

# A Hybrid Fuzzy Logic And Extreme Learning Machine For

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Proceedings of ELM-2017 - Jiuwen Cao  
2018-10-16

This book contains some selected papers from the International Conference on Extreme Learning Machine (ELM) 2017, held in Yantai, China, October 4-7, 2017. The book covers theories, algorithms and applications of ELM. Extreme Learning Machines (ELM) aims to enable pervasive learning and pervasive intelligence. As advocated by ELM theories, it is exciting to see the convergence of machine learning and biological learning from the long-term point of view. ELM may be one of the fundamental 'learning particles' filling the gaps between machine learning and biological learning (of which activation functions are even unknown). ELM represents a suite of (machine and biological) learning techniques in which hidden neurons need not be tuned: inherited from their ancestors or randomly generated. ELM learning theories show that effective learning algorithms can be derived based on randomly generated hidden neurons (biological neurons, artificial neurons, wavelets, Fourier series, etc) as long as they are nonlinear piecewise continuous, independent of training data and application environments. Increasingly, evidence from neuroscience suggests that similar principles apply in biological learning

systems. ELM theories and algorithms argue that "random hidden neurons" capture an essential aspect of biological learning mechanisms as well as the intuitive sense that the efficiency of biological learning need not rely on computing power of neurons. ELM theories thus hint at possible reasons why the brain is more intelligent and effective than current computers. This conference will provide a forum for academics, researchers and engineers to share and exchange R&D experience on both theoretical studies and practical applications of the ELM technique and brain learning. It gives readers a glance of the most recent advances of ELM.

**Sensor Systems Simulations** - Willem Dirk van Driel 2019-06-18

This book describes for readers various technical outcomes from the EU-project IoSense. The authors discuss sensor integration, including LEDs, dust sensors, LIDAR for automotive driving and 8 more, demonstrating their use in simulations for the design and fabrication of sensor systems. Readers will benefit from the coverage of topics such as sensor technologies for both discrete and integrated innovative sensor devices, suitable for high volume production, electrical, mechanical, security and software resources for integration of sensor

system components into IoT systems and IoT-enabling systems, and IoT sensor system reliability. Describes from component to system level simulation, how to use the available simulation techniques for reaching a proper design with good performance; Explains how to use simulation techniques such as Finite Elements, Multi-body, Dynamic, stochastics and many more in the virtual design of sensor systems; Demonstrates the integration of several sensor solutions (thermal, dust, occupancy, distance, awareness and more) into large-scale system solutions in several industrial domains (Lighting, automotive, transport and more); Includes state-of-the-art simulation techniques, both multi-scale and multi-physics, for use in the electronic industry.

New Knowledge in Information Systems and Technologies - Álvaro Rocha 2019-03-26

This book includes a selection of articles from The 2019 World Conference on