal Processing for Measurement Systems concentrates on signal processing for measurement systems and its objective is to provide a general overview of the area and an appropriate introduction to the topics considered. This is achieved through 10 chapters devoted to current topics of research addressed by different research groups within this area. These 10 chapters reflect advances corresponding to signals of different dimensionality. They go from mostly one dimensional signals in what would be the most traditional area of signal processing realm to RGB signals and to signals of very high dimensionality such as hyperspectral signals that can go up to dimensionalities of more than one thousand. The chapters have been thought out to provide an easy to follow introduction to the topics that are addressed, including the most relevant references, so that anyone interested in this field can get started in the area. They provide an overview of some of the problems in the area of signal and image processing for measurement systems and the approaches and techniques that relevant research groups within this area are employing to try to solve them which, in many instances are the state of the art of some of these topics.

Contents:

Preface. 1. Subject-Adaptive Steady-State Visual Evoked Potential Detection for Brain-Computer Interface, by N. Chumerin, N. Manyakov, A. Combaz, A. Robben, M. van Vliet, M. Van Hulle. 2. Ventricular activity cancellation in ECG using an adaptive echo state network, by A. Petrenas, V. Marozas, A. Lukosevicius. 3. Optimal Quality-Aware Predictor-Based Adaptation of Multimedia Messages, by S. Pigeon, S. Coulombe. 4. Comparison of Improved Methods for Tracking Movements of IPMC Actuators, by K. Tsiakmakis and T. Laopoulos. 5. Photoplethysmography Detection by Smartphone's Videocamera, by D. Grimaldi, Y. Kurylyak, F. Lamonaca. 6. Detection and Classification Device for Malaria Parasites in Thick-blood Films, by S. Kaewkamnerd, A. Intarapanich, M. Pannarat, S. Chaotheing, C. Uthaipebull, S. Tongsimav. 7. Face Detection and Tracking Framework for Video Processing, by I. Paliy, A. Sachenko, O. Boumbarov. 8. Special Areas Detection on Agricultural Fields Images Using Evaluations of Local Brightness Variability, by R. Sadykhov, A. Doudkin, V. Ganchenko, A. Petrovsky, T. Pawlowski. 9. Towards Real-time Hyperspectral Image Processing, a GP-GPU Implementation of Target Identification, by D.B. Heras, F. Argüello, J. López Gómez, B. Priego, J.A. Becerra. 10. Time in Hyperspectral Processing: a Temporal based Classification Approach, by B. Priego, D. Souto, F. Bellas, F. Lopez Peña, R.J. Duro.

Keywords: digital image processing, digital signal processing, measurement systems

Denmark Head Office
Alsbjergvej 10
9260 Gistrup
Denmark
www.riverpublishers.com
Email: info@riverpublishers.com

USA Office
Indianapolis, IN
USA
Tel.: +1-3176899634
Email: rajeev.prasad@riverpublishers.com

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Email: philippa.jefferies@riverpublishers.com

Video Shot Boundary Detection

Authors:

K. Warhade, Warhade SPANN Lab, Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai 400076, India

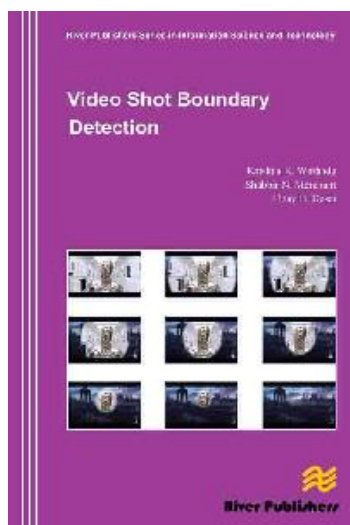
Shabbir N. Merchant, Department of Electrical Engineering, Indian Institute of Technology Bombay, Mumbai 400076, India

Uday B. Desai, Indian Institute of Technology Hyderabad, Yeddumailaram 502205, Andhra Pradesh, India

ISBN: 9788792329714

Available From: August 2011

Price: € 70.00



Description:

