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# River Publishers Book Catalogue

## Series in Information Science and Technology

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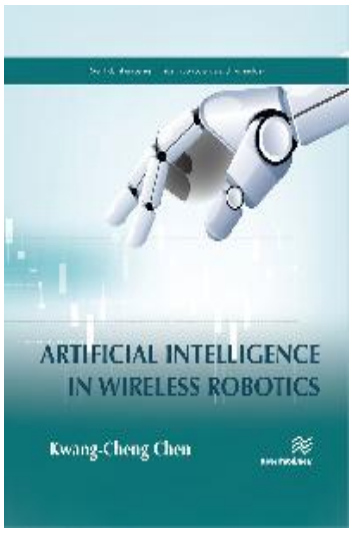


River Publishers Series in Information Science and Technology

# Artificial Intelligence in Wireless Robotics

**Author:** Kwang-Cheng Chen, University of South Florida, USA
**ISBN:** 9788770221184
**e-ISBN:** 9788770221177
**Available From:** August 2019
**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.

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# 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.

River Publishers Series in 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.

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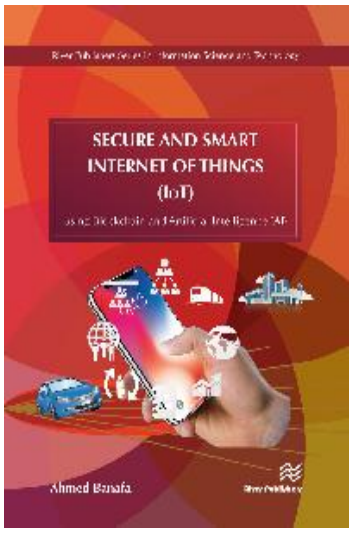


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# Secure and Smart Internet of Things (IoT)

## 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

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River Publishers Series in Information Science and Technology

# Computer Systems for Healthcare and Medicine

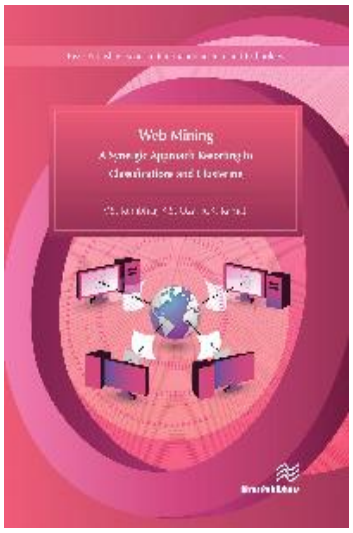
**Editors:**
Piotr Bilski, Warsaw University of Technology, Poland
Francesca Guerriero, University of Calabria, Italy
**ISBN:** 9788793519312
**e-ISBN:** 9788793519305
**Available From:** March 2017
**Price:** € 75.00

**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

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# Web Mining: A Synergic Approach Resorting to Classifications and Clustering

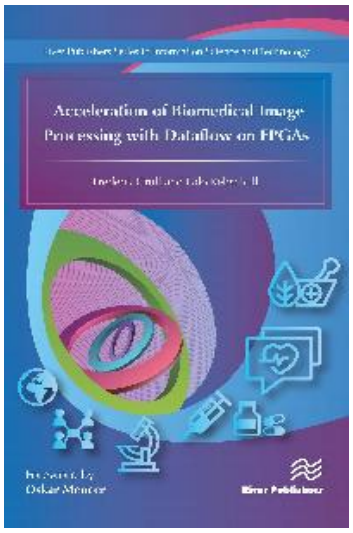
**Authors:**
V.S. Kumbhar, Shivaji University, Kolhapur, India
K.S. Oza, Shivaji University, Kolhapur, India
R.K. Kamat, Shivaji University, Kolhapur, India
**ISBN:** 9788793379831
**e-ISBN:** 9788793379848
**Available From:** November 2016
**Price:** € 75.00

**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

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# 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

