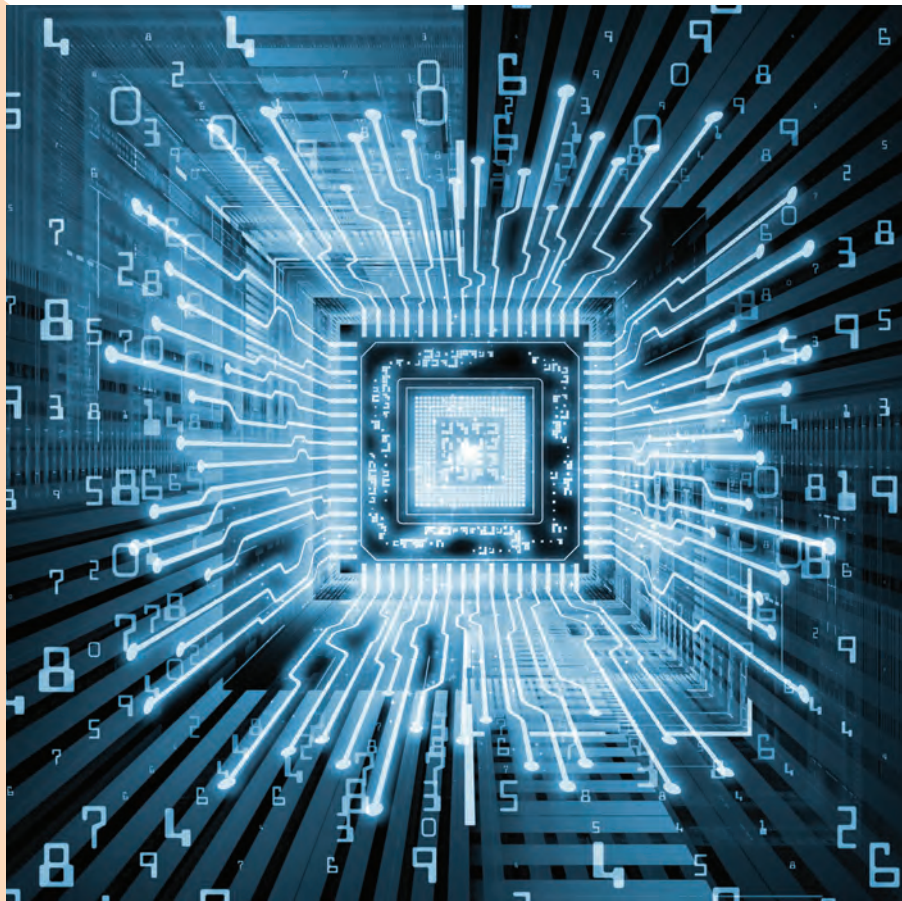


2025

# COMPUTER SCIENCE



# Highlights

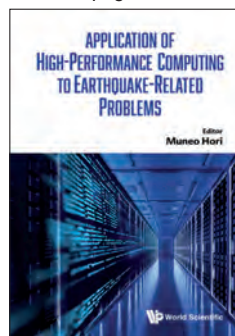
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page 6



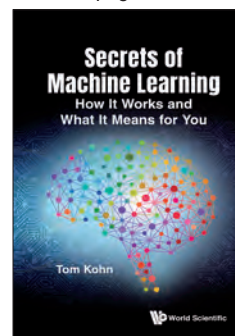
by **Cristian S Calude**  
(University of Auckland,  
New Zealand)

page 7



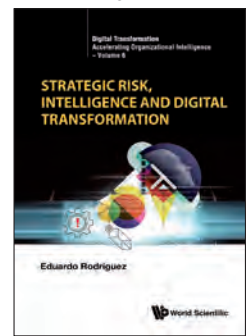
edited by **Muneo Hori**  
(Japan Agency for Marine-Earth Science  
and Technology, Japan)

page 7



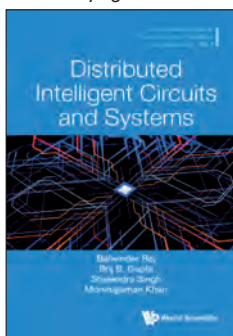
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page 7



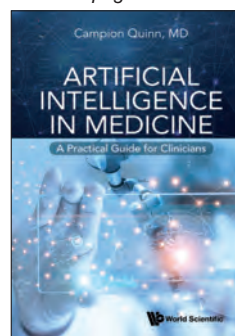
by **Eduardo Rodriguez** (Wenzhou – Kean  
University, China & IQAnalytics Inc.,  
Canada)

page 7



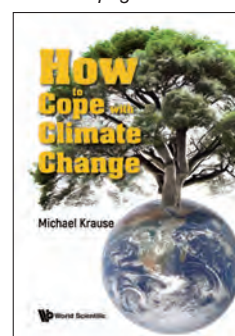
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page 7



by **Champion Quinn**  
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page 7



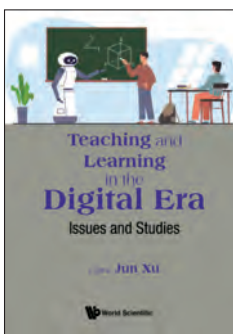
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page 9



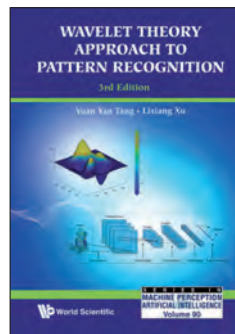
by **Alexander W Koch**  
(Technical University of Munich, Germany)

page 9



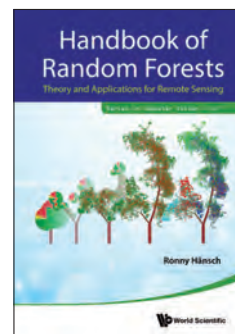
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page 10



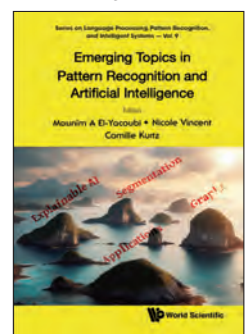
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(University Macau, China) &  
**Lixiang Xu** (Hefei University, China)

page 10



by **Ronny Hänsch**  
(German Aerospace Center (DLR),  
Germany)

page 10



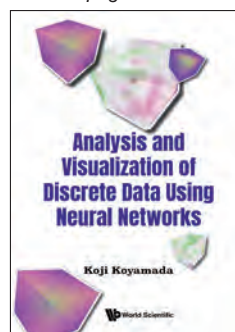
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page 12



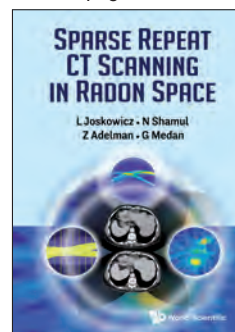
by **David O Johnson**  
(University of Kansas, USA)

page 12



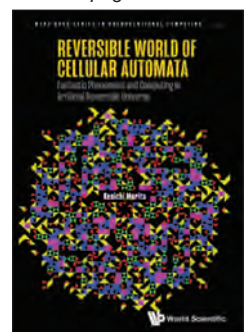
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(Kyoto University, Japan)

page 12



by **L Jaskowicz** (The Hebrew University of  
Jerusalem, Israel), **N Shamul** (The Hebrew  
University of Jerusalem, Israel), **Z Adelman**  
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Jerusalem, Israel)

page 13



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20-28	Journals
29	Bestsellers
29	Proceedings
30	Title Index

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## CONSCIOUS LEARNING

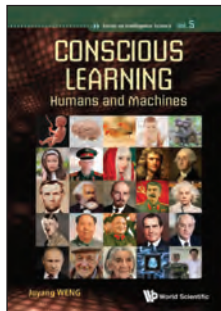
Humans and Machines

by **Juyang Weng** (*Brain-Mind Institute, USA*)

The volume explains how human brains require and learn consciousness and why the new AI will overcome the current lack of conscious learning algorithms in AI. For human societies, it suggests how governments can make their taxpayers safer, more prosper and happier. For future AI, it calls for a thorough investigation in scientific infrastructures like government and private funding agencies, publication venues, professional societies and administrators that evaluate research. Why did a conscious learning algorithm not have a healthy environment to study? Why could rampant misconducts of data deletion in deep learning be allowed to grossly exaggerate AI performances for so long? The author's real-life accounts reveal deep reasons.

**Readership:** Researchers, professionals, academics, undergraduate and graduate students in AI and robotics.

<b>200pp</b>	<b>Feb 2025</b>	
<b>978-981-126-439-9</b>	<b>US\$58</b>	<b>£55</b>
<b>978-981-126-440-5(ebook)</b>	<b>US\$98</b>	<b>£90</b>



## STATISTICAL MACHINE LEARNING WITH APPLICATIONS IN FINANCE

by **Gordon Ritter** (*Columbia University, USA & New York University, USA & Baruch College, USA*)

This unique compendium develops a general approach to building models of economic and financial processes, with a focus on statistical learning techniques that scale to large data sets. It introduces the key elements of a parametric statistical model: likelihood, prior, and posterior, and show how to use them to make predictions.

The book covers classical techniques such as multiple regression and the Kalman filter in a clear, accessible style that has been popular with students, but also includes detailed treatments of state-of-the-art models, highlighting tree-based methods, support vector machines and kernel methods, deep learning, and reinforcement learning. Theories are supplemented by real-world examples.

**Readership:** Professionals, academics, researchers, and graduate students in artificial intelligence/machine learning, neural networks, pattern recognition, and machine perception/computer vision.

<b>480pp</b>	<b>Dec 2024</b>	
<b>978-981-123-233-6</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-123-234-3(ebook)</b>	<b>US\$205</b>	<b>£190</b>

## ELEMENTS OF DEEP LEARNING THEORY

by **Eugene Golikov** (*École Polytechnique Fédérale de Lausanne, Switzerland*)

While the field of Deep Learning has been advancing at frightening speeds during the last ten years, we do not have a plausible theoretical explanation of its success yet. One can safely say that Deep Learning works, but nobody really understands why. Nevertheless, starting around five years before now, a decent number of theoretical papers specifically concerning neural nets started to emerge at top machine learning venues. This makes us think that the core of Deep Learning theory has already started to crystallize.

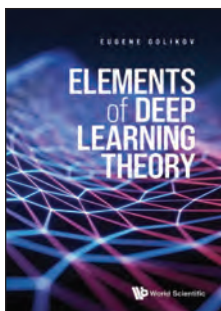
The goal of the present book is to present these core concepts of Deep Learning theory to readers so that they could directly dive into recent papers of this area. For this purpose, each chapter elaborates a simple model or a classical result in details first and then discusses possible generalizations and more recent developments of the same idea.

We have to warn the reader that the present book is not a mathematical manuscript. Not all results here are stated as formal theorems and not all theorems are provided with complete and rigorous proofs. Many of the theorems of the book are proven up to some technical lemmas, while for some there is only a proof sketch. This conforms with the main idea of the book: present and illustrate concepts rather than reproduce all the results.

The book, in its present form, covers the following topics: uniform generalization bounds, PAC-bayesian generalization bounds, double descent phenomena, infinitely-wide networks, implicit bias of gradient descent, loss landscape, gradient descent convergence guarantees, and initialization strategies.

**Readership:** Graduate in computer science and mathematics interested in deep learning theory, researchers in deep learning.

<b>200pp</b>	<b>Jan 2025</b>	
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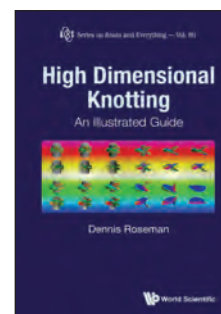
by **Dennis Roseman** (*University of Iowa, USA*)

Accessibility to non-specialists with extensive computer graphics illustrations

- Emphasis is on concrete examples and constructions
- Higher dimensions (beyond knotting of surfaces in 4-space) is considered

**Readership:** Graduate students and researchers in geometric topology, manifolds and cellcomplexes, scientists and engineers who want a concrete introduction to high dimensional construction and visualization.

<b>500pp</b>	<b>Feb 2025</b>	
<b>978-981-3237-39-1</b>	<b>US\$178</b>	<b>£165</b>
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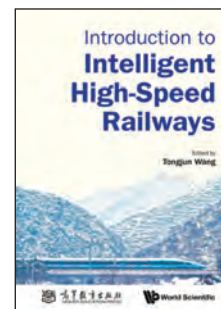
## INTRODUCTION TO INTELLIGENT HIGH-SPEED RAILWAYS

edited by **Tongjun Wang** (*China State Railway Group, China*)

This book offers a comprehensive overview of China's Intelligent HSR architecture, management methods, and remarkable achievements. It showcases pioneering research from China State Railway Group Co., Ltd.; highlighting their remarkable achievements in designing and constructing the Beijing-Zhangjiakou High-Speed Rail — a project that has been highly praised by the world's leading railway organization, the Union of International Railways.

**Readership:** Graduate students, researchers and professionals specialising in rail transit design, construction and operation, and governments.

<b>340pp</b>	<b>Jul 2024</b>	
<b>978-981-128-744-2</b>	<b>US\$128</b>	<b>£120</b>
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## FEDERATED LEARNING TECHNIQUES AND ITS APPLICATION IN THE HEALTHCARE INDUSTRY

edited by **H L Gururaj** (*Manipal Institute of Technology, India*), **Tanuja Kayarga** (*Vidyavardhaka College of Engineering, India*), **Francesco Flammini** (*University of Applied Sciences and Arts of Southern Switzerland, Switzerland*) & **Dalibor Dobrilovic** (*University of Novi Sad, Serbia*)



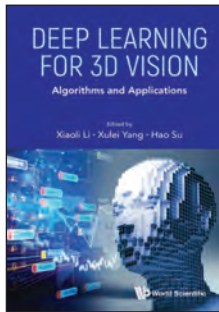
Federated Learning has greatly increased the potential to transmute data in the healthcare industry, enabling healthcare professionals to improve treatment of patients. This book comprises chapters on applying Federated models in the field of healthcare industry.

**Readership:** Academics/Researchers in machine learning, artificial intelligence, cyber security and blockchain technology.

<b>202pp</b>	<b>Jul 2024</b>	
<b>978-981-128-793-0</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-128-794-7(ebook)</b>	<b>US\$141</b>	<b>£130</b>

## DEEP LEARNING FOR 3D VISION

Algorithms and Applications  
edited by **Xiaoli Li** (*A\*STAR, Singapore*), **Xulei Yang** (*A\*STAR, Singapore*) & **Hao Su** (*University of California San Diego, USA*)



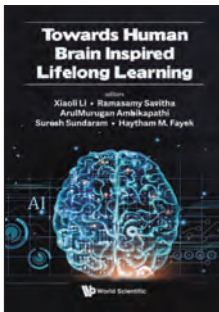
This book is organized into five sections, each of which addresses different aspects of 3D deep learning. Section I: Sample Efficient 3D Deep Learning, focuses on developing efficient algorithms to build accurate 3D models with limited annotated samples. Section II: Representation Efficient 3D Deep Learning, deals with the challenge of developing efficient representations for dynamic 3D scenes and multiple 3D modalities. Section III: Robust 3D Deep Learning, presents methods for improving the robustness and reliability of deep learning models in real-world applications. Section IV: Resource Efficient 3D Deep Learning, explores ways to reduce the computation cost of 3D models and improve their efficiency in resource-limited environments. Section V: Emerging 3D Deep Learning Applications, showcases how 3D deep learning is transforming industries and enabling new applications for healthcare and manufacturing.

**Readership:** Advanced undergraduate and graduate students, researchers and practitioners.

<b>500pp</b>	<b>Jun 2024</b>	
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## TOWARDS HUMAN BRAIN INSPIRED LIFELONG LEARNING

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This book is a comprehensive compilation of diverse methods for continual learning, crafted by leading researchers in the field, along with their practical applications. These methods encompass various approaches, such as adapting existing paradigms like zero-shot learning and Bayesian learning, leveraging the flexibility of network architectures, and employing replay mechanisms to enable learning from streaming data without catastrophic forgetting of previously acquired knowledge.