This book specifically addresses video shot boundary detection, which provides base for all video abstraction and high-level video segmentation approaches. Moreover, the other research areas which can benefit considerably from successful automation of shot boundary detection processes are distance learning, telemedicine, interactive television, digital libraries, multimedia news, video restoration and geographical information system. Despite all the research activity in shot boundary detection, there are some issues which have not been adequately addressed and need to be resolved. We discuss these major challenges in shot boundary detection and propose algorithms that can be adopted to find shot boundaries effectively. The monograph is intended to target a wide audience, both in academia and industrial research. It can also be used as research material for advanced courses in senior undergraduate and graduate programs. In this monograph we explore various major issues related to shot boundary detection which will be of tremendous importance in developing future search engines, multimedia and communication technologies. Besides covering effective algorithms, the monograph also provides a detail literature survey and describes major metrics used for shot boundary detection, thereby making it self contained.

Technical topics discussed in the monograph include:

- Effective algorithm for detecting various wipe patterns
- Shot boundary detection in the presence of flashlight
- Shot boundary detection in the presence of fire flicker and explosion
- Shot boundary detection in the presence of illumination variation and motion

Keywords: SBD (Shot Boundary Detection), Video Retrieval, Abrupt Transition, Gradual Transition, Flashlight, Wipe, Fire Flicker and Explosion, Camera Motion, Object Motion, Illumination, Recall, Precision, F1 Measure

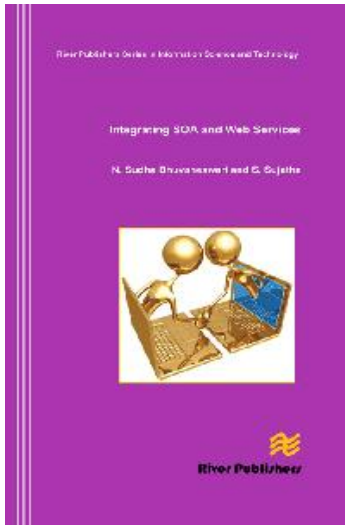
Integrating SOA and Web Services

Editor: N.Sudha Bhuvaneshwari & S.Sujatha

ISBN: 9788792329653

Available From: July 2011

Price: € 75.00



Description:

This book highlights how to integrate and realize Service Oriented Architecture with web services which is one of the emerging technologies in IT. It also focuses on the latest technologies, such as Metadata Management, Security issues, Quality of Service and its commercialization. A chapter is also devoted to the study of Emerging standards and development tools for Enterprise Application Integration. Most enterprises have made extensive investments in system resources over the course of many years. Such enterprises have an enormous amount of data stored in legacy enterprise information systems (EIS), so it is not practical to discard existing systems. It is more cost-effective to evolve and enhance EIS. This could be done with the help of SOA realizing with web services, which is an emerging field in Information technology. SOA is usually realized through web services. Web services specifications may add to the confusion of how to best to utilize SOA to solve business problems. In order for a smooth transition to SOA, using an architectural style that helps in realizing web services through SOA. The book concentrates on this architecture, realization and integration of SOA with web services. It consists of 12 chapters and is recommended for all postgraduate Computer Science Students.

Content

Preface,
Acknowledgment,

- Introduction to SOA and Web Services,
- The Service Architecture,
- Essence of SOA Governance,
- SOA and Business Process Management,
- Web Service Architecture & its Specifications,
- Web Service Protocols and Technologies ,
- Integrating SOA and Web Services,
- Metadata Management,
- Security Issues,
- Quality of Services in Enterprise Application Integration (EAI),
- Commercialization,
- Emerging standards and development tools for EAI, Author Index, Glossary of terms.

Keywords: Service Oriented Architecture, Web Services, Governance, Business process Management, REST, XML, SOAP, WSDL, UDDI, ebXML, J2EE, Metadata, Security, Enterprise Application, WSDC, Eco System, WSDP, WS-BPEL.