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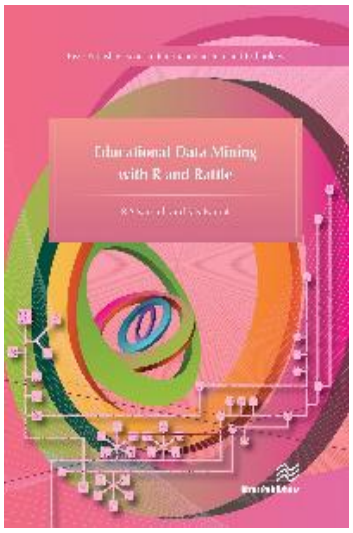

River Publishers Series in Information Science and Technology

# 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

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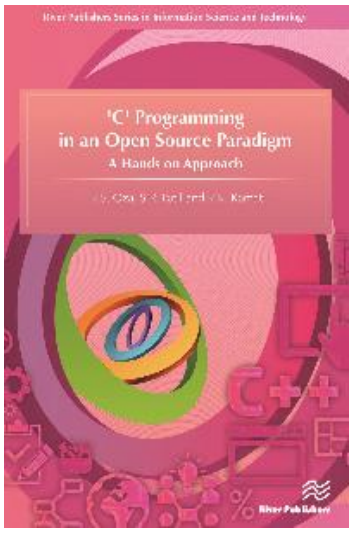


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# 'C' Programming in an Open Source Paradigm

**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

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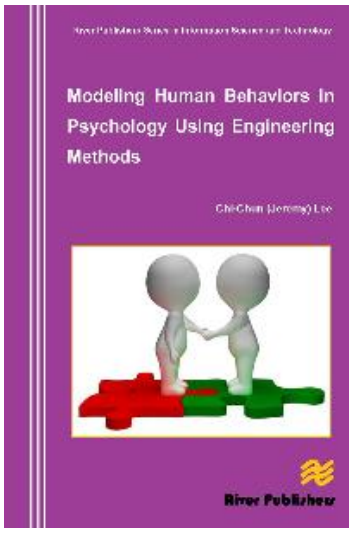


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# Modeling Human Behaviors in Psychology Using Engineering Methods

**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

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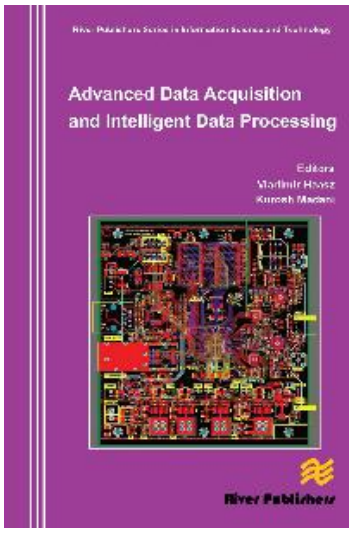


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# Advanced Data Acquisition and Intelligent Data Processing

## 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 indivudual 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-descructive diagnostics robotics, etc., as well as academic staff and postgraduate students in electrical, control and computer engineering.

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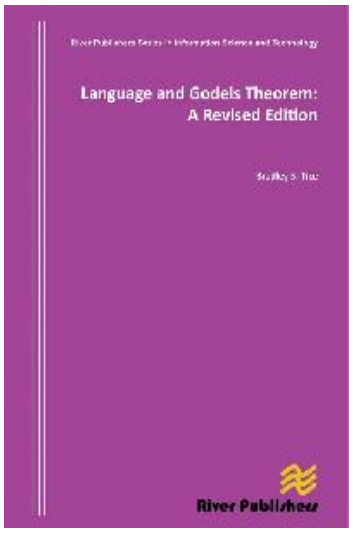