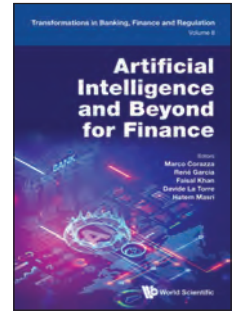
**Readership:** Researchers and Practitioners of AI Practitioners, PhD scholars and researchers.

<b>248pp</b>	<b>May 2024</b>	
<b>978-981-128-670-4</b>	<b>US\$98</b>	<b>£90</b>
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Transformations in Banking, Finance and Regulation

## ARTIFICIAL INTELLIGENCE AND BEYOND FOR FINANCE

edited by **Marco Corazza** (*Ca' Foscari University of Venice, Italy*), **René Garcia** (*University of Montreal, Canada*) & **SKEMA Business School Canada, Canada**), **Faisal Shah Khan** (*Dark Quantum Lab, USA* & *SKEMA Business School Raleigh, USA*), **Davide La Torre** (*SKEMA Business School, France*) & **Hatem Masri** (*Applied Science University, Bahrain*)



The topics covered in this book make it an invaluable resource for academics, researchers, policy makers, and practitioners alike who want to understand how AI has affected the banking and financial industries and how it will continue to change them in the years to come.

**Readership:** Academics, practitioners, financial investors.

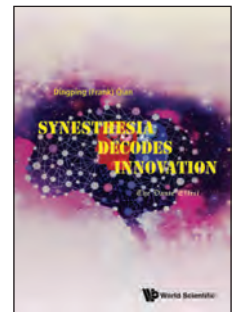
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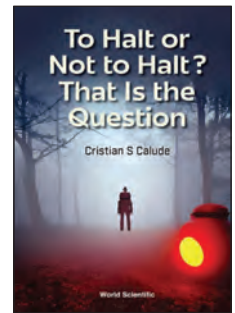
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by **Cristian S Calude**  
(*University of Auckland, New Zealand*)

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**Noson S Yanofsky**  
*Author of The Outer Limits of Reason: What Science, Mathematics and Logic Cannot Tell Us*

**Readership:** Undergraduate and graduate students, researchers and practitioners in the fields of computer science, mathematics, logic, philosophy, physics, and a large category of educated readers.

<b>332pp</b>	<b>Apr 2024</b>	
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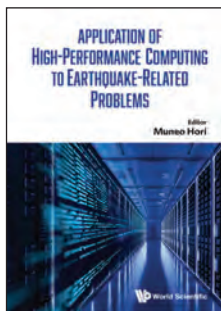
## APPLICATION OF HIGH PERFORMANCE COMPUTING TO EARTHQUAKE RELATED PROBLEMS

edited by **Muneo Hori** (*Japan Agency for Marine-Earth Science and Technology, Japan*)

This major reference summarizes the theory, analysis methods, and computational results from supercomputers of various earthquake simulations using supercomputers. It covers simulations in the fields of physical geology, earthquake engineering — specifically the seismic response of structures — and the socioeconomic impact of post-earthquake recovery on cities and societies. These simulations provide an effective bird’s-eye view of earthquake occurrence, earthquake damage, and recovery from the damage.

**Readership:** Researchers in the fields of earth sciences, earthquake engineering, disaster-related social science; Advanced undergraduate and graduate students in the fields of earth sciences, earthquake engineering, disaster-related social science.

<b>600pp</b>	<b>May 2024</b>	
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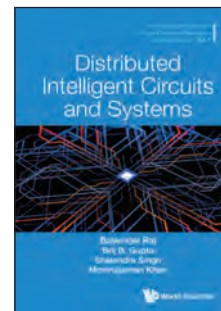
## DISTRIBUTED INTELLIGENT CIRCUITS AND SYSTEMS

edited by **Balwinder Raj** (*Dr B R Ambedkar National Institute of Technology, India*), **Brij B Gupta** (*Asia University, Taiwan*), **Shalendra Singh** (*Pranveer Singh Institute of Technology, India*) & **Monirujjaman Khan** (*North South University, Bangladesh*)

The main objective of this book is to provide insights into recent advances in distributed intelligent circuits, systems and their applications. Distributed intelligence is the key enabler for innovations in machine-to-machine communications. The innovations are directed towards keeping existing algorithms as the base and developing new intelligent systems by employing smart technologies

**Readership:** Graduate and post-graduate students, and researchers specialising in electronics engineering and computer engineering.

<b>452pp</b>	<b>Apr 2024</b>	
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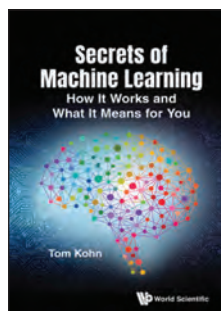
## SECRETS OF MACHINE LEARNING

How It Works and What It Means for You by **Tom Kohn**

This book addresses how machine learning affects the futures of the industries it is adopted in, how it works, what its strengths and weaknesses are, what it means for people’s lives and livelihoods, and what skills are needed to navigate it

**Readership:** Pitched at a wide audience, with the educated layperson in mind. It could also be useful to undergraduates who want some idea of where this technology is headed, with an eye toward the workforce. Organizations subject to or involved in machine learning would be appropriate e.g. finance, healthcare, retail, commerce or government technology departments for those who wish to upskill their workers in machine learning.

<b>240pp</b>	<b>Apr 2024</b>	
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## ARTIFICIAL INTELLIGENCE IN MEDICINE

A Practical Guide for Clinicians by **Campion Quinn** (*Rockville Medical, LLC, USA*)

“Artificial Intelligence in Medicine” is a comprehensive guide exploring the transformative impact of artificial intelligence (AI) in healthcare. The book delves into the foundational concepts and historical development of AI in medicine, highlighting data collection, pre-processing, and feature extraction crucial for medical applications. It showcases the benefits of AI, such as accurate diagnoses and personalized treatments, while addressing ethical and regulatory considerations.

**Readership:** Healthcare professionals including, physicians, physician assistants, nurse practitioners, nurses, medical students, healthcare administrators, chief information officers, pharmaceutical executives, medical researchers, medical content providers, medical educators, policy makers, health informaticians, ethicists, legal experts, industry professionals (AI technology companies), and AI enthusiasts. Sectors that would be interested in this book include: computer sciences, artificial intelligence, healthcare, academic, pharmaceutical, medical device, business, and healthcare administration and management.

<b>356pp</b>	<b>Mar 2024</b>	
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Digital Transformation: Accelerating Organizational Intelligence - Vol 6

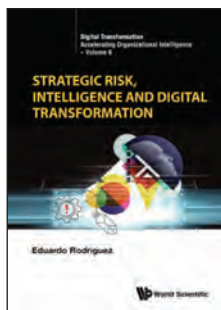
## STRATEGIC RISK, INTELLIGENCE AND DIGITAL TRANSFORMATION

by **Eduardo Rodriguez** (*Wenzhou – Kean University, China & IQAnalytics Inc., Canada*)

In this book, the study of strategic risk is not only for its control and mitigation using analytics and digital transformation in organizations, but also it is about the strategic risks that digital transformation can bring to organizations. Strategic risk control is one of the goals in creating intelligent organizations and at the same time it is part of the appetite for creating smarter organizations to support organizations’ development. Knowledge that is created by data analytics and the capacity to operationalize that knowledge through digital transformation can produce potential sustainable competitive advantages.

**Readership:** Postgraduate students in Data Science, Risk Management, Finance.

<b>496pp</b>	<b>Apr 2024</b>	
<b>978-981-127-859-4</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-127-860-0(ebook)</b>	<b>US\$237</b>	<b>£220</b>



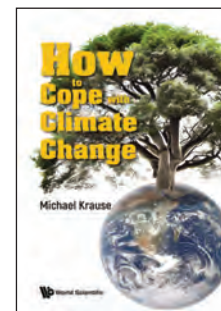
## HOW TO COPE WITH CLIMATE CHANGE

by **Michael Krause**

This book examines the financial, technical, and social situation of the world today, and outlines some of the existing policies and technologies that will help us on our long and unpredictable journey through climate change. Three major factors that have led us to today’s predicament — our economic system, our own inexcusable ignorance, and continued political inertia — must be addressed, discussed, and changed for the better.

**Readership:** General public, undergraduate and graduate students interested in climate change, green technologies and societal and behavioral change.

<b>372pp</b>	<b>Feb 2024</b>	
<b>978-981-128-739-8(pbk)</b>	<b>US\$38</b>	<b>£35</b>
<b>978-981-128-683-4</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-128-706-0(ebook)</b>	<b>US\$141</b>	<b>£130</b>



**Computer Security / Blockchain**

**BLOCKCHAIN, CRYPTOCURRENCY AND DEFI SYSTEMS**

Concepts and Applications  
by **Bina Ramamurthy** (*University at Buffalo, USA*) & **Kumar Madurai** (*Novosem, USA*)



Blockchain is being touted as the next Internet revolution akin to the worldwide web and e-commerce. This unique compendium lays the foundations for the conceptual understanding of the components necessary to build blockchain-based applications. The volume provides more than 100 illustrations and examples of these applications in various business domains. Hands-on demonstrations on software will help to instal and explore the tools and techniques discussed.

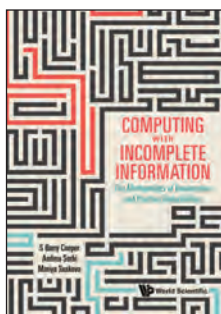
The useful reference text benefits any existing businesses that want to introduce blockchain in their operations.

**Readership:** Researchers, professionals, academics, and graduate students in digital security and innovation/technology and information management.

<b>350pp</b>	<b>Apr 2025</b>	
<b>978-981-125-638-7(pbk)</b>	<b>US\$58</b>	<b>£55</b>
<b>978-981-125-571-7</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-125-572-4(ebook)</b>	<b>US\$157</b>	<b>£145</b>

**COMPUTING WITH INCOMPLETE INFORMATION**

The Mathematics of Enumeration and Positive Reducibilities  
by **S Barry Cooper** (*University of Leeds, UK*), **Andrea Sorbi** (*University of Siena, Italy*) & **Mariya Soskova** (*Sofia University, Bulgaria*)



This book aims to provide a unique introduction to the mathematics of computing with imperfect information. This rapidly developing field has been represented by a growing number of diverse contributions to academic journals and the proceedings of international conferences. The aim here is to bring a new coherence and clarity to this complex and expanding body of research, and to give a comprehensive overview that will be invaluable to both experts and research students new to the area.

**Readership:** Research students and experts in the mathematics of computing with incomplete information and computational structure of information.

<b>450pp</b>	<b>Feb 2025</b>	
<b>978-981-4383-14-1</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-4383-15-8(ebook)</b>	<b>US\$237</b>	<b>£220</b>

**COMPUTER SECURITY**

3rd Edition  
by **Wenliang Du** (*Syracuse University, USA*)

This unique compendium is based on the author's teaching and research experiences. It covers the fundamental principles in cybersecurity and helps readers understand how various attacks work, what their fundamental causes are, how to defend against them, and how various defense mechanism's function.

For each security principle, the book uses a series of hands-on activities to help explain the principle. Readers can "touch", play with, and experiment with the principle, instead of just reading about it.

**Readership:** Researchers, professionals, academics, undergraduate and graduate students in digital security.

<b>543pp</b>	<b>Jan 2025</b>	
<b>978-981-126-329-3</b>	<b>US\$138</b>	<b>£125</b>

**Data Analytics / Big Data**

**PROGRAMMING BIG DATA APPLICATIONS**

Scalable Tools and Frameworks for Your Needs

by **Domenico Talia, Paolo Trunfio, Fabrizio Marozzo, Loris Belcastro, Riccardo Cantini & Alessio Orsino** (*University of Calabria, Italy*)



- Helps designers and developers in programming Big Data applications by identifying and selecting the best/appropriate programming tool based on their skills, hardware availability, application domains and purposes, and also considering the support provided by the developer community
- Presents real programming examples for each programming language/framework to show how Big Data applications can be developed

**Readership:** Undergraduate and graduate students in computer science, computer engineering, data science, and data engineering. PhD students and researchers in computer science and engineering, and data science.

<b>232pp</b>	<b>May 2024</b>	
<b>978-1-80061-504-5</b>	<b>US\$78</b>	<b>£70</b>
<b>978-1-80061-505-2(ebook)</b>	<b>US\$125</b>	<b>£115</b>

**ADVANCED MODELING AND INFERENCE**

Learning Causality and Latent Structures from Data  
by **Qing Zhou** (*University of California, Los Angeles, USA*)

- A comprehensive treatment of a collection of latent structure models and graphical models with wide applications in many areas
- A unified graphical view of the conditional independence structures in these models, which play a key role in their inference methods
- A self-contained coverage of recent methods and theory for structure learning of causal graphical models from different types of data

**Readership:** This book is suitable for graduate students in statistics, data science, computer science and other quantitative and computational sciences. The book can be used as a textbook for courses on statistical modeling, causal inference, graphical models, and machine learning. It is also suitable for researchers interested in causal inference, causal discovery, graphical models, Bayesian networks, structure learning, latent structure models, and related areas.

<b>250pp</b>	<b>Feb 2025</b>	
<b>978-981-129-068-8</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-129-069-5(ebook)</b>	<b>US\$141</b>	<b>£130</b>

Advances and Opportunities with Big Data and Analytics

**APPLIED HEALTH CARE ANALYTICS**

Enabling Transformative Health Care through Data Science, Machine Learning, and Cognitive Computing  
by **Mark Albert** (*Loyola University, USA*), **Plamen Petrov** (*Deloitte Consulting, USA*) & **Rajeev Ronanki** (*Deloitte Consulting, USA*)

- Heavy emphasis on direct application to healthcare through cases and more detailed instruction
- Introduction to advanced techniques like cognitive computing in the field of health care
- A balanced presentation of theoretical foundations and real-world practical examples

**Readership:** Supplementary textbook for postgraduate students in advance analytics and cognitive computing courses in Computer Science or Artificial Intelligence/Machine Learning degrees.

<b>300pp</b>	<b>Mar 2025</b>	
<b>978-981-3142-54-1</b>	<b>US\$115</b>	<b>£105</b>
<b>978-981-3142-55-8(ebook)</b>	<b>US\$185</b>	<b>£170</b>

## SENSORS AND THE INTERNET OF THINGS

Acquisition and Use of Big Data by **Alexander W Koch** (*Technical University of Munich, Germany*)

This book offers a structured understanding of sensor technologies, principles, applications, and their integration into IoT systems, thereby bridging the gap between sensors and IoT applications.

**Readership:** Advanced undergraduate and graduate students and practitioners in the fields of computer science, engineering, measurement systems, and physics; and scientists, engineers, and decision makers in industry.

**200pp** **Jan 2025**  
**978-981-128-518-9** **US\$78** **£70**  
**978-981-128-519-6(ebook)** **US\$125** **£115**



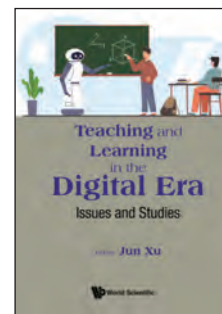
## TEACHING AND LEARNING IN THE DIGITAL ERA

Issues and Studies edited by **Jun Xu** (*King's Own Institute, Australia*)

This compendium looks at the current status and practices of teaching and learning facilitated/enabled by digital technologies, reviews challenges/issues associated with classroom teaching, online teaching and hybrid-learning, and discusses success factors and future directions of teaching and learning in the digital era.

**Readership:** Researchers, professionals, academics and graduate students in AI/Machine Learning, databases and digital security.