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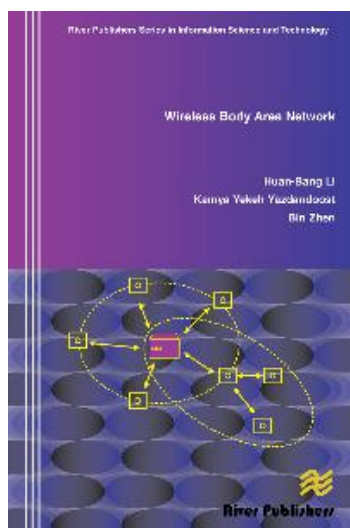
Wireless Body Area Network

Author: Huan-Bang Li, NICT, Kanya Yekeh Yazdandoost, NICT, Bin Zhen, NICT

ISBN: 9788792329462

Available From: October 2010

Price: € 90.00



Description:

Wireless body area network (WBAN) is a small scaled network that operates inside, on, or in the peripheral proximity of a body. The strong demands from both medical and healthcare society and consumer electronics industry have been accelerating the development of WBAN. WBAN is expected to be one of the main technologies of providing extremely high convenience and high efficiency in assisting healthcare or medical services. From the consumer electronics point of view, WBAN is also of great interest in providing body centric electronics for leisure, entertainment, game control, etc.

Recent technological advances in low-power microelectronics, miniaturization, and wireless networking enable the design and proliferation of WBAN. However, engineers and designers of WBAN may face a number of challenging tasks such as regulatory circumstance, channel model, low power consumption, thermal effect, antenna and body loss, high-efficiency radios, reasonable data rate, high reliability, and efficient medium access.

This book addresses various aspects of WBAN including:-

- Introduction
- Regulations
- Antenna, Body Tissues and Radio Propagation
- Physical Layer Technologies
- Medium Access Control
- Standardization

The objective of the book is to provide sound understanding to the basic concepts, characteristics, and technologies of the new fast growing WBAN system. Frequency regulations on candidate frequency bands, such as ultra wideband (UWB), industrial, scientific, and medical (ISM), medical implant communication service (MICS), and wireless medical telemetry system (WMTS), in different countries and regions are investigated and summarized. Antenna, propagation, and channel modeling related to WBAN are described. Effects of radio frequency on tissues and organs and effects of human tissues on RF propagations are addressed. physical (PHY) layer technologies including both narrow band and UWB are illustrated. Medium access control (MAC) technologies for WBAN are discussed and a unified MAC design which is independent of underlying PHY technologies is given. Standardization with IEEE802.15.6, IEEE 11073, and ETSI eHealth Project are briefly reviewed.

This book is a useful tool for university students, communication system engineers, as well as communication system researchers who study or design WBAN.

Keywords: WBAN, high-efficiency radios, Physical Layer Technologies

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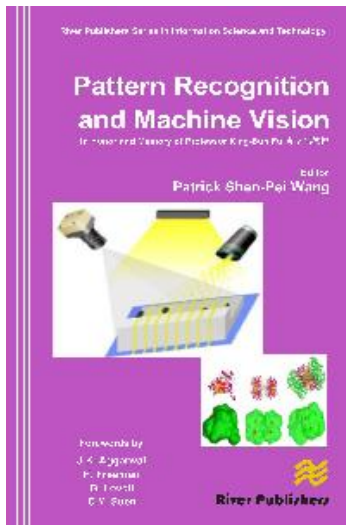
Pattern Recognition and Machine Vision -in Honor and Memory of Late Prof. King-Sun Fu

Editor: Patrick S.P. Wang, Northeastern University (USA) and East China Normal University (China)

ISBN: 9788792329363

Available From: March 2010

Price: € 90.00



Description:

In recent years, there has been a growing interest in the fields of pattern recognition and machine vision in academia and industries. New theories have been developed, with new design of technology and systems in both hardware and software. They are widely applied to our daily life to solve real problems in such diverse areas as science, engineering, agriculture, e-commerce, education, robotics, government, medicine, games and animation, medical imaging analysis and diagnosis, military, and national security.

The foundation of all this field can be traced back to the late Prof. King-Sun Fu, one of the founding fathers of pattern recognition, who, with visionary insight founded the International Association for Pattern Recognition around 1980. In the almost 30 years since then, the world has witnessed the rapid growth and development of this field. It is probably true to say that most people are affected by, or use applications of pattern recognition in daily life.

Today, on the eve of 25th anniversary of the unfortunate and untimely passing of Prof. Fu, we are proud to produce this volume of collected works from world renowned professionals and experts in pattern recognition and machine vision, in honor and memory of the late Prof. King-Sun Fu. We hope this book will help promote further the course, not only of fundamental principles, systems and technologies, but also its vast range of applications to help in solving problems in daily life.