River Publishers Series in Information Science and Technology

# 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.

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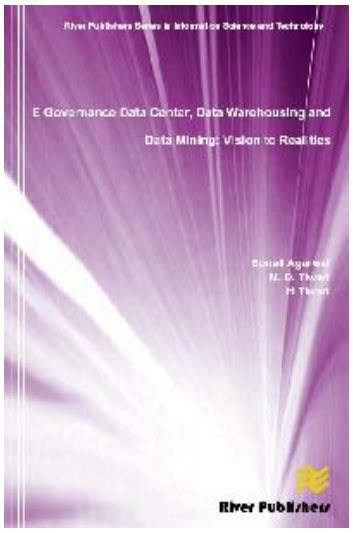


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# E Governance Data Center, Data Warehousing and Data Mining: Vision to Realities

**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.

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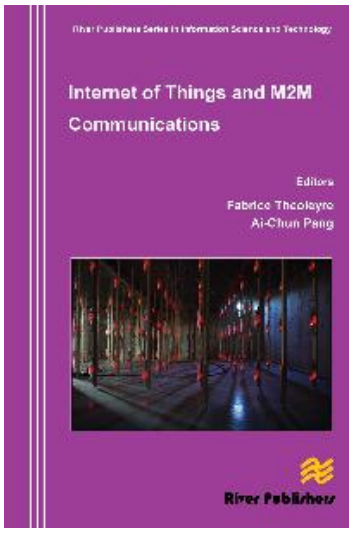


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# Internet of Things and M2M Communications

**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:**



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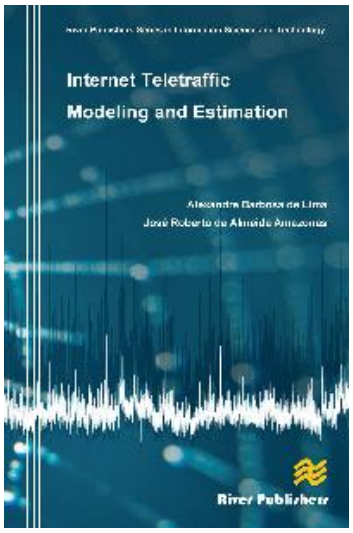



River Publishers Series in Information Science and Technology

# Internet Teletraffic Modeling and Estimation

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

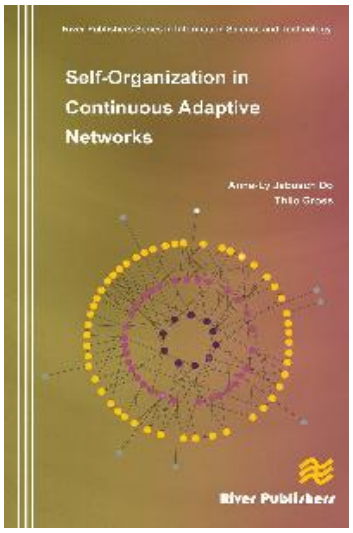
**ISBN:** 9788792982100

**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




River Publishers Series in Information Science and Technology

# 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.

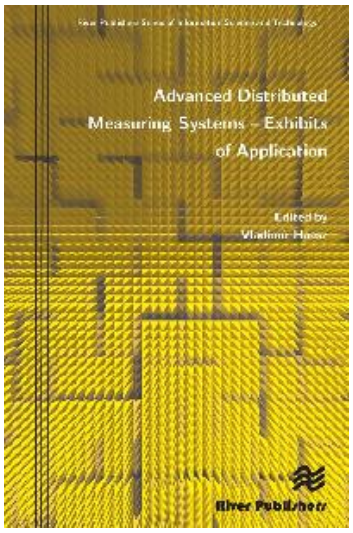
The volume discusses the mechanisms behind three emergent phenomena that are prominently discussed in the context of biological and social sciences:

- 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.