**364pp** **Apr 2024**  
**978-981-128-561-5** **US\$148** **£135**  
**978-981-128-562-2(ebook)** **US\$237** **£220**



## Innovation

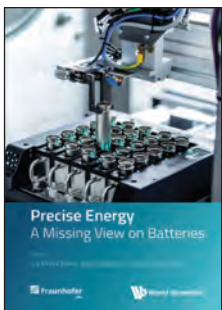
### PRECISE ENERGY

A Missing View on Batteries edited by **Kai Peter Birke** (*University of Stuttgart, Germany*), **Sabri Baazouz** (*Fraunhofer Institute for Manufacturing Engineering and Automation, Germany*) & **Julian Grimm** (*Fraunhofer Institute for Manufacturing Engineering and Automation, Germany*)

Achievable energy densities dominate important future research activities on battery technology. This book deduces in detail the future options for energy density enhancement of rechargeable battery cells and complete batteries. It connects rechargeability to energy density limits and gives a detailed argumentation on how and when battery energy densities will achieve their inherent limits.

**Readership:** Researchers, postgraduate and advanced undergraduate students, industry professionals, specialising in battery cell R&D and manufacturing, as well as governments and civil servants who wish to understand the topic.

**250pp** **Apr 2025**  
**978-981-128-204-1** **US\$88** **£80**  
**978-981-128-205-8(ebook)** **US\$141** **£130**



### CLOUD TO EDGEWARE

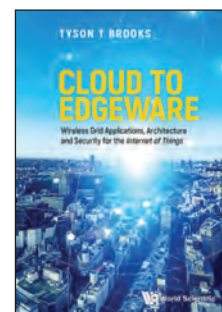
Wireless Grid Applications, Architecture and Security for the *Internet of Things*

by **Tyson T Brooks** (*Syracuse University, USA*)

This unique compendium is composed for researchers, professionals and students working in the field of innovation management, wireless technologies, information system theory, systems engineering, security system designers, and mobile cloud service developers. University professors and researchers involved in wireless grids, edgware and IoT related networking may find the book useful for their undergraduate and especially graduate courses.

**Readership:** Researchers, academics, professionals and graduate students in information science, digital security, parallel computing, networking and knowledge information management.

**428pp** **Apr 2024**  
**978-981-4630-80-1** **US\$148** **£135**  
**978-981-4630-81-8(ebook)** **US\$237** **£220**



### FAIR EXCHANGE

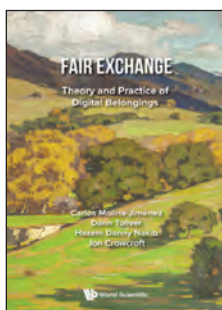
Theory and Practice of Digital Belongings


by **Carlos Molina-Jimenez** (*University of Cambridge, UK*), **Dann Toliver** (*University of Cambridge, UK*), **Hazem Danny Nakib** (*University of Cambridge, UK*) & **Jon Crowcroft** (*University of Cambridge, UK*)

This book delves into the theory of fair exchange, from the historic to the cutting-edge, and presents a unified framework for understanding fair exchange protocols. Every exchange starts with a handshake, which is followed by four additional operations: deposit; verification; synchronization; and release or restoration. The environments in which these operations take place determine the properties of the resulting protocol, and the characteristics of the items that can be exchanged.

**Readership:** Researchers (from academia and industry); Industry practitioners (technology, e-commerce, marketplaces); Postgraduate students; Libraries.

**292pp** **Mar 2024**  
**978-1-80061-516-8** **US\$98** **£90**  
**978-1-80061-517-5(ebook)** **US\$157** **£145**





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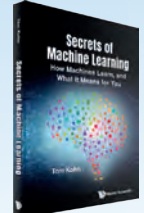

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**Pattern Recognition / Image Analysis / Computer Vision**

**HANDS-ON COMPUTER VISION**

by **Marc Pomplun** (*University of Massachusetts Boston, USA*)

The proposed book will not only teach readers the fundamental methods and concepts in computer vision, but it will also show them in detail how to implement the most important algorithms efficiently. Typically, the usual textbooks either do not address implementation issues, or they provide some sample code that is based on existing image-processing libraries, suboptimal solutions, or both.

**Readership:** Undergraduates, graduates, and professionals studying/dealing with machine perception/computer vision, pattern recognition/image analysis, software engineering/programming, neural networks, robotics & automated systems.

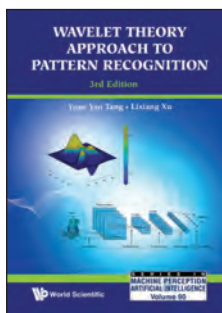
<b>650pp</b>	<b>Feb 2025</b>	
<b>978-981-4571-97-5(pbk)</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-4571-96-8</b>	<b>US\$129</b>	<b>£120</b>

Series in Machine Perception and Artificial Intelligence - Vol 90

**WAVELET THEORY APPROACH TO PATTERN RECOGNITION**

3rd Edition

by **Yuan Yan Tang** (*University Macau, China*) & **Lixiang Xu** (*Hefei University, China*)



This 3rd edition tackles the basic principle of deep learning as well as the application of combination of wavelet theory with deep learning to pattern recognition. Five new chapters related to the combination of wavelet theory and deep learning are added with many novel research results.

**Readership:** Researchers, professionals, academics and graduate students in pattern recognition/image analysis, machine perception, AI and electrical and electronic engineering.

<b>550pp</b>	<b>Sep 2024</b>	
<b>978-981-128-404-5</b>	<b>US\$168</b>	<b>£155</b>
<b>978-981-128-405-2(ebook)</b>	<b>US\$269</b>	<b>£245</b>

**DIFFERENTIAL GEOMETRICAL FOUNDATIONS OF INFORMATION GEOMETRY**

Geometry of Statistical Manifolds and Divergences

by **Hiroshi Matsuzoe** (*Nagoya Institute of Technology, Japan*)

This monograph gives foundations of information geometry from the viewpoint of differential geometry. In information geometry, a statistical manifold structure is important, which is related to geometry of a pair of dual affine connections and an asymmetric distance called divergence. First, we summarize geometry of statistical manifolds. As applications, we explain statistical inferences and information criterions from the viewpoint of differential geometry.

**Readership:** Graduate students, researchers and professionals in Geometry.

<b>350pp</b>	<b>Jan 2025</b>	
<b>978-981-4618-76-2</b>	<b>US\$130</b>	<b>£120</b>
<b>978-981-4618-77-9(ebook)</b>	<b>US\$208</b>	<b>£190</b>

**DETECTING ONLINE PROPAGANDA AND MISINFORMATION**

edited by **Mark Last** (*Ben-Gurion University of the Negev, Israel*), **Marina Litvak** (*Sami Shamoon College of Engineering, Israel*) & **Miao Lin** (*Beijing Information Science & Technology University, China*)

This unique compendium provides a comprehensive overview of the state-of-the-art methods in the extremely “hot” area of online propaganda detection and monitoring. It discusses the difficulties of developing automated methods and systems for online propaganda and misinformation detection, along with the potential contributions of machine learning techniques.

**Readership:** Researchers, professionals, academics, graduate students in AI, machine learning and information sciences.

<b>160pp</b>	<b>Jan 2025</b>	
<b>978-981-128-185-3</b>	<b>US\$68</b>	<b>£65</b>
<b>978-981-128-186-0(ebook)</b>	<b>US\$109</b>	<b>£100</b>

Series in Computer Vision - Vol 7

**HANDBOOK OF RANDOM FORESTS**

Theory and Applications for Remote Sensing

by **Ronny Hänsch** (*German Aerospace Center (DLR), Germany*)



This compendium provides a hands-on description of Random Forests. It starts with a consistent introduction of general methods to create, train, and fuse ensembles of decision trees. Instead of limiting the discussion to the general-purpose layout of traditional Random Forests, this book outlines specifications during tree creation and training that are especially well suited to analyze structured data such as images. The theoretical foundations are explained as well as practical and implementation issues. The many possible variations of the Random Forest model are discussed together with their implications on the prediction results to provide insights into the influence of these parameters and their possible side-effects. Last but not least, this unique title provides specific examples of the usage of Random Forests for analysing remote sensing imagery.

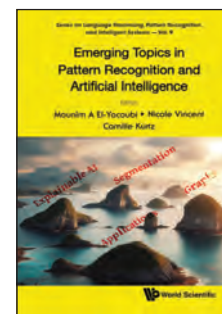
**Readership:** Researchers, professionals, academics and graduate students in pattern recognition/image analysis, machine perception/computer vision, and artificial intelligence.

<b>300pp</b>	<b>Feb 2025</b>	
<b>978-981-3224-05-6</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-3224-06-3(ebook)</b>	<b>US\$205</b>	<b>£190</b>

Series on Language Processing, Pattern Recognition, and Intelligent Systems - Vol 9

**EMERGING TOPICS IN PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE**

edited by **Mounim A El-Yacoubi** (*Institut Polytechnique de Paris, France*), **Nicole Vincent** (*Université Paris Cité, France*) & **Camille Kurtz** (*Université Paris Cité, France*)



The unique compendium covers a wide range of recent advanced contributions in Pattern Recognition and Artificial Intelligence, both in theoretical aspects and applications. It highlights the importance of Deep Learning in various domains, from acquisition to Decision Making.

**Readership:** Researchers, professionals, academics and graduate students in artificial intelligence, machine learning and deep learning.

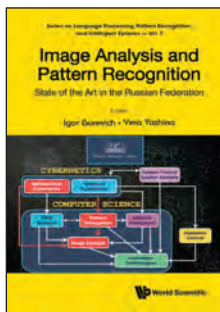
<b>300pp</b>	<b>Jun 2024</b>	
<b>978-981-128-911-8</b>	<b>US\$108</b>	<b>£100</b>
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Series on Language Processing, Pattern Recognition, and Intelligent Systems - Vol 7

### IMAGE ANALYSIS AND PATTERN RECOGNITION

State of the Art in the Russian Federation edited by **Igor Gurevich & Vera Yashina** (*Federal Research Centre "Computer Science and Control" of the Russian Academy of Sciences, Moscow, Russian Federation*)



This collective compendium highlights the achievements of Soviet and Russian mathematical and computer science scientific schools in the area of image analysis and understanding, pattern recognition, artificial intelligence and adjacent fields of computer sciences and applied mathematics.

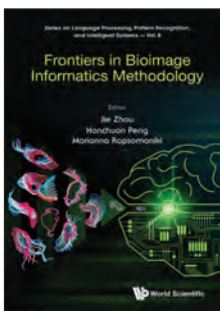
**Readership:** Researchers, professionals, academics, and graduate students in pattern recognition/image analysis, theoretical computer science and AI.

<b>950pp</b>	<b>Jun 2024</b>	
<b>978-981-126-720-8</b>	<b>US\$248</b>	<b>£230</b>
<b>978-981-126-721-5(ebook)</b>	<b>US\$397</b>	<b>£365</b>

Series on Language Processing, Pattern Recognition, and Intelligent Systems - Vol 8

### FRONTIERS IN BIOIMAGE INFORMATICS METHODOLOGY

edited by **Jie Zhou** (*Northern Illinois University, USA*), **Hanchuan Peng** (*Southeast University, China*) & **Marianna Rapsomaniki** (*University of Lausanne, Switzerland*)



This unique compendium provides state-of-the-art computational methodology and applications in bioimage informatics. It covers cutting-edge technology developments in biological image analysis, where images come from new modalities and are often large scale, high throughput and high dimensional. The book reflects advances in intelligent algorithms for tasks such as biological image segmentation, reconstruction, and object tracking. Contributed by world renowned researchers, this useful reference text presents case studies that can potentially help readers find approaches and resources to address their imminent scientific problems.

**Readership:** Researchers, professionals, academics and graduate students in image analysis, AI, bioinformatics, and neural networks.

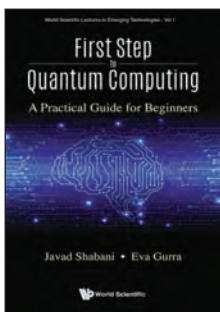
<b>376pp</b>	<b>Apr 2024</b>	
<b>978-981-128-612-4</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-128-613-1(ebook)</b>	<b>US\$205</b>	<b>£190</b>

## Quantum Computing

World Scientific Lectures in Emerging Technologies - Vol 1

### FIRST STEP TO QUANTUM COMPUTING

A Practical Guide for Beginners by **Javad Shabani & Eva Gurra** (*New York University, USA*)



The volume highlights intuition on counterintuitive topics such as quantum mechanics, basic mathematical tools and calculations involving linear algebra, and applies these concepts to quantum information with guided problems and coding exercises.

**Readership:** Researchers, professionals, academics, undergraduate and graduate students in supercomputing.

<b>150pp</b>	<b>Jan 2025</b>	
<b>978-981-125-412-3(pbk)</b>	<b>US\$38</b>	<b>£35</b>
<b>978-981-125-319-5</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-125-320-1(ebook)</b>	<b>US\$125</b>	<b>£115</b>

### QUANTUM FIELD THEORY, QUANTUM PHYSICS AND MICRO-MACRO DUALITY

by **Izumi Ojima** (*Research Origin for Dressed Photon, Japan*), **Kazuya Okamura** (*Nagoya University, Japan*) & **Hayato Saigo** (*Nagahama Institute of Bio-Science and Technology, Japan*)

According to the fundamental concept "adjunctions" in category theory, the Micro and Macro in nature can be connected in a coherent way, which constitutes quite an effective theoretical and mathematical machinery that has not been commonly recognized. On the basis of this concept, many important problems in physics and mathematics can be viewed from quite different and fresh angles, which facilitate deep understanding and the satisfactory solution of those problems.

**Readership:** Graduate students and researchers in quantum theory, mathematical physics, neural networks, pattern recognition.

<b>300pp</b>	<b>Feb 2025</b>	
<b>978-981-3238-36-7</b>	<b>US\$98</b>	<b>£90</b>

## Robotics / Medical

### NEW MEDICAL TECHNOLOGY IN PATIENT CARE

A Physician's Guide by **Campion Quinn** (*Rockville Medical, LLC, USA*)

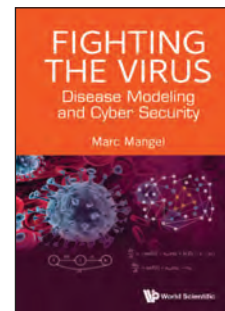
The book opens with an insightful introduction into the burgeoning role of emerging technologies in healthcare. It sets the stage for an in-depth exploration of these innovations, emphasizing their clinically proven benefits and the pragmatic aspects of their integration into clinical practice, underpinned by a strong ethical framework.

**Readership:** Doctors, nurses, hospital administrators, college and graduate students in healthcare administration and bioengineering.

<b>300pp</b>	<b>Sep 2025</b>	
<b>978-981-128-914-9</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-128-915-6(ebook)</b>	<b>US\$157</b>	<b>£145</b>

### FIGHTING THE VIRUS

Disease Modeling and Cyber Security by **Marc Mangel** (*University of Bergen, Germany & University of California, Santa Cruz, USA*)



- No other book provides such in-depth treatment of both disease modeling and cyber systems
- By focusing on two key models [the Pulse Attack Model and the Fundamental Model for Simultaneous Cyber Operations] that are not specific to any one system but have much in common with many systems, the book allows readers to sharpen thinking and gain insight into cyber security through the lens of population modeling of disease

**Readership:** This is a combination of research monograph and textbook, suitable for use in advanced undergraduate or graduate courses and also intended for established researchers — both workers in the population biology of disease and in cyber security.

<b>300pp</b>	<b>Sep 2025</b>	
<b>978-981-128-756-5</b>	<b>US\$108</b>	<b>£100</b>
<b>978-981-128-757-2(ebook)</b>	<b>US\$173</b>	<b>£160</b>



## BASIC HUMAN – ROBOT INTERACTION

by **David O Johnson** (*University of Kansas, USA*)

The book's content is designed to provide practical guidance and insights for conducting experiments in Human – Robot Interaction (HRI) and publishing the results in scientific journals. It includes a detailed explanation of how to conduct HRI experiments and what to do and what not to do to get an article accepted for publication. It is tailored to those seeking to deepen their understanding of HRI methodologies, statistical measurements, and research design.

**Readership:** Advanced students, researchers, and professionals who are actively engaged or interested in the field of Human – Robot Interaction (HRI).

**324pp** **Mar 2024**  
**978-981-128-284-3** **US\$148** **£135**  
**978-981-128-285-0(ebook)** **US\$237** **£220**



## SYSTEMS MEDICINE FOR HUMAN SPACEFLIGHT

edited by **Mark Shelhamer** (*Johns Hopkins University School of Medicine, USA*) & **Erik Antonsen** (*Massachusetts General Hospital, USA*)

*"The multiple interacting aspects of human spaceflight make a systems approach essential. A book on this topic will be well received."*

**James Best**  
**Former Dean, LKC School of Medicine, Nanyang Technological University, Singapore**  
**Professor Emeritus, University of Melbourne, Australia**

- First book that covers systems medicine applied to human spaceflight
- Provides an overview of current NASA approaches to astronaut medical care
- Examines the many and varied spaceflight systems that contribute to human health and performance in flight
- Outlines areas where future developments will be critical

**Readership:** Spaceflight professionals (flight surgeons, mission planners, spacecraft designers). Medical professionals (aeromedical examiners, biomedical engineers, bioanalytics researchers, those interested in systems approaches to medical care). Students interested in space and medicine, at all levels.

**368pp** **May 2024**  
**978-981-128-768-8** **US\$138** **£125**  
**978-981-128-769-5(ebook)** **US\$221** **£205**



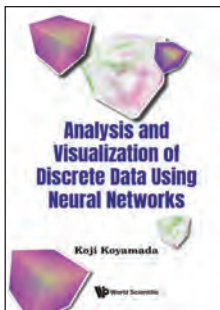
## ANALYSIS AND VISUALIZATION OF DISCRETE DATA USING NEURAL NETWORKS

by **Koji Koyamada** (*Kyoto University, Japan*)

This book serves as a comprehensive step-by-step guide on data analysis and statistical analysis. It covers fundamental operations in Excel, such as table components, formula bar, and ribbon, and introduces visualization techniques and PDE derivation using Excel. It also provides an overview of Google Colab, including code and text cells, and explores visualization and deep learning applications.

**Readership:** The book is primarily intended for readers in the fields of data analysis, statistics, and applied mathematics. The target readership includes professionals, researchers, and students in both academia and industry. Discipline/Profession: Data analysts, Statisticians, Mathematicians, Researchers in applied sciences and engineering, Graduate and Undergraduate students in data analysis, statistics, and applied mathematics.

**232pp** **Feb 2024**  
**978-981-128-361-1** **US\$88** **£80**  
**978-981-128-362-8(ebook)** **US\$141** **£130**



World Scientific Series on Future Computing Paradigms and Applications - Vol 2

## SDN AND NFV

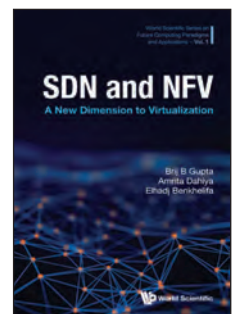
A New Dimension to Virtualization  
 by **Brij B Gupta** (*Asia University, ROC*), **Amrita Dahiya** (*Thapar Institute of Engineering and Technology, India*) & **Elhadj Benkhalifa** (*Staffordshire University, UK*)

*"This book unravels the intricacies of Software-Defined Networking (SDN) and Network Function Virtualization (NFV), offering a comprehensive journey through the modern networking landscape. From the fundamental elements of networking to the evolution of SDN and NFV, architectural insights, and their integration with cutting-edge technologies like IoT and 5G, this book is your gateway to understanding the transformative power of virtualization. Whether you are a networking professional, a student, or an enthusiast, this book is your key to unlocking the new dimension of virtualized networking."*

**Prof. Priyanka Chaurasia**  
**Ulster University, UK**

**Readership:** Graduate- and postgraduate-level students in Robotics and Automated Systems, Networking, Software Engineering and Digital Security, Innovation, Technology, Knowledge and Information Management.

**292pp** **Feb 2024**  
**978-981-125-487-1** **US\$98** **£90**  
**978-981-125-598-4(ebook)** **US\$157** **£145**



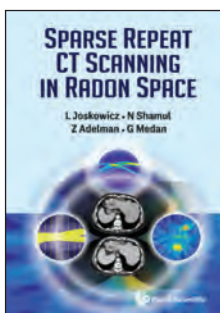
## SPARSE REPEAT CT SCANNING IN RADON SPACE

by **L Jaskowicz** (*The Hebrew University of Jerusalem, Israel*), **N Shamul** (*The Hebrew University of Jerusalem, Israel*), **Z Adelman** (*The Hebrew University of Jerusalem, Israel*) & **G Medan** (*The Hebrew University of Jerusalem, Israel*)

This comprehensive compendium introduces a unique and novel approach to X-ray dose reduction by sparse repeat scanning. Based on sparse sampling in Radon space, the methods obviate the need for image reconstruction and reduce X-ray dose by up to 10 times of the normal dose without compromising the robustness and accuracy of the measurements. The methods consist of automatic rigid and deformable registration and changes detection in subsequent CT scans, and real-time needle tracking during interventional procedures.

**Readership:** Researchers, professionals, academics and graduate students in biomedical engineering and machine perception.

**180pp** **Feb 2025**  
**978-981-127-023-9** **US\$78** **£70**  
**978-981-127-024-6(ebook)** **US\$125** **£115**



## Theoretical Computer Science

### ADVANCED VARIANCE REDUCTION TECHNIQUES FOR MCMC

by **Denis Belomestny** (*Duisburg-Essen University, Germany*) & **Sergey Samsonov** (*National University Higher School of Economics, Russia*)

- Unique coverage of modern variance reduction techniques
- Many illustrative examples from Machine Learning and Finance
- Theoretical analysis of the presented algorithms
- Treatment of martingale and Stein control variate methods

**Readership:** Graduate students and researchers in the areas of Statistics, Artificial Intelligence, Machine Learning and Finance.

<b>500pp</b>	<b>Jan 2025</b>	
<b>978-981-128-777-0</b>	<b>US\$158</b>	<b>£145</b>
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Series in Mathematical Biology and Medicine - Vol 10

### OPTIMAL TRANSPORT NETWORKS IN NATURE

by **Natalya Kizilova** (*Kharkov National University, Ukraine*)

This unique book presents a broad range of data on geometry and topology of long-distance liquid transport networks in nature including circulatory and respiratory systems of mammals, trophic fluid transport systems of animals, and conducting systems of higher plants. It is the very first book where evidence of the common design principles and optimal properties of the transportation networks of vascular plants and animals is provided.

**Readership:** Academics, researchers, and graduate students in mathematical biology, mathematical modeling, fluid mechanics, biomedical engineering, pattern recognition/image analysis.

<b>200pp</b>	<b>Feb 2025</b>	
<b>978-981-283-873-5</b>	<b>US\$106</b>	<b>£100</b>
<b>978-981-283-874-2(ebook)</b>	<b>US\$170</b>	<b>£155</b>

### THE SELECTED WORKS OF RODERICK S C WONG

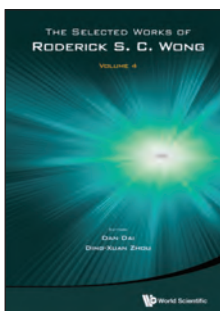
Volume 4

edited by **Dan Dai** (*City University of Hong Kong, Hong Kong*) & **Ding-Xuan Zhou** (*The University of Sydney, Australia*)

This book represents a distinguished collection of research papers authored by the esteemed Professor Roderick Wong, a globally recognized mathematician, and a pioneer in the field of applied mathematics. His brilliant academic journey has spanned across different continents, including North America and Hong Kong.

**Readership:** Academics, researchers, post-graduate students, undergraduate students, mathematicians, physicists, engineers.

<b>550pp</b>	<b>Dec 2024</b>	
<b>978-981-129-085-5</b>	<b>US\$168</b>	<b>£155</b>
<b>978-981-129-086-2(ebook)</b>	<b>US\$269</b>	<b>£250</b>



### RESHAPING EXPERIMENTAL ORGANIC RESEARCH WITH SMART *IN SILICO* TOOLS

Invitation to Artificial Intelligence-Equipped Organic Lab by **Anatoly M Belostotskii** (*Bar-Ilan University, Israel*)

*"This book is quite comprehensive as it enables an organic chemist to carry out synthetic planning, structure elucidation and instrumental separation of organic compounds with the help of AI-based machine learning."*

**Irishi N N Namboothiri**  
Professor of Chemistry,  
Indian Institute of Technology (IIT) Bombay, India

**Readership:** Academics, researchers, post-docs and graduate students working in organic, bioorganic and medicinal chemistry in universities, colleges, research institutes, and the industry (including pharmaceutical companies). Will also be of interest to lecturers of advanced courses and seminars in computational chemistry, organic synthesis, and drug discovery.

<b>350pp</b>	<b>Jan 2025</b>	
<b>978-981-128-167-9</b>	<b>US\$128</b>	<b>£120</b>
<b>978-981-128-168-6(ebook)</b>	<b>US\$205</b>	<b>£190</b>

### QUERY COMPLEXITY

by **Robin Kothari** (*Microsoft Quantum, USA*), **Troy Lee** (*Nanyang Technological University, Singapore*), **Ilan Newman** (*University of Haifa, Israel*) & **Mario Szegedy** (*Rutgers University, USA*)

Query complexity addresses issues like the number of calls to a black box routine, the number of queries to a data structure or the number of steps made by a parallel processor. It has immense applications, and not surprisingly a large number of papers have been written on it. Yet, currently there is no book that is entirely devoted to this subject. We fill this gap, and gather not only many valuable articles into a single book, but also organize knowledge, explain some key results, and give presentable outlines. The work we do for the reader saves valuable time and also points to connections for those who are just getting familiar with the area.

**Readership:** Researchers, academics, professionals and graduate students in theoretical computer science.

<b>200pp</b>	<b>Feb 2025</b>	
<b>978-981-3223-20-2</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-3223-21-9(ebook)</b>	<b>US\$141</b>	<b>£130</b>

WSPC Book Series in  
Unconventional Computing - Vol 4

### REVERSIBLE WORLD OF CELLULAR AUTOMATA

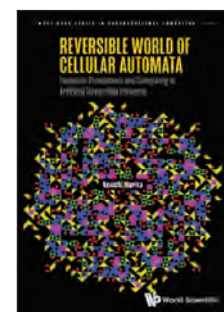
Fantastic Phenomena and Computing in Artificial Reversible Universe

by **Kenichi Morita** (*Hiroshima University, Japan*)

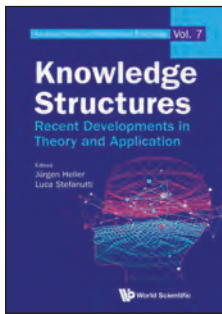
This unique comprehensive compendium provides extensive studies on reversible cellular automata (RCAs), exhibiting a wide range of interesting phenomena similar to the Game-of-Life, a well-known irreversible CA.

**Readership:** Researchers, professionals, academics, and graduate students in theoretical computer science, complex systems and computer engineering.

<b>300pp</b>	<b>Dec 2024</b>	
<b>978-981-128-032-0</b>	<b>US\$118</b>	<b>£110</b>
<b>978-981-128-033-7(ebook)</b>	<b>US\$189</b>	<b>£175</b>



Advanced Series on  
Mathematical Psychology - Vol 7  
**KNOWLEDGE STRUCTURES**  
Recent Developments in Theory and Application  
edited by **Jürgen Heller** (*University of Tübingen, Germany*) & **Luca Stefanutti** (*University of Padua, Italy*)



Founded in 1985 by Jean-Claude Falmagne and Jean-Paul Doignon, Knowledge Structure Theory (KST) constitutes a rigorous and current mathematical theory for the representation and the assessment of human knowledge. The seminal work of these authors initiated a highly active research strand with an ever-growing literature, mostly scattered across various technical journals.

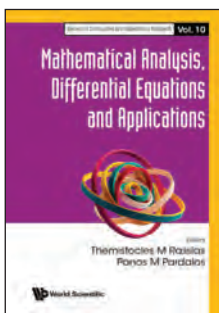
Starting from a concise but comprehensive introduction to its foundations, this volume provides a state-of-the-art review of KST. For the first time the volume brings together the most important theoretical developments and extensions of the last decade and presents new areas of application beyond education, with contributions by key researchers in the field.

Among the important advances covered by this book are (1) a comprehensive treatment of probabilistic models in KST; (2) polytomous extensions of the theory; (3) KST-based psychological diagnostics and neuropsychological assessment; (4) the representation and assessment of cognitive skills in problem solving, as well as procedural skills. In addition, this book also includes an overview of available software for the application of KST.

**Readership:** (1) Researchers in education, psychometrics, psychological testing, and technology-enhanced learning; (2) researchers in cognitive assessment and/or cognitive modelling; (3) researchers interested in the applications of knowledge structure theory as a innovative alternative to traditional approaches in many domains including psychometrics, data analysis, medical diagnostics, and psychology; (4) background materials for advanced courses on psychometrics, data analysis, or cognitive psychology; (5) secondary market: libraries of universities, and educational research institutions.

<b>300pp</b>	<b>Dec 2024</b>	
<b>978-981-128-047-4</b>	<b>US\$108</b>	<b>£100</b>
<b>978-981-128-048-1(ebook)</b>	<b>US\$173</b>	<b>£160</b>

Series on Computers and Operations  
Research - Vol 11  
**MATHEMATICAL ANALYSIS,  
DIFFERENTIAL EQUATIONS  
AND APPLICATIONS**  
edited by **Themistocles M Rassias** (*National Technical University of Athens, Greece*) & **Panos M Pardalos** (*University of Florida, USA*)



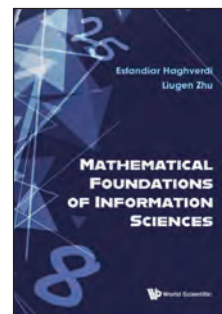
This comprehensive volume presents essential mathematical results devoted to topics of mathematical analysis, differential equations and their various applications. It focuses on differential operators, Wardowski maps, low-oscillation functions, Galois and Pataki connections, Hardy-type inequalities, to name just a few.

Effort has been made for this unique title to have an interdisciplinary flavor and features several applications such as in tomography, elastic scattering, fluid mechanics, etc.

**Readership:** Researchers, professionals, academics and graduate students in theoretical computer science, computer maths, and general applied maths.

<b>750pp</b>	<b>Jul 2024</b>	
<b>978-981-126-703-1</b>	<b>US\$188</b>	<b>£175</b>
<b>978-981-126-704-8(ebook)</b>	<b>US\$301</b>	<b>£275</b>

**MATHEMATICAL  
FOUNDATIONS OF  
INFORMATION SCIENCES**  
by **Esfandiar Haghverdi** (*Indiana University Bloomington, USA*) & **Liugen Zhu** (*Indiana University Indianapolis, USA*)



This is a concise book that introduces students to the basics of logical thinking and important mathematical structures that are critical for a solid understanding of logical formalisms themselves as well as for building the necessary background to tackle other fields that are based on these logical principles.

**Readership:** Undergraduate students in Informatics, Information Science, Computer Science, Data Science, Artificial Intelligence, Cognitive Science.

<b>164pp</b>	<b>May 2024</b>	
<b>978-981-129-025-1(pbk)</b>	<b>US\$38</b>	<b>£35</b>
<b>978-981-128-888-3</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-128-889-0(ebook)</b>	<b>US\$125</b>	<b>£115</b>

**LOGICAL FOUNDATIONS  
OF COMPUTER SCIENCE**  
(In 2 volumes)  
by **Peter A Fejer** (*University of Massachusetts Boston, USA*) & **Dan A Simovici** (*University of Massachusetts Boston, USA*)

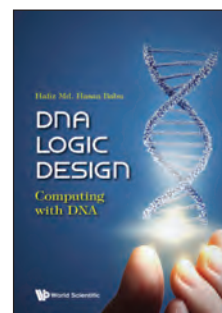


The useful reference text has close to 800 exercises and supplements to deepen understanding of the subject. It emphasizes proofs and overcomes technical difficulties by providing detailed arguments. Computer scientists and mathematicians will benefit from this volume.