Contents

Basic Foundations of Pattern Recognition and Artificial Intelligence, Methodologies of Machine Vision and Image Processing, Intelligent Pattern Recognition Systems, 3-D Object Pattern Analysis, Modelling and Simulation, Analysis of DNA Microarray Gene Expression Data based on Pattern Recognition Methods, PRMV Applications.

Keywords: Pattern, PRMV, Recognition, Methodologies

Biomedical and Environmental Sensing

Authors:

J.I. Agbinya, University of Technology, Sydney, Australia/French South African Technical Institute in Electronics, Pretoria, South Africa

E. Biermann, Assistant Director, French South African Technical Institute in Electronics/Tshwane University of Technology, Pretoria, South Africa

Y. Hamam, Scientific Director, French South African Technical Institute in Electronics Pretoria, South Africa / ESIEE Paris, France

F. Rocaries, Director, French South African Technical Institute in Electronics Pretoria / ESIEE Paris, France

S. K. Lal, University of Technology, Sydney, Australia

ISBN: 9788792329288



Description:

At a time when the applications of sensors are in high demand and environmental issues are international priorities, this book on biomedical and environmental sensing provides the technical basis for researchers and students to understand the requirements for biomedical computing and also environmental sensing and to develop solutions in their areas of interests. The book deals with key techniques that need to be understood and also examples of applications of the techniques.

Biomedical and environmental sensing are helping to extend the life span of human beings and infrastructures as it has become more and more sensible to understand what is happening for example inside a person, an aircraft, a road network or a bridge and to provide quick response. Several chapters of the book have dealt with the state of the art in biomedical decision support systems in therapeutic medicine. A data driven decision support system and a prototype support system for anaesthetics are major enablers for doctors and nurses to provide efficient and timely response not only to diagnose ailments but also to decide on the preferred approach for solving the problems.

The analyses in the chapters are coherently detailed and easy to comprehend. There is a chapter on hypothermia therapy and a hardware probe was also developed and described. Classification of chromosomes is a major aid in DNA analysis and recognition. This valuable insight into a DNA analysis method is provided. Information on heart diseases, onset of heart attacks and failure can be detected through reconstructing electrophysiological information about the surface of the heart. A reconstruction method is described in this book and provides strong foundation for research and training in this life determining area. The remaining chapters on sensing of driver conditions including fatigue peeks into tools and methodologies for understanding both the onset of fatigue and its forms for prevention of accidents in vehicles. The rest of the book gives techniques for planning biomedical and environmental sensor networks and their security.

The book will no doubt greatly serve the needs of health professionals, researchers in the health and environmental industry and policy makers.

Content

- Data Driven Therapy Decision Support System
- A Prototype Decision Support System for Anesthetists
- Development and Testing of a Low Cost, Minimally Invasive Radiofrequency Thermal Probe For Hyperthermia Therapy
- Comparative Functional Magnetic Resonance Imaging With Functional Brain Imaging Modalities
- Design of a Neural Network Classifier for Separation of Images With Chromosomes
- De-Noising of Body Surface Potential Signals
- Single Channel Wireless EEG: Proposed Application in Train Drivers
- Algorithm of remote monitoring ECG using mobile phone: Conception and implementation
- Statistical validation of physiological indicators for non-invasive and hybrid driver drowsiness detection system
- Security and Privacy of Wireless Sensor Networks for Biomedical
- Key Establishment Scheme for Clustered Distributed Sensor Networks
- Planning and Addressing of Wireless Sensor Networks
- Sensor Scheduling and Redeployment Mechanisms in Wireless Sensor Networks
- On the combination of logistic regression and local probability estimates
- Stochastic Deterioration Processes for Bridge Lifetime Assessment

Keywords: Biomedical and Environmental Sensing

Denmark Head Office
Alsbjergvej 10
9260 Gistrup
Denmark
www.riverpublishers.com
Email: info@riverpublishers.com

USA Office
Indianapolis, IN
USA
Tel.: +1-3176899634
Email: rajeev.prasad@riverpublishers.com