River Publishers Series in Information Science and Technology

# 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.

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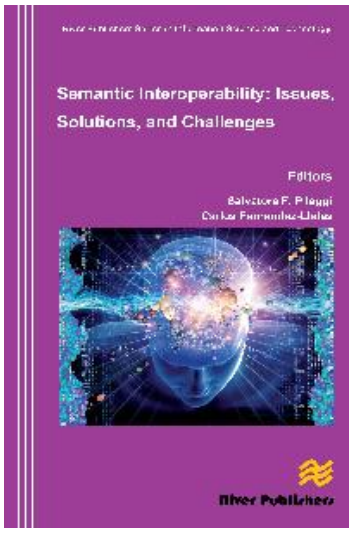


River Publishers Series in Information Science and Technology

# 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 intepretating 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.

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River Publishers Series in Information Science and Technology

# 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:**


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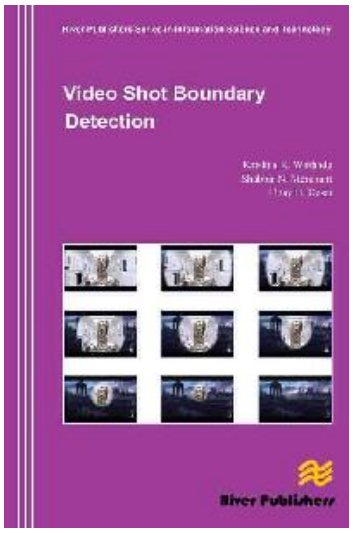


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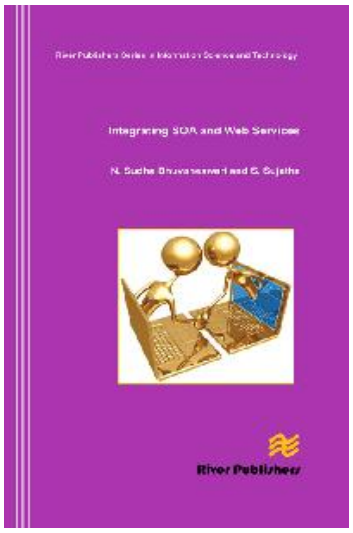
# Video Shot Boundary Detection

**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




River Publishers Series in Information Science and Technology

# Integrating SOA and Web Services

**Editor:** N.Sudha Bhuvaneswari & 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.

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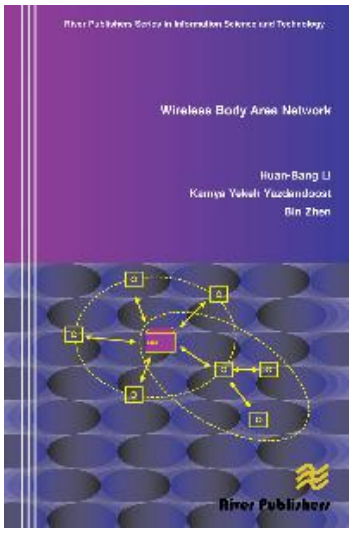



River Publishers Series in Information Science and Technology

# Wireless Body Area Network

**Author:** Huan-Bang Li, NICT, Kamya 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.

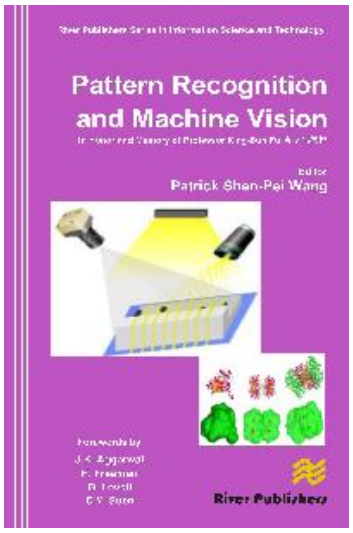
Recent technological advances in low-power microelectronics, miniaturization, and wireless networking enable the design and proliferation of WBAN. However, engineers and designers of WBAN may face a number of challenging tasks such as regulatory circumstance, channel model, low power consumption, thermal 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.