**Readership:** Researchers, professionals, academics and graduate students in theoretical comp science and logic & set theory.

<b>1200pp</b>	<b>Jul 2024</b>	
<b>978-981-128-936-1(Set)</b>	<b>US\$420</b>	<b>£385</b>
<b>978-981-128-934-7(Set)(ebook)</b>	<b>US\$674</b>	<b>£620</b>

**DNA LOGIC DESIGN**  
Computing with DNA  
by **Hafiz Md. Hasan Babu** (*University of Dhaka, Bangladesh*)



*DNA Logic Design: Computing with DNA* not only unravels the theoretical intricacies but also navigates the practical challenges, offering a comprehensive exploration of a groundbreaking field at the intersection of biology and computer science. The book starts with the basics of DNA computing, and then describes the fundamental operations of DNA computing. Various kinds of logical designs are then translated into the DNA computing context: arithmetic circuits, combinational circuits, sequential circuits, memory devices, programmable logic devices, and nano processors. Heat and speed calculation techniques round off the book.

**Readership:** Students, faculty members, and researchers specializing in fields related to biology, molecular biology, DNA Computing, reversible logic design, biocomputing, mathematics, computer science, and engineering.

<b>292pp</b>	<b>May 2024</b>	
<b>978-981-128-771-8</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-128-772-5(ebook)</b>	<b>US\$157</b>	<b>£145</b>

## THE MISCHIEF OF MATH

Short Stories of Clowns, Contortionists, and Court-Jesters by **Inavamsi Enaganti** (*Param Innovation Centre, India*), **Nivedita Ganesh** (*New York University, USA*) & **Bud Mishra** (*New York University, USA*) Illustrated by: **Alexander Lu**



Embark on a whimsical odyssey through the realms of logic, game theory, paradoxes, biases, fake data detection, graph theory, AI bots and so much more! Within these pages you will find a collection of fictional short stories that weave together the intriguing, the counterintuitive and the downright quirky, with bold characters from every walk of life. Each chapter is written in a unique style, sprinkled throughout with anecdotes, open questions and fun exercises and to tickle the mind.

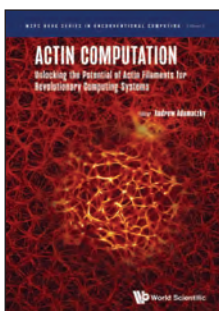
**Readership:** All undergraduate and students in the second half of high school, particularly in the fields of mathematics, computer science, engineering, economics, business, political science, and social science; General public who are curious about the intricacies and counterintuitive nature of reality.

<b>188pp</b>	<b>Jun 2024</b>	
<b>978-981-128-802-9(pbk)</b>	<b>US\$25</b>	<b>£25</b>
<b>978-981-128-759-6</b>	<b>US\$48</b>	<b>£45</b>
<b>978-981-128-760-2(ebook)</b>	<b>US\$98</b>	<b>£90</b>

WSPC Book Series in  
Unconventional Computing - Vol 3

## ACTIN COMPUTATION

Unlocking the Potential of Actin Filaments for Revolutionary Computing Systems edited by **Andrew Adamatzky** (*University of the West of England, UK*)



The book's theoretical and modelling framework serves as a crucial stepping stone towards the experimental realisation of actin-based cytoskeleton computers. Bridging the gap between theory and practice, researchers and scientists can leverage this knowledge to conduct experiments, validate hypotheses, and explore the practical implications of actin-based computing systems.

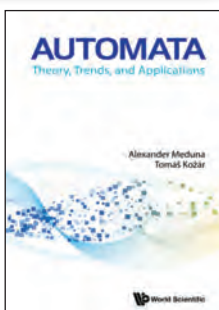
**Readership:** Primary: Computer architects, system developers, molecular biologists. Secondary: Popular computing-interested public.

<b>328pp</b>	<b>Apr 2024</b>	
<b>978-981-128-506-6</b>	<b>US\$118</b>	<b>£110</b>
<b>978-981-128-507-3(ebook)</b>	<b>US\$189</b>	<b>£175</b>

## Applications

## AUTOMATA

Theory, Trends, and Applications by **Alexander Meduna & Tomáš Kožár** (*Brno University of Technology, Czech Republic*)



This book provides an in-depth analysis of classical automata theory, including finite automata, pushdown automata, and Turing machines. It also covers current trends in automata theory, such as jumping, deep pushdown, and regulated automata. The book strikes a balance between a theoretical and practical approach to its subject by presenting many real world applications of automata in a variety of scientific areas, ranging from programming language processing through natural language syntax analysis up to computational musicology.

**Readership:** Scientists working in the areas of theoretical computer science, computational mathematics, computational linguistics, and compiler writing, and graduate courses dealing with the theory and application of automata, and theory of computation.

<b>436pp</b>	<b>Nov 2023</b>	
<b>978-981-127-812-9</b>	<b>US\$148</b>	<b>£135</b>
<b>978-981-127-813-6(ebook)</b>	<b>US\$237</b>	<b>£220</b>

World Scientific Series on Future Computing Paradigms and Applications - Vol 1

## BIG DATA MANAGEMENT AND ANALYTICS

by **Brij B Gupta** (*Asia University, Taiwan*) & **Mamta** (*Punjab Engineering College, Chandigarh, India*)



*"This book explores the intricacies of data management and analytics in this in-depth guide, delving into data storage, processing, and advanced analytical techniques for a holistic understanding of data ecosystems."*

**Dr Dragan Perakovic**  
**Professor and Head of Department of Information and Communication Traffic & Head of Chair of Information and Communication System and Service Management, University of Zagreb, Croatia**

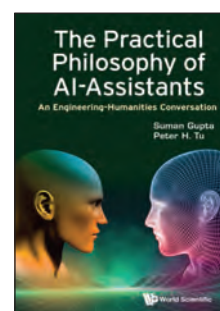
Readers will gain insights into choice of data models, data extraction, data integration to solve large data problems, data modelling using machine learning techniques, Spark's scalable machine learning techniques, modeling a big data problem into a graph database and performing scalable analytical operations over the graph and different tools and techniques for processing big data and its applications including in healthcare and finance.

**Readership:** Graduate and postgraduate students in Innovation/Technology/Knowledge/ Information Management. For researchers, this book provides fundamental and needful insights into the domain that can assist them in exploring this area from the elementary level. Industry CIOs will also find the book useful for conceptual clarity.

<b>288pp</b>	<b>Mar 2024</b>	
<b>978-981-125-711-7</b>	<b>US\$88</b>	<b>£80</b>
<b>978-981-125-712-4(ebook)</b>	<b>US\$141</b>	<b>£130</b>

## THE PRACTICAL PHILOSOPHY OF AI-ASSISTANTS

An Engineering-Humanities Conversation by **Suman Gupta** (*The Open University, UK*) & **Peter H Tu** (*General Electric Research, USA*)



*"This book is an interesting trip down the rabbit hole of AI where technology meets philosophy. The book explores both the history of AI and its technological developments, and the philosophical concepts of what it means to be conscious, in the form of conversational/ educational letters written between the authors in a kind of mutual learning ping pong. The authors dive deep into the history and details of both their disciplines — for which they are clearly masters. The masks come off the authors as it becomes clear that both are technologists and philosophers — having arrived at a similar place from very different starting points. The book turns toward an insightful discussion as it takes on the big challenges of our time: about what it means to be human, what we might truly want from AI, and how we might approach that with our eyes wide open. It leaves us with important questions about balancing civility with authority and about our potentially misguided focus on anthropomorphizing our tools. And in doing so, we must be careful and intentional in creating AI technologies and reflect on how our own biases and assumptions and human experience might impact them. The book leaves us with the important question — if AI is our reflection, what is it that we want to be reflected about our humanity in our technological mirror and how might that change us?"*

**John Garofolo**  
**Senior Advisor for Applied Analytic Programs National Institute of Standards and Technology (NIST), USA**

**Readership:** Established researchers in a wide range of disciplines: engineering, cognitive sciences, evolutionary processes, systems theory, linguistics and communication, philosophy, text and discourse analysis, social sciences and cultural studies. University students, undergraduate level and above, in the above-named disciplines. AI policy makers general readers who have kept an eye on such technologies.

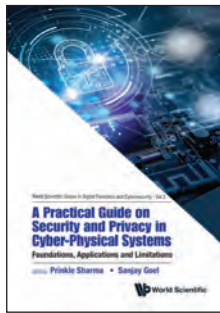
<b>280pp</b>	<b>Jan 2024</b>	
<b>978-1-80061-421-5(pbk)</b>	<b>US\$38</b>	<b>£35</b>
<b>978-1-80061-415-4</b>	<b>US\$88</b>	<b>£80</b>
<b>978-1-80061-416-1(ebook)</b>	<b>US\$141</b>	<b>£130</b>

World Scientific Series in Digital Forensics and Cybersecurity - Vol 3

### A PRACTICAL GUIDE ON SECURITY AND PRIVACY IN CYBER-PHYSICAL SYSTEMS

Foundations, Applications and Limitations

edited by **Prinkle Sharma** (University of Albany – The State University of New York, USA) & **Sanjay Goel** (University of Albany – The State University of New York, USA)



*A Practical Guide on Security and Privacy in Cyber-Physical Systems* offers an in-depth look at the recent security and privacy challenges of Cyber-Physical Systems (CPS) in multiple application domains. It provides readers with a comprehensive view of system architecture for cybersecurity systems before actual implementation.

The book first presents a systematic overview on several CPS applications covering standard architectures before zooming into each of the layers of the architectural design to describe the underpinning technological, security, and privacy issues currently facing some CPS research groups. The guiding principles that should be followed while planning future innovations for such mission-critical systems are also covered.

**Readership:** Computer Scientists and Engineers, Cyber Physical System Experts, Professionals specialising in Digital Forensics.

<b>264pp</b>	<b>Oct 2023</b>	
<b>978-981-127-354-4</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-127-355-1(ebook)</b>	<b>US\$157</b>	<b>£145</b>

### UNMANNED SYSTEMS

Best of 10 Years

edited by **Jie Chen** (Tongji University, China), **Ben M Chen** (Chinese University of Hong Kong, China) & **Lihua Xie** (Nanyang Technological University, Singapore)



The articles selected in this celebratory volume cover all subjects related to the development of automatic machine systems in unmanned hardware platforms (aerial, ground, underwater and unconventional platforms), unmanned software systems, energy systems, modelling and control, communications systems, computer vision systems, sensing and information processing, navigation and path planning, computing, information fusion, multi-agent systems, mission management, machine intelligence, artificial intelligence, and innovative application case studies.

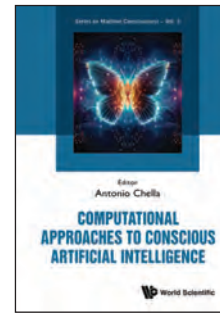
**Readership:** Researchers and professionals specialising in autonomous and unmanned systems and vehicles, and related fields in engineering and artificial intelligence.

<b>304pp</b>	<b>Aug 2023</b>	
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Series on Machine Consciousness - Vol 5

### COMPUTATIONAL APPROACHES TO CONSCIOUS ARTIFICIAL INTELLIGENCE

edited by **Antonio Chella** (University of Palermo, Italy & ICAR-CNR Palermo, Italy)



This edited volume consists of 10 chapters that highlight the prospects of machine consciousness and study the subject from several perspectives. The issues are wide-ranging and include topics such as the metaverse, a computational approach to pain and suffering, universal cognitive intelligence, intentional action, the categorization of conscious machines, and more. The volume is designed as a reference guide for researchers, practitioners, and students interested in the intersection of AI and consciousness.

**Readership:** Researchers, practitioners, students, informed readers interested in the intersection of Artificial Intelligence and Consciousness.

<b>312pp</b>	<b>Aug 2023</b>	
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World Scientific Series in Digital Forensics and Cybersecurity - Vol 2

### INNOVATIONS IN DIGITAL FORENSICS

edited by **Suryadipta Majumdar** (Concordia University, Canada), **Paria Shirani** (University of Ottawa, Canada) & **Lingyu Wang** (Concordia University, Canada)



This book presents state-of-the-art techniques to address imminent challenges in digital forensics. In particular, it focuses on cloud forensics, Internet-of-Things (IoT) forensics, and network forensics, elaborating on innovative techniques, including algorithms, implementation details and performance analysis, to demonstrate their practicality and efficacy. The innovations presented in this volume are designed to help various stakeholders with the state-of-the-art digital forensics techniques to understand the real world problems. Lastly, the book will answer the following questions: How do the innovations in digital forensics evolve with the emerging technologies? What are the newest challenges in the field of digital forensics?

**Readership:** Law enforcement agencies involved with digital forensics, industry practitioners in digital forensics, academic and industry researchers in cybersecurity and forensics, undergraduate and graduate students majoring in digital forensics and cybersecurity.

<b>344pp</b>	<b>Jul 2023</b>	
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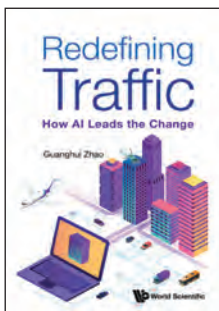
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How AI Leads the Change  
by **Guanghui Zhao** (*Guizhou University of Finance and Economics, China*)

This book looks at the impact of AI and how it has transformed transportation in the form of Smart Traffic Management Systems in a world of unmanned systems and autonomous machines. The book explores the problems faced in air, sea and land transport and traffic. It looks into Unmanned Aerial Vehicles (UAVs), autonomous and remotely-operated ships, intelligent port management systems, and modern urban railway systems.

**Readership:** Researchers, engineers, and technical personnel specialising in intelligent traffic, artificial intelligence, big data, and the Internet of things industry.

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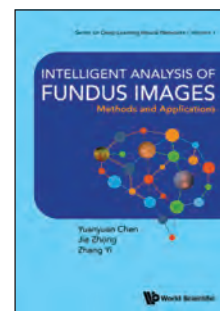
## INTELLIGENT ANALYSIS OF FUNDUS IMAGES

Methods and Applications  
by **Yuanyuan Chen** (*Sichuan University, China*),  
**Jie Zhong** (*University of Electronic Science and Technology of China, China*) & **Zhang Yi** (*Sichuan University, China*)

This comprehensive compendium designs deep neural network models and systems for intelligent analysis of fundus imaging. In response to several blinding fundus diseases such as Retinopathy of Prematurity (ROP), Diabetic Retinopathy (DR) and Macular Edema (ME), different image acquisition devices and fundus image analysis tasks are elaborated. From the actual fundus disease analysis tasks, various deep neural network models and experimental results are constructed and analyzed. For each task, an actual system for clinical application is developed.

**Readership:** Researchers, professionals, academics and graduate students in neural networks and machine learning. This useful reference text provides theoretical and experimental reference basis for AI researchers, system engineers of intelligent medicine and ophthalmologists.

<b>248pp</b>	<b>Jul 2023</b>	
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## MACHINE LEARNING IN PURE MATHEMATICS AND THEORETICAL PHYSICS

edited by **Yang-Hui He** (*London Institute for Mathematical Sciences, UK & Merton College, University of Oxford, UK & City, University of London, UK & Nankai University, China*)

The aim of this book, a first of its kind, is to collect research and survey articles from experts in this emerging dialogue between theoretical mathematics and machine learning. It does not dwell on the well-known multitude of mathematical techniques in deep learning, but focuses on the reverse relationship: how machine learning helps with mathematics. Taking a panoramic approach, the topics range from combinatorics to number theory, and from geometry to quantum field theory and string theory. Aimed at PhD students as well as seasoned researchers, each self-contained chapter offers a glimpse of an exciting future of this symbiosis.

**Readership:** Researchers in mathematics, theoretical physics, and machine learning, interested in their interactions. Students curious about how AI can help with research in mathematics.

<b>420pp</b>	<b>Jul 2023</b>	
<b>978-1-80061-369-0</b>	<b>US\$148</b>	<b>£135</b>
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Series on Computers and Operations  
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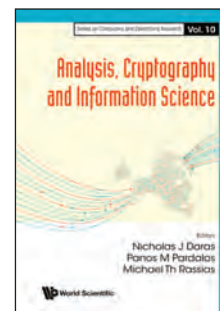
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edited by **Nicholas J Daras** (*Hellenic Military Academy, Greece*), **Panos M Pardalos** (*University of Florida, USA*) & **Michael Th Rassias** (*Hellenic Military Academy, Greece*)

This compendium focuses on self-contained presentations of various developments in mathematical analysis, cryptography and information science. The volume features both original research and survey papers contributed by experts from the international community. The book has a strong interdisciplinary flavor and features the most recent developments in the topics treated.

**Readership:** Researchers, professionals, academics, and graduate students in information sciences, digital security, computer maths & science and theoretical computer science.

<b>284pp</b>	<b>Jul 2023</b>	
<b>978-981-127-191-5</b>	<b>US\$98</b>	<b>£90</b>
<b>978-981-127-192-2(ebook)</b>	<b>US\$157</b>	<b>£145</b>



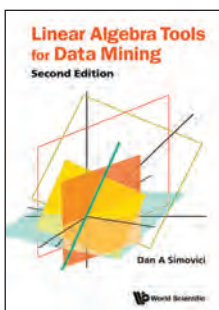
## LINEAR ALGEBRA TOOLS FOR DATA MINING

2nd Edition  
by **Dan A Simovici** (*University of Massachusetts Boston, USA & Dana-Farber Cancer Institute, USA*)

This updated compendium provides the linear algebra background necessary to understand and develop linear algebra applications in data mining and machine learning. Basic knowledge and advanced new topics (spectral theory, singular values, decomposition techniques for matrices, tensors and multidimensional arrays) are presented together with several applications of linear algebra (k-means clustering, biplots, least square approximations, dimensionality reduction techniques, tensors and multidimensional arrays). The useful reference text includes more than 600 exercises and supplements, many with completed solutions and MATLAB applications.

**Readership:** Researchers, professionals, academics and graduate students in pattern recognition/image analysis, AI, machine learning and databases.

<b>1004pp</b>	<b>Jul 2023</b>	
<b>978-981-127-033-8</b>	<b>US\$228</b>	<b>£210</b>
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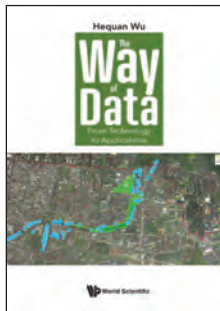


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## THE WAY OF DATA

From Technology to Applications  
by **Hequan Wu** (*China Information and Communication Technology Group, China*) & **Weimin Zheng** (*Tsinghua University, China*)



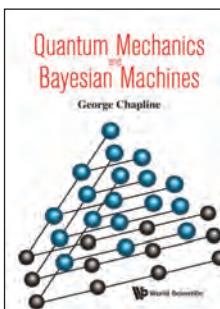
This comprehensive book introduces what big data is, big data processing systems, big data management technologies, and big data analysis methods in an easy-to-understand language. It explains the specific applications of big data in smart government affairs, economic development, and the improvement of people's livelihood and welfare.

**Readership:** Researchers, professionals, academics, and graduate students in Databases/Info Sciences, Digital Security and AI.

<b>200pp</b>	<b>May 2023</b>	
<b>978-981-125-007-1</b>	<b>US\$88</b>	<b>£80</b>
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by **George Chapline** (*Lawrence Livermore National Laboratory, USA*)



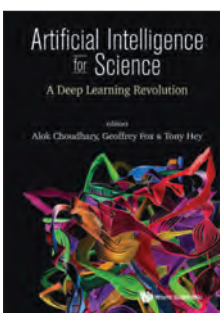
This compendium brings together the fields of Quantum Computing, Machine Learning, and Neuromorphic Computing. It provides an elementary introduction for students and researchers interested in quantum or neuromorphic computing to the basics of machine learning and the possibilities for using quantum devices for pattern recognition and Bayesian decision tree problems. The volume also highlights some possibly new insights into the meaning of quantum mechanics, for example, why a description of Nature requires probabilistic rather than deterministic methods.

**Readership:** Researchers, academics, professionals and graduate students in pattern recognition/image analysis, machine learning, quantum mechanics and general applied maths.

<b>196pp</b>	<b>May 2023</b>	
<b>978-981-3232-46-4</b>	<b>US\$78</b>	<b>£70</b>
<b>978-981-3232-47-1(ebook)</b>	<b>US\$125</b>	<b>£115</b>

## ARTIFICIAL INTELLIGENCE FOR SCIENCE

A Deep Learning Revolution  
edited by **Alok Choudhary** (*Northwestern University, USA*), **Geoffrey Fox** (*University of Virginia, USA*) & **Tony Hey** (*Rutherford Appleton Laboratory, UK*)



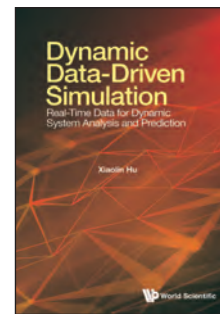
This unique collection introduces AI, Machine Learning (ML), and deep neural network technologies leading to scientific discovery from the datasets generated both by supercomputer simulation and by modern experimental facilities. Huge quantities of experimental data come from many sources — telescopes, satellites, gene sequencers, accelerators, and electron microscopes, including international facilities such as the Large Hadron Collider (LHC) at CERN in Geneva and the ITER Tokamak in France. These sources generate many petabytes moving to exabytes of data per year. Extracting scientific insights from these data is a major challenge for scientists, for whom the latest AI developments will be essential.

**Readership:** Researchers, professionals, academics, and graduate students in AI/machine learning, neural networks, data science, and science and engineering. The latter areas include astronomy, climate, energy, environment, health, life sciences, materials, particle physics, looking at theory, observation, and the design, construction, and control of experimental facilities.

<b>804pp</b>	<b>Apr 2023</b>	
<b>978-981-126-566-2</b>	<b>US\$148</b>	<b>£135</b>
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## DYNAMIC DATA-DRIVEN SIMULATION

Real-Time Data for Dynamic System Analysis and Prediction  
by **Xiaolin Hu** (*Georgia State University, USA*)



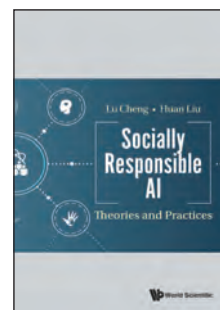
This comprehensive book systematically introduces Dynamic Data Driven Simulation (DDDS) as a new simulation paradigm that makes real-time data and simulation model work together to enable simulation-based prediction/analysis. The text is significantly dedicated to introducing data assimilation as an enabling technique for DDDS. While data assimilation has been studied in other science fields (e.g., meteorology, oceanography), it is a new topic for the modeling and simulation community.

**Readership:** Researchers, professionals, academics and graduate students in AI, mathematical modeling and industrial engineering.

<b>328pp</b>	<b>Apr 2023</b>	
<b>978-981-126-717-8</b>	<b>US\$108</b>	<b>£100</b>
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## SOCIALLY RESPONSIBLE AI

Theories and Practices  
by **Lu Cheng** (*University of Illinois at Chicago, USA*) & **Huan Liu** (*Arizona State University, USA*)



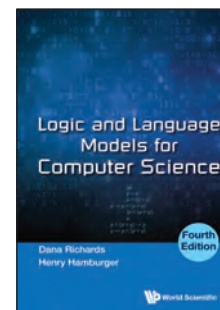
This book introduces a unified perspective of Socially Responsible AI to help bridge conceptual AI principles to responsible AI practice. It begins with an interdisciplinary definition of socially responsible AI and the AI responsibility pyramid. Existing efforts seeking to materialize the mainstream responsible AI principles are then presented. The book also discusses how to leverage advanced AI techniques to address the challenging societal issues through Protecting, Informing, and Preventing, and concludes with open problems and challenges.

**Readership:** Undergraduate & graduate students in AI, Machine Learning, Data Science, and Computer Science courses, and AI researchers, AI technologists, researchers, and practitioners from other disciplines who would like to contribute to making AI socially responsible with their expertise.

<b>196pp</b>	<b>Jun 2023</b>	
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## LOGIC AND LANGUAGE MODELS FOR COMPUTER SCIENCE

4th Edition  
by **Dana Richards** (*George Mason University, USA*) & **Henry Hamburger** (*George Mason University, USA*)



This unique compendium highlights the theory of computation, particularly logic and automata theory. Special emphasis is on computer science applications including loop invariants, program correctness, logic programming and algorithmic proof techniques.

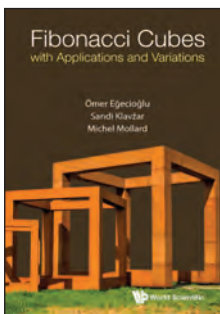
This innovative volume differs from standard textbooks, by building on concepts in a different order, using fewer theorems with simpler proofs. It has added many new examples, problems and answers. It can be used as an undergraduate text at most universities.

**Readership:** Researchers, professionals, academics, and graduate students in theoretical computer science.

<b>496pp</b>	<b>Mar 2023</b>	
<b>978-981-126-066-7</b>	<b>US\$118</b>	<b>£110</b>
<b>978-981-126-067-4(ebook)</b>	<b>US\$189</b>	<b>£175</b>

## FIBONACCI CUBES WITH APPLICATIONS AND VARIATIONS

by **Ömer Eğecioğlu** (*University of California at Santa Barbara, USA*), **Sandi Klavžar** (*University of Ljubljana, Slovenia*) & **Michel Mollard** (*CNRS Université Grenoble Alpes, France*)



Fibonacci Cubes have been an extremely popular area of research since the 1990s.

This unique compendium features the state of research into Fibonacci Cubes. It expands the knowledge in graph theoretic and combinatorial properties of Fibonacci Cubes and their variants.

By highlighting various approaches with numerous examples, it provides a fundamental source for further research in the field. This useful reference text surely benefits advanced students in computer science and mathematics and serves as an archival record of the current state of the field.

**Readership:** Researchers, professionals, academics and graduate students in theoretical computer science, graph theory and combinatorics.

**304pp** **Mar 2023**  
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## ALGORITHMS

A Top-Down Approach

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 (*Kansas State University, USA*)



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This useful reference text describes a way of thinking that eases the task of proving algorithm correctness. Working through a proof of correctness reveals an algorithm's subtleties in a way that a typical description does not. Algorithm analysis is presented using careful definitions that make the analyses mathematically rigorous.











**Readership:** Researchers, professionals, academics, undergraduate and graduate students in theoretical computer science.

















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**IMPACT FACTOR: 0.9**



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(University of Münster, Germany),  
**Frank Shih** (New Jersey Institute of  
Technology, USA) & **Patrick S P Wang**  
(Northeastern University, USA)



This journal publishes both applications and theory-oriented articles on new developments in the fields of pattern recognition and artificial intelligence, and is of interest to both researchers in industry and academia. From the beginning, there has always been a close relationship between the disciplines of pattern recognition and artificial intelligence. The recognition and understanding of sensory data like speech or images, which are major concerns in pattern recognition, have always been considered as important subfields of artificial intelligence. On the other hand, topics like knowledge representation, inference, search or learning that belong to the center of artificial intelligence, have constantly attracted the attention of researchers working in pattern recognition.

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**IMPACT FACTOR: 1.0**



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(University of Patras, Greece) &  
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<https://www.worldscientific.com/ijcm>

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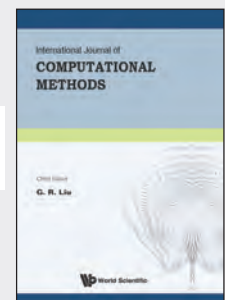


**Chief Editor**  
**G R Liu** (University of Cincinnati, USA)

The purpose of this journal is to provide a unique forum for the fast publication and rapid dissemination of original research results and innovative ideas on the state-of-the-art on computational methods. The methods should be innovative and of high scholarly, academic and practical value.

The journal is devoted to all aspects of modern computational methods and the articles can involve theory, algorithm, programming, coding, numerical simulation and/or novel application of computational techniques to problems in engineering, science, and other disciplines related to computations. The journal places a great emphasis on creativity, novelty and innovation of computational methods. It aims to become the major platform that archives the history of the technical development of new generations of computational methods.

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<https://www.worldscientific.com/ijig>

**IMPACT FACTOR: 0.8**



**Editors-in-Chief: David Zhang**  
(Hong Kong Polytechnic University,  
Hong Kong) & **Yong Xu** (Harbin Institute  
of Technology Shenzhen, China)

This journal will emphasize on efficient and effective image and graphics technologies and systems. This journal covers the following research and application issues:

**Image Processing** (Image acquisition & storage • Image pre-processing • Image coding and transmission • Image indexing & retrieval),

**Image Analysis and Understanding** (Image segmentation & measurement • Texture & motion analysis • Image matching and scene interpretation • 3-D modeling),

**Pattern Recognition Application** (Statistical, structural & neural approaches • Character, speech, image & video applications • Biometrics technologies & system),

**Computer Vision** (Active, real-time & stereo computer vision • VLSI image model, algorithm & architecture • Multi-modal image systems)

**Graphics Modeling, Rendering and Animation** (Graphics algorithms • Modeling methods • Rendering algorithms • Animation),

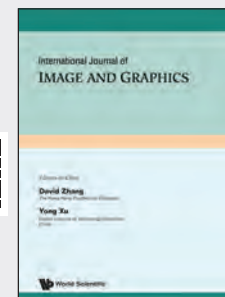
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**Multimedia Systems and Techniques** (Multimedia algorithms • Multimedia communication and CSCW • Multimedia database • Multimedia systems),

**Graphics User Interface** (User interface management system • Multi-agent/Artificial life/Intelligent agent • Multi-modal user interface),

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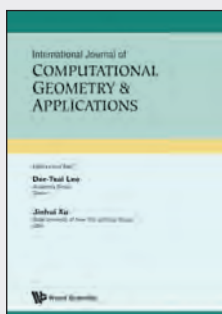
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**Der-Tsai Lee** (*Academia Sinica, Taiwan*)

**Jinhui Xu** (*State University of New York at Stony Brook, USA*)

A bimonthly journal devoted to the field of computational geometry within the framework of design and analysis of algorithms. Emphasis is placed on the computational aspects of geometric problems that arise in various fields of science and engineering including computer-aided geometry design (CAGD), computer graphics, constructive solid geometry (CSG), operations research, pattern recognition, robotics, solid modelling, VLSI routing/layout, and others. Research contributions ranging from theoretical results in algorithm design — sequential or parallel, probabilistic or randomized algorithms — to applications in the above-mentioned areas are welcome. Research findings or experiences in the implementations of geometric algorithms, such as numerical stability, and papers with a geometric flavour related to algorithms or the application areas of computational geometry are also welcome.

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### PARALLEL PROCESSING LETTERS (PPL)

<https://www.worldscientific.com/ppl>

#### Editor-in-Chief: A Adamatzky

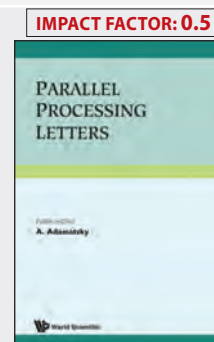
(*University of the West of England, UK*)



*Parallel Processing Letters (PPL)* aims to rapidly disseminate results on a worldwide basis in the field of parallel processing in the form of short papers. It fills the need for an information vehicle which can convey recent achievements and further the exchange of scientific information in the field. This journal has a wide scope and topics covered include:

- design and analysis of parallel and distributed algorithms
- theory of parallel computation
- parallel programming languages
- parallel programming environments
- parallel architectures and VLSI circuits
- unconventional computational problems (e.g., time-varying variables, interacting variables, time-varying complexity)
- unconventional computational paradigms (e.g., biomolecular computing, chemical computing, quantum computing)
- computing in nature (e.g., photosynthesis, plant respiration, bacterial communication)
- nature-inspired algorithms (e.g., genetic algorithms, neural networks, swarm intelligence)

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### JOURNAL OF MEDICAL ROBOTICS RESEARCH (JMRR)

<https://www.worldscientific.com/jmrr>

#### Editor-in-Chief:

**Jaydev P. Desai**  
(*Georgia Tech, USA*)



Medical robotics has been progressively revolutionizing treatment for at least the past two decades. The Journal of Medical Robotics Research (JMRR) invites fundamental contributions to all areas of medical robotics including clinical evaluation studies. The journal is primarily aimed towards bringing the scientific and technological developments as well as clinical evaluation studies in the area of medical robotics to a wider robotics and clinical audience.

Areas of discussion include: • Robot-assisted Surgery • Image-guided Interventions • Rehabilitation Robotics • Assistive Robotics • Surgical simulation • Image-guided Diagnosis and Therapy • Nano-scale and micro-scale Interventions • Telesurgery • Haptics for Medical Robotics • Smart instrumented tools for surgery • Surgical Navigation • Surgical Workflow • Wearable Rehabilitation Systems

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### INTERNATIONAL JOURNAL OF FOUNDATIONS OF COMPUTER SCIENCE (IJFCS)

<https://www.worldscientific.com/ijfcs>

**IMPACT FACTOR: 0.6**

#### Editor-in-Chief: O H Ibarra

(*University of California, Santa Barbara, USA*)



The theoretical and mathematical aspects covered include: Algebraic theory of computing and formal systems, Algorithm and system implementation, issues, Approximation, probabilistic, and randomized algorithms, Automata and formal languages, Automata and formal languages, Automated deduction, Combinatorics and graph theory, Complexity theory, Computational biology and bioinformatics, Cryptography, Database theory, Data structures, Design and analysis of algorithms, DNA computing, Foundations of computer security, Foundations of high-performance computing, Logic in computer science, Foundations of high-performance computing, Logic in computer science, Model checking and computer-aided verification, Models of computation, Quantum computing, Semantics, concurrency, and type theory, Theories and models of internet computing, Theory of learning and inductive inference, Theory of parallel and distributed computing, Wireless networks and mobile computing.

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**JOURNAL OF INTERCONNECTION NETWORKS (JOIN)**



<https://www.worldscientific.com/join>

**IMPACT FACTOR: 0.5**

**Editor-in-Chief: Eddie Cheng**  
(Oakland University, USA)

An international scientific journal dedicated to advancing the state-of-the-art of interconnection networks. The journal addresses all aspects of interconnection networks including their theory, analysis, design, implementation and application, and corresponding issues of communication, computing and function arising from (or applied to) a variety of multifaceted networks. Interconnection problems occur at different levels in the hardware and software design of communicating entities in integrated circuits, multiprocessors, multicomputers, and communication networks as diverse as telephone systems, cable network systems, computer networks, mobile communication networks, satellite network systems, the Internet and biological systems.

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**INTERNATIONAL JOURNAL OF NEURAL SYSTEMS (IJNS)**

<https://www.worldscientific.com/ijns>

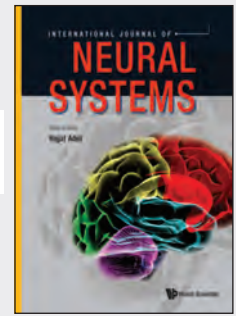
**IMPACT FACTOR: 6.6**



**Editor-in-Chief: Hojjat Adeli**  
(The Ohio State University, USA)

The *International Journal of Neural Systems* is a bimonthly peer-reviewed journal which covers information processing in natural and artificial neural systems. The journal presents a fresh, undogmatic attitude towards this multi-disciplinary field, aiming to be a forum for novel ideas and improved understanding of collective and cooperative phenomena in systems with computational capabilities.

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**INTERNATIONAL JOURNAL OF INFORMATION TECHNOLOGY & DECISION MAKING (IJITDM)**



<https://www.worldscientific.com/ijitdm>

**IMPACT FACTOR: 2.5**

**Editor-in-Chief: Yong Shi**  
(University of Nebraska at Omaha, USA)

**Managing Editor: Gang Kou**  
(Southwestern University of Finance and Economics, China)

This journal provides a global forum for exchanging research findings and case studies which bridge the latest information technology and various decision-making techniques. It promotes how information technology improves decision techniques as well as how the development of decision-making tools affects the information technology era. The journal is peer-reviewed and publishes both high-quality academic (theoretical or empirical) and practical papers in the broad ranges of information technology related topics.

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**INTERNATIONAL JOURNAL OF COMPUTATIONAL INTELLIGENCE AND APPLICATIONS (IJCIA)**

<https://www.worldscientific.com/ijcia>

**IMPACT FACTOR: 0.8**

**Editor-in-Chief: Brijesh Verma**  
(Griffith University, Australia)

A refereed journal dedicated to the theory and applications of computational intelligence (artificial neural networks, fuzzy systems, evolutionary computation and hybrid systems). The main goal of this journal is to provide the scientific community and industry with a vehicle whereby ideas using two or more conventional and computational intelligence based techniques could be discussed.

The IJCIA welcomes original works in areas such as neural networks, fuzzy logic, evolutionary computation, pattern recognition, hybrid intelligent systems, symbolic machine learning, statistical models, image/audio/video compression and retrieval. The IJCIA greatly encourages new ideas, combining two or more areas, such as neuro-fuzzy, neuro-symbolic, neuro-evolutionary, neuro-symbolic, neuro-pattern recognition, fuzzy-evolutionary, evolutionary-symbolic, fuzzy-evolutionary, evolutionary-symbolic, fuzzy-symbolic, etc. to be submitted.

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**INTERNATIONAL JOURNAL OF COOPERATIVE INFORMATION SYSTEMS (IJCIS)**

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**IMPACT FACTOR: 0.5**

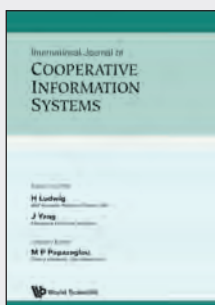


**Editors-in-Chief**

**Heiko Ludwig** (IBM Almaden Research Center, USA) & **J Yang** (Macquarie University, Australia)

**Advisory Editor**

**M P Papazoglou** (Tilburg University, The Netherlands)



This journal addresses the intricacies of cooperative work in the framework of distributed interoperable information systems. It provides a forum for the presentation and dissemination of research covering all aspects of CIS design, requirements, functionality, implementation, deployment, and evolution. IJCIS will publish papers describing original ideas and new results, on topics that include, but are not limited to: *CIS Principles, Information Agents, Large-Scale Knowledge Bases for CIS, Theoretical Frameworks and Formal Methods for CIS, CIS Implementation Techniques, Integration Challenges, Information Modelling and Reasoning techniques for CISs, Advanced CIS Programming, CIS Evolution, Re-Engineering, Business Process Management Systems.*

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**UNMANNED SYSTEMS (US)**

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**Managing Editor-in-Chief**

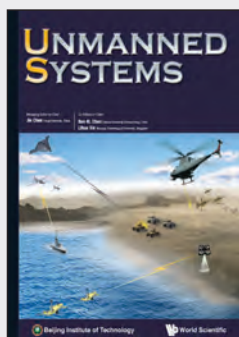
**Jie Chen** (Tongji University, China)

**IMPACT FACTOR: 3.0**

**Co-Editors-in-Chief**

**Ben M. Chen** (Chinese University of Hong Kong, China)  
**Lihua Xie** (Nanyang Technological University, Singapore)

**Unmanned Systems (US)** aims to cover all subjects related to the development of automatic machine systems, which include advanced technologies in unmanned hardware platforms (aerial, ground, underwater and unconventional platforms), unmanned software systems, energy systems, modeling and control, communications systems, computer vision systems, sensing and information processing, navigation and path planning, computing, information fusion, multi-agent systems, mission management, machine intelligence, artificial intelligence, and innovative application case studies.



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**JOURNAL OF THEORETICAL AND COMPUTATIONAL ACOUSTICS (JTCA)**

<https://www.worldscinet.com/jtca>



**IMPACT FACTOR: 1.3**

**Co-Editors-In-Chief**

**Steffen Marburg** (Technical University of Munich, Germany) & **Sean F. Wu** (Wayne State University, USA)



The aim of this journal is to provide an international forum for the dissemination of the state-of-the-art information in the field of Computational Acoustics.

Topics covered by this journal include research and tutorial contributions in OCEAN ACOUSTICS (a subject of active research in relation with sonar detection and the design of noiseless ships), SEISMO-ACOUSTICS (of concern to earthquake science and engineering, and also to those doing underground prospecting like searching for petroleum), AEROACOUSTICS (which includes the analysis of noise created by aircraft), COMPUTATIONAL METHODS, and SUPERCOMPUTING. In addition to the traditional issues and problems in computational methods, the journal also considers theoretical research acoustics papers which lead to large-scale scientific computations.

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**ADVANCES IN DATA SCIENCE AND ADAPTIVE ANALYSIS (ADSAA)**

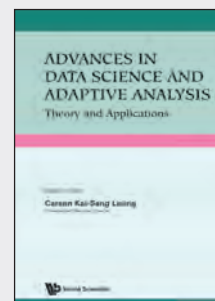
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**IMPACT FACTOR: 0.5**

**Editor-in-Chief:**

**Carson Kai-Sang Leung** (University of Manitoba, Canada)



This is an interdisciplinary journal dedicated to report original research results on data analysis methodology developments and their applications, with a special emphasis on the adaptive approaches. The mission of the journal is to elevate data analysis from the routine data processing by traditional tools to a new scientific level, which encourages innovative methods development for data science and its scientific research and engineering applications.

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**INTERNATIONAL JOURNAL OF HUMANOID ROBOTICS (IJHR)**

<https://www.worldscientific.com/ijhr>



**Editors-in-Chief**

**Ming Xie** (*Nanyang Technological University, Singapore*)  
**Juyang (John) Weng** (*Michigan State University, USA*)  
**Giulio Sandini** (*Italian Institute of Technology, Italy*)

This journal covers all subjects on the mind and body of humanoid robots. It is dedicated to advancing new theories, new techniques, and new implementations contributing to the successful achievement of future robots which not only imitate human beings, but also serve human beings. While IJHR encourages the contribution of original papers which are solidly grounded on proven theories or experimental procedures, the journal also encourages the contribution of innovative papers which venture into the new, frontier areas in robotics.



**GUIDANCE, NAVIGATION AND CONTROL (GNC)**

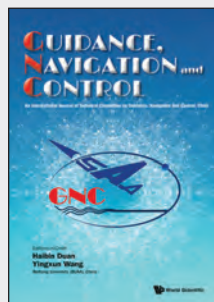
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**Editors-in-Chief**

**Haibin Duan & Yingxun Wang**  
*(Beihang University, China)*

**Guidance, Navigation and Control (GNC)** will report on advances in the understanding and utilization of guidance, navigation and control theories, technologies and systems. The journal serves as a platform for academic exchange by experts, scholars and researchers in these fields. The following subjects are of particular interest to the journal:



- Modeling, analysis and design of dynamics, control and guidance systems
- Stability, optimization, electronics, avionics, and information processing related to various vehicle systems (marine, ground, aeronautical, and astronautical systems)
- Theoretical and empirical research in guidance, navigation and control technologies
- Application of guidance, navigation and control technologies to real-world problems

**INTERNATIONAL JOURNAL OF ASIAN LANGUAGE PROCESSING (IJALP)**

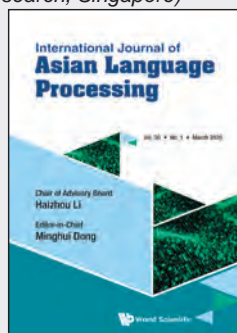
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**Editor-in-Chief**

**Minghui Dong** (*Institute for Infocomm Research, Singapore*)

The aim of the journal is to provide a channel for researchers working on Asian Language Processing to share their high-quality work and to promote research in this field. The scope of the journal will include the automatic processing or study of Asian languages on the following aspects: natural language processing, spoken language processing, linguistic study towards language processing, and processing for language education, among other areas.



**INTERNATIONAL JOURNAL OF MODELING, SIMULATION, AND SCIENTIFIC COMPUTING (IJMSSC)**

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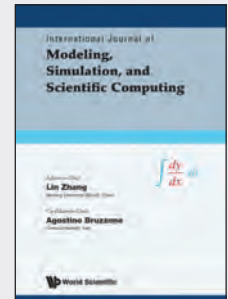


**IMPACT FACTOR: 0.9**

**Editors-in-Chief:**

**Lin Zhang** (*Beihang University (BUAA), China*)  
**Agostino Bruzzone** (*Genoa University, Italy*)

This is a quarterly journal which deals with the fields of system modeling, simulation and scientific computing. The scope of the journal covers, but is not limited to:



- Modeling theory and methodology for complex systems, system simulation theory and methodology
- Complex applications of high level simulation languages, Multi-parameter Optimization in simulation
- Verification, validation and accreditation of theory and technology
- Finite element methods, finite difference methods, Approximation theory
- Distributed/High-Performance/Pervasive/Grid/Cloud Computing, Bioinformatics/Data-Mining, High Performance simulation technology
- Computational electromagnetics, electrostatics, fluid dynamics, computational heat, mass, and momentum transfer
- M&S technology of continuous systems/discrete systems/hybrid systems/Intelligent systems, complex systems/open systems/ huge systems
- SBA/virtual prototyping engineering technology
- Simulation language methodology, supporting platforms, application techniques

**INTERNATIONAL JOURNAL OF SOFTWARE ENGINEERING AND KNOWLEDGE ENGINEERING (IJSEKE)**

<https://www.worldscientific.com/ijseke>



**IMPACT FACTOR: 0.6**

**Editor-in-Chief**

**Professor S.K. Chang**  
*(Knowledge Systems Institute, USA)*

This journal intended to serve as a forum for researchers, practitioners, and developers to exchange ideas and results for the advancement of software engineering and knowledge engineering. Three types of papers will be published:



This journal intended to serve as a forum for researchers, practitioners, and developers to exchange ideas and results for the advancement of software engineering and knowledge engineering. The journal publishes papers in the areas of software engineering methods and practices, object-oriented systems, rapid prototyping, software reuse, cleanroom software engineering, stepwise refinement/enhancement, formal methods of specification, ambiguity in software development, impact of CASE on software development life cycle, knowledge engineering methods and practices, logic programming, expert systems, knowledge-based systems, distributed knowledge-based systems, deductive database systems, knowledge representations, knowledge-based systems in language translation & processing, software and knowledge-ware maintenance, reverse engineering in software design, and applications in various domains of interest.

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**INTERNATIONAL JOURNAL OF UNCERTAINTY, FUZZINESS AND KNOWLEDGE-BASED SYSTEMS (IJUFKS)**

<https://www.worldscientific.com/ijufks>



**IMPACT FACTOR: 1.0**

**Editor-in-Chief: Bernadette Bouchon-Meunier**  
(Sorbonne Université, CNRS, France)

This International Journal is a forum for research on various methodologies for the management of imprecise, vague, uncertain or incomplete information. The aim of the journal is to promote theoretical, methodological or practical works dealing with all kinds of methods to represent and manipulate imperfectly described pieces of knowledge. It is published bimonthly, with worldwide distribution to researchers, engineers, decision-makers, and educators.



**INTERNATIONAL JOURNAL OF SEMANTIC COMPUTING (IJSC)**

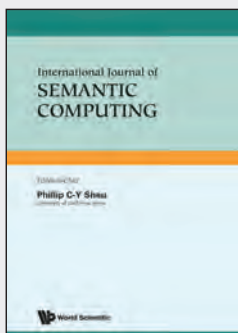
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**Editor-in-Chief: Phillip C-Y Sheu**  
(University of California, Irvine, USA)

**IMPACT FACTOR: 0.3**

*International Journal of Semantic Computing (IJSC)* addresses the computing technologies (e.g., artificial intelligence, natural language, software engineering, data and knowledge engineering, computer systems, signal processing, etc.), and their interactions, that may be used to extract or process computational content and descriptions. While some areas of Semantic Computing have appeared as isolated pieces in journals dedicated to individual disciplines, IJSC is a journal that glues these pieces together into an integrated theme with synergetic interactions.



**NEW MATHEMATICS AND NATURAL COMPUTATION (NMNC)**

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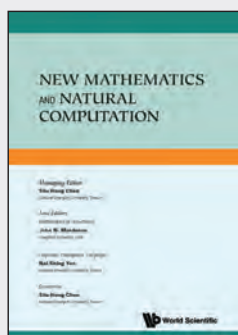


**Managing Editor: Shu-Heng Chen**  
(National Chengchi University, Taiwan)

**IMPACT FACTOR: 0.7**

Recognizing the world is full of vagueness and uncertainty, this journal has chosen three very focused areas of research: **i.** Mathematics of Uncertainty **ii.** Economics & Finances **iii.** Cognitive Science

The close cooperation of the above three areas is of paramount importance. This journal strongly encourages the suggestions of any topic within these three general areas of research. The journal has demonstrated there is room for artificial intelligence & modern control theory in contributing solutions to some selected economic problems. We shall continue to explore other possibilities. A new initiative on cognitive science and economics is a good example. Over the years, this journal has published some papers on pattern recognition, image processing, and natural languages vis-a-vis artificial intelligence. We welcome any proposal on worthy new initiatives.



**JOURNAL OF ARTIFICIAL INTELLIGENCE AND CONSCIOUSNESS (JAIC)**

<https://www.worldscientific.com/jaic>



**Chief and Executive Editors**

**Antonio Chella** (Università degli Studi di Palermo & ICAR-CNR Palermo, Italy), **David Gamez** (Middlesex University, UK) & **Riccardo Manzotti** (IULM University, Milan, Italy)

The *Journal of Artificial Intelligence and Consciousness (JAIC)* will offer a multidisciplinary platform to discuss AI and consciousness in the light of robotics and artificial systems, computational science, psychology, philosophy of mind, ethics, and neuroscience. The aims and scope of the journal are: (i) articles that take inspiration from biological consciousness and/or that explore theoretical issues of consciousness to build robots and AI systems that show forms of functional consciousness; (ii) articles that employ robots and AI systems as tools to model and better understand biological mechanisms of consciousness; (iii) articles that discuss ethical problems emerging or uncovered through the overlap of AI and consciousness, and that investigate the ethical and societal impact of consciousness and the limits of it, and (iv) to pursue the hybridization between the field of AI and the field of consciousness studies.



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**INTERNATIONAL JOURNAL OF BIG DATA MINING FOR GLOBAL WARMING (IJBDMGW)**

<https://www.worldscinet.com/ijbdmgw>



**Editors-In-Chief**

**Donald Huisingsh** (University of Tennessee, Knoxville, USA) & **Zhihua Zhang** (Beijing Normal University, China)

Present and future global warming research must be increasingly based on big datasets at terabyte and exabyte scales from diverse sources (e.g. climate, ocean, economy, energy, ecosystem dynamics, industry, agriculture, environment, public's attitude/knowledge surveys). The "**International Journal of Big Data Mining for Global Warming**" is an inter-disciplinary journal dedicated to the publication of high-quality research articles, review articles, letters, case studies and book reviews in all aspects of global warming through traditional mining methods (statistical, spectral, numerical, simulating, LCA, 3E, etc.) and non-traditional mining methods (neural networks, deep learning, cloud computing, etc.) of these big datasets.



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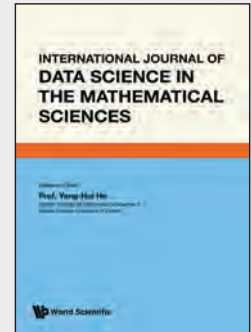


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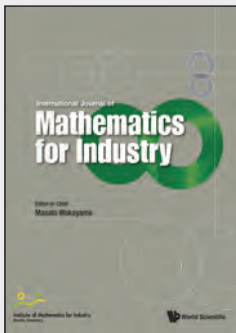
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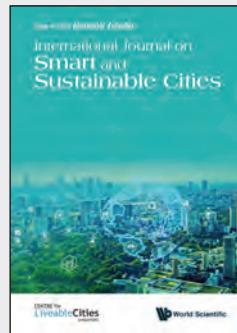
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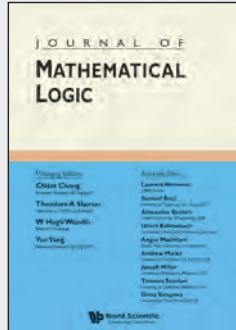
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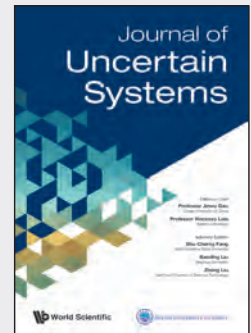
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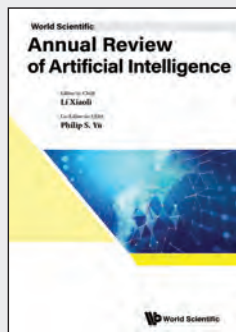
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	ACTIN COMPUTATION: UNLOCKING THE POTENTIAL OF ACTIN FILAMENTS FOR REVOLUTIONARY COMPUTING SYSTEMS	15
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	ADVANCED VARIANCE REDUCTION TECHNIQUES FOR MCMC	13
	ALGORITHMS: A TOP-DOWN APPROACH	19
	ANALYSIS AND VISUALIZATION OF DISCRETE DATA USING NEURAL NETWORKS	12
	ANALYSIS, CRYPTOGRAPHY AND INFORMATION SCIENCE	17
	APPLICATION OF HIGH PERFORMANCE COMPUTING TO EARTHQUAKE RELATED PROBLEMS	7
	APPLIED HEALTH CARE ANALYTICS: ENABLING TRANSFORMATIVE HEALTH CARE THROUGH DATA SCIENCE, MACHINE LEARNING, AND COGNITIVE COMPUTING	8
	ARTIFICIAL BRAINS: AN EVOLVED NEURAL NET MODULE APPROACH	4
	ARTIFICIAL INTELLIGENCE AND BEYOND FOR FINANCE	6
	ARTIFICIAL INTELLIGENCE FOR SCIENCE: A DEEP LEARNING REVOLUTION	18
	ARTIFICIAL INTELLIGENCE IN MEDICINE: A PRACTICAL GUIDE FOR CLINICIANS	7
	ARTIFICIAL INTELLIGENCE: BUILDING AN INTELLIGENT FUTURE WITH AI TECHNOLOGY	4
	AUTOMATA: THEORY, TRENDS, AND APPLICATIONS	15
	BASIC HUMAN-ROBOT INTERACTION	12
	BIG DATA MANAGEMENT AND ANALYTICS	15
	BLOCKCHAIN, CRYPTOCURRENCY AND DEFI SYSTEMS: CONCEPTS AND APPLICATIONS	8
	CLOUD TO EDGEWARE: WIRELESS GRID APPLICATIONS, ARCHITECTURE AND SECURITY FOR THE "INTERNET OF THINGS"	9
	COMPUTATIONAL APPROACHES TO CONSCIOUS ARTIFICIAL INTELLIGENCE	16
	COMPUTER SECURITY (THIRD EDITION)	8
	COMPUTING WITH INCOMPLETE INFORMATION: THE MATHEMATICS OF ENUMERATION AND POSITIVE REDUCIBILITIES	8
	CONSCIOUS LEARNING: HUMANS AND MACHINES	5
	DEEP LEARNING FOR 3D VISION: ALGORITHMS AND APPLICATIONS	6
	DETECTING ONLINE PROPAGANDA AND MISINFORMATION	10
	DIFFERENTIAL GEOMETRICAL FOUNDATIONS OF INFORMATION GEOMETRY: GEOMETRY OF STATISTICAL MANIFOLDS AND DIVERGENCES	10
	DISTRIBUTED INTELLIGENT CIRCUITS AND SYSTEMS	7
	DNA LOGIC DESIGN: COMPUTING WITH DNA	14
	DYNAMIC DATA-DRIVEN SIMULATION: REAL-TIME DATA FOR DYNAMIC SYSTEM ANALYSIS AND PREDICTION	18
	ECONOMIC MANAGEMENT AND BIG DATA APPLICATION – PROCEEDINGS OF THE 3RD INTERNATIONAL CONFERENCE	9
	ELEMENTS OF DEEP LEARNING THEORY	5
	EMERGING TOPICS IN PATTERN RECOGNITION AND ARTIFICIAL INTELLIGENCE	10
	FAIR EXCHANGE: THEORY AND PRACTICE OF DIGITAL BELONGINGS	9
	FEDERATED LEARNING TECHNIQUES AND ITS APPLICATION IN THE HEALTHCARE INDUSTRY	6
	FIBONACCI CUBES WITH APPLICATIONS AND VARIATIONS	19
	FIGHTING THE VIRUS: DISEASE MODELING AND CYBER SECURITY	11
	FIRST STEP TO QUANTUM COMPUTING: A PRACTICAL GUIDE FOR BEGINNERS	11
	FRONTIERS IN BIOIMAGE INFORMATICS METHODOLOGY	11
	HANDBOOK OF RANDOM FORESTS: THEORY AND APPLICATIONS FOR REMOTE SENSING	10
	HANDS-ON COMPUTER VISION	10
	HIGH DIMENSIONAL KNOTTING: AN ILLUSTRATED GUIDE	5
	HOW TO COPE WITH CLIMATE CHANGE	7
	IMAGE ANALYSIS AND PATTERN RECOGNITION: STATE OF THE ART IN THE RUSSIAN FEDERATION	11
	INNOVATIONS IN DIGITAL FORENSICS	16

✓	Title	Page
	INTELLIGENT ANALYSIS OF FUNDUS IMAGES: METHODS AND APPLICATIONS	17
	INTRODUCTION TO INTELLIGENT HIGH-SPEED RAILWAYS	5
	KNOWLEDGE STRUCTURES: RECENT DEVELOPMENTS IN THEORY AND APPLICATION	14
	LECTURE NOTES IN DEEP LEARNING: THEORETICAL INSIGHTS INTO AN ARTIFICIAL MIND	4
	LINEAR ALGEBRA TOOLS FOR DATA MINING (SECOND EDITION)	17
	LOGIC AND LANGUAGE MODELS FOR COMPUTER SCIENCE (FOURTH EDITION)	18
	LOGICAL FOUNDATIONS OF COMPUTER SCIENCE - VOLUME 2: FIRST-ORDER LOGIC	14
	MACHINE LEARNING FOR MALWARE DETECTION	4
	MACHINE LEARNING IN PURE MATHEMATICS AND THEORETICAL PHYSICS	17
	MATHEMATICAL ANALYSIS, DIFFERENTIAL EQUATIONS AND APPLICATIONS	14
	MATHEMATICAL FOUNDATIONS OF INFORMATION SCIENCES	14
	MISCHIEF OF MATH, THE: SHORT STORIES OF CLOWNS, CONTORTIONISTS AND COURT-JESTERS	15
	NEW MEDICAL TECHNOLOGY IN PATIENT CARE: A PHYSICIAN'S GUIDE	11
	OPTIMAL TRANSPORT NETWORKS IN NATURE	13
	PRACTICAL GUIDE ON SECURITY AND PRIVACY IN CYBER-PHYSICAL SYSTEMS, A: FOUNDATIONS, APPLICATIONS AND LIMITATIONS	16
	PRACTICAL PHILOSOPHY OF AI-ASSISTANTS, THE: AN ENGINEERING-HUMANITIES CONVERSATION	15
	PRECISE ENERGY - A MISSING VIEW ON BATTERIES	9
	PROGRAMMING BIG DATA APPLICATIONS: SCALABLE TOOLS AND FRAMEWORKS FOR YOUR NEEDS	8
	PYTHON, DATA SCIENCE AND MACHINE LEARNING: FROM SCRATCH TO PRODUCTIVITY	4
	QUANTUM FIELD THEORY, QUANTUM PHYSICS AND MICRO-MACRO DUALITY	11
	QUANTUM MECHANICS AND BAYESIAN MACHINES	18
	QUERY COMPLEXITY	13
	REDEFINING TRAFFIC: HOW AI LEADS THE CHANGE	17
	RESHAPING EXPERIMENTAL ORGANIC RESEARCH WITH SMART IN SILICO TOOLS: INVITATION TO ARTIFICIAL INTELLIGENCE-EQUIPPED ORGANIC LAB	13
	REVERSIBLE WORLD OF CELLULAR AUTOMATA - FANTASTIC PHENOMENA AND COMPUTING IN ARTIFICIAL REVERSIBLE UNIVERSE	13
	SDN AND NFV: A NEW DIMENSION TO VIRTUALIZATION	12
	SECRETS OF MACHINE LEARNING: HOW IT WORKS AND WHAT IT MEANS FOR YOU	7
	SELECTED WORKS OF RODERICK S. C. WONG, THE (VOLUME 4)	13
	SELF AND SENSE OF AGENCY IN ARTIFICIAL SYSTEMS	4
	SENSORS AND THE INTERNET OF THINGS: ACQUISITION AND USE OF BIG DATA	9
	SOCIALLY RESPONSIBLE AI: THEORIES AND PRACTICES	18
	SPARSE REPEAT CT SCANNING IN RADON SPACE	12
	STATISTICAL MACHINE LEARNING WITH APPLICATIONS IN FINANCE	5
	STRATEGIC RISK, INTELLIGENCE AND DIGITAL TRANSFORMATION	7
	SYNESTHESIA DECODES INNOVATION: THE DANTE EFFECT	6
	SYSTEMS MEDICINE FOR HUMAN SPACEFLIGHT	12
	TEACHING AND LEARNING IN THE DIGITAL ERA: ISSUES AND STUDIES	9
	TO HALT OR NOT TO HALT? THAT IS THE QUESTION	6
	TOWARDS HUMAN BRAIN INSPIRED LIFELONG LEARNING	6
	UNMANNED SYSTEMS: BEST OF 10 YEARS	16
	VISUAL QUALITY ASSESSMENT AND ENHANCEMENT FOR NATURAL IMAGES	4
	WAVELET THEORY APPROACH TO PATTERN RECOGNITION (3RD EDITION)	10
	WAY OF DATA, THE: FROM TECHNOLOGY TO APPLICATIONS	18

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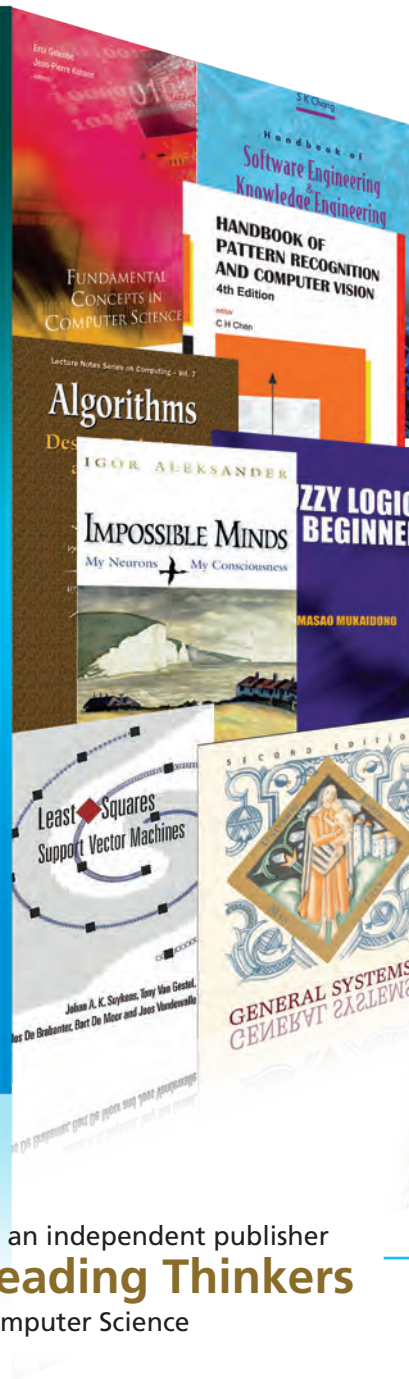
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