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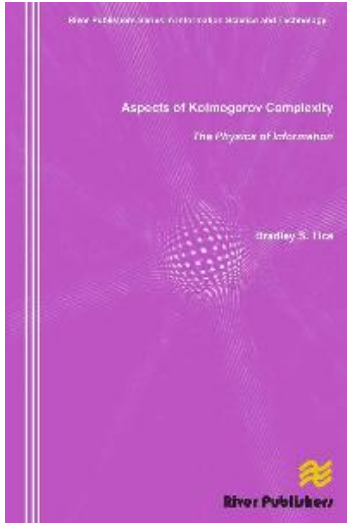
Aspects of Kolmogorov Complexity: The Physics of Information

Author: Bradley S. Tice, Advanced Human Design, USA

ISBN: 9788792329264

Available From: September 2009

Price: € 70.00



Description:

The research presented in Aspects of Kolmogorov Complexity addresses the fundamental standard of defining randomness as measured by a Martin-Lof level of randomness as found in random sequential binary strings. A classical study of statistics that addresses both a fundamental standard of statistics as well as an applied measure for statistical communication theory. The research points to compression levels in a random state that are greater than is found in current literature. A historical overview of the field of Kolmogorov Complexity and Algorithmic Information Theory, a subfield of Information Theory, is given as well as examples using a radix 3, radix 4, and radix 5 base numbers for both random and non-random sequential strings. The text also examines monochromatic and chromatic symbols and both theoretical and applied aspects of data compression as they relate to the transmission and storage of information. The appendix contains papers on the subject given at conferences and the references are current.

Contents

Technical topics addressed in Aspects of Kolmogorov Complexity include:

- Statistical Communication Theory
- Algorithmic Information Theory
- Kolmogorov Complexity
- Martin-Lof Randomness
- Compression, Transmission and Storage of Information

Keywords: Aspects, Kolmogorov, Complexity

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Mobility Management and Quality-of-Service for Heterogeneous Networks

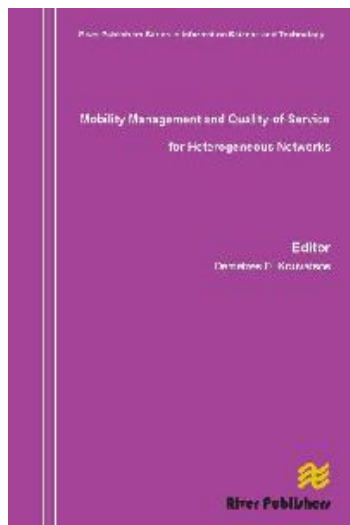
Editor: Demetres D. Kouvatsos, PERFORM Networks & Performance Engineering Research Unit, University of Bradford, U.K.

ISBN: 9788792329202

e-ISBN: 978879232929

Available From: April 2009

Price: € 90.00



Description:

Considerable attention is currently devoted worldwide towards mobility issues and challenges such as those arising from the integration of the next generation Internet over terrestrial digital TV, mobile user location management and multi-service mobile networks subject to quality of service (QoS) routing.

This book follows Heterogeneous Networks: Performance Modelling and Analysis, describes recent advances in mobile and wireless networks and the Internet reflecting the state-of-the-art technology and research achievements in mobility management, performance enhancement, optimal admission control and QoS worldwide.

Technical topics discussed in the book include

- Mobility Management;
- Optimal Admission Control;
- Performance Modelling Studies;
- Access Network Coverage;
- Quality of Service (QoS);

Heterogeneous Networks: Mobility Management and Quality of Service contains recently extended research papers, which have their roots in the series of the HET-NETs International Working Conferences focusing on the 'Performance Modelling and Evaluation of Heterogeneous Networks' under the auspices of the EU Networks of Excellence Euro-NGI and Euro-FGI.

Heterogeneous Networks: Mobility Management and Quality of Service, is ideal for personnel in computer/communication industries as well as academic staff and master/research students in computer science, operational research, electrical engineering and telecommunication systems.

Contents

Preface; Participants of the Reviewing Process;

- Traffic Modelling and Characterisation;
- Queueing and Interconnection Networks;
- Performance Evaluation Studies;
- TCP Performance Analysis;
- Congestion Control;
- Application Layer Multicast;
- Numerical and Software Tools; Author Index; Keyword Index.

Keywords: Heterogeneous networks, mobile and wireless networks, mobility management, admission control, performance modelling, quality of

Denmark Head Office
Alsbjergvej 10
9260 Gistrup
Denmark
www.riverpublishers.com
Email: info@riverpublishers.com

USA Office
Indianapolis, IN
USA
Tel.: +1-3176899634
Email: rajeev.prasad@riverpublishers.com

UK Office
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Performance Modelling and Analysis of Heterogeneous Networks

Editor: Demetres D. Kouvatsos, PERFORM Networks & Performance Engineering Research Unit, University of Bradford, U.K.

ISBN: 9788792329189

e-ISBN: 9788792329196

Available From: March 2009

Price: € 90.00



Description:

Over the recent years, a considerable amount of effort has been devoted, both in industry and academia, towards the performance modelling, evaluation and prediction of convergent multi-service heterogeneous networks, such as wireless and optical networks, towards the design and dimensioning of the next and future generation Internets.

This book follows Heterogeneous Networks: Traffic Engineering, Performance Evaluation Studies and Tools and presents recent advances in networks of diverse technology reflecting the state-of-the-art technology and research achievements in performance modelling, analysis and applications worldwide.

Technical topics discussed in the book include:

- Multiservice Switching Networks;
- Multiservice Switching Networks;
- Wireless Ad Hoc Networks;
- Wireless Sensor Networks;
- Wireless Cellular Networks;
- Optical Networks;

Heterogeneous Networks:- Performance Modelling and Analysis contains recently extended research papers, which have their roots in the series of the HET-NETs International Working Conferences focusing on the 'Performance Modelling and Evaluation of Heterogeneous Networks' under the auspices of the EU Networks of Excellence Euro-NGI and Euro-FGI.

Heterogeneous Networks: Performance Modelling and Analysis is ideal for personnel in computer/communication industries as well as academic staff and master/research students in computer science, operational research, electrical engineering and telecommunication systems and the Internet.

Keywords: Heterogeneous networks, performance modelling and analysis, wired networks, wireless networks: ad hoc, sensor and cellular, optical networks, next and future generation Internets

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Traffic and Performance Engineering for Heterogeneous Networks

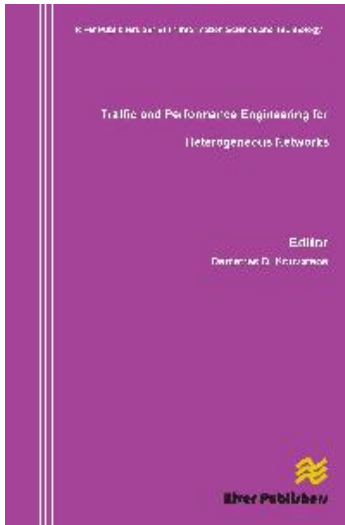
Editor: Demetres D. Kouvatsos, PERFORM Networks & Performance Engineering Research Unit, University of Bradford, U.K.

ISBN: 9788792329165

e-ISBN: 9788792329172

Available From: March 2009

Price: € 90.00



Description:

The diversity of methodologies and applications in the literature for the traffic engineering, performance modelling and analysis of convergent multiservice heterogeneous networks attests to the breath and richness of recent research and developments towards the design and dimensioning of the next and future generation Internets.

Heterogeneous Networks: Traffic Engineering, Performance Evaluation Studies and Tools describes recent advances in networks of diverse technology reflecting the state-of-the-art technology and research achievements in traffic engineering, performance evaluation studies and tools worldwide. Technical topics presented in the book include:

- Traffic Modelling and Characterisation
- Queueing and Interconnection Networks
- Performance Evaluation Studies
- TCP Performance Analysis
- Congestion Control
- Application Layer Multicast
- Numerical and Software Tools;

This book contains recently extended research papers, which have their roots in the series of the HET-NETs International Working Conferences focusing on the 'Performance Modelling and Evaluation of Heterogeneous Networks' under the auspices of the EU Networks of Excellence Euro-NGI and Euro-FGI. Heterogeneous Networks: Traffic Engineering, Performance Evaluation Studies and Tools is ideal for personnel in computer/communication industries as well as academic staff and master/research students in computer science, operational research, electrical engineering and telecommunication systems and the Internet.

Keywords Heterogeneous networks, traffic engineering, performance modelling and evaluation, transport control protocol (TCP), congestion control, numerical tools, software tools, next and future generation Internets.

Keywords: TCP, HET-NETs, NGI, Heterogeneous Networks, Traffic Engineering