River Publishers Series in Information Science and Technology

# 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.

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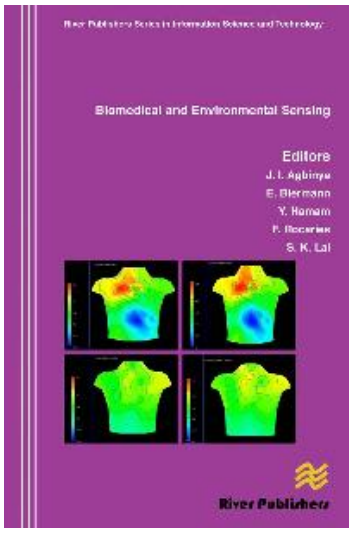


River Publishers Series in Information Science and Technology

# 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. Thisvaluable 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 andenvironmental industry and policy makers.

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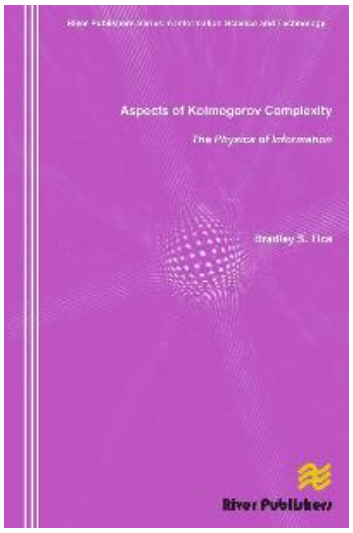


River Publishers Series in Information Science and Technology

# 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

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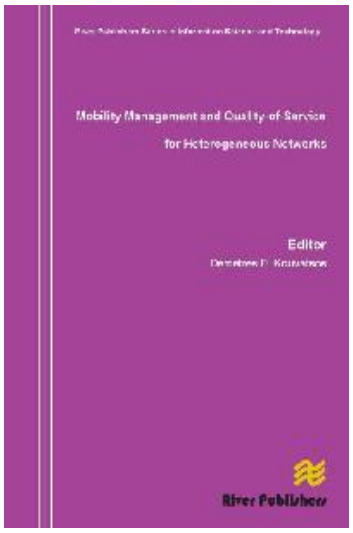


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# Mobility Management and Quality-of-Service for Heterogeneous Networks

**Editor:** Demetres D. Kouvatsos, PERFORM Networks & Performance EngineeringResearch 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.

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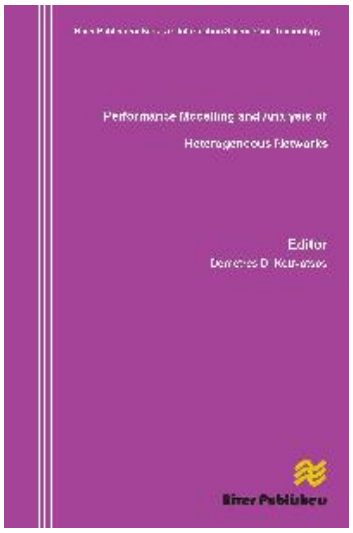


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# Performance Modelling and Analysis of Heterogeneous Networks

**Editor:** Demetres D. Kouvatsos, PERFORM Networks & Performance EngineeringResearch 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.

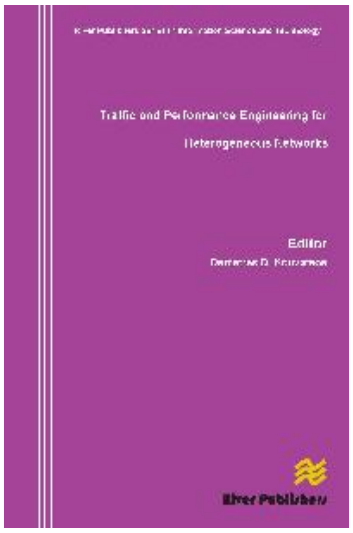
This book follows Heterogeneous Networks: Traffic Engineering, Performance Evaluation Studies and Tools and presents recent advances in networks of diverse technology reflecting the state-of-the-art technology and research achievements in performance modelling, analysis and applications worldwide.

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.



River Publishers Series in Information Science and Technology

# 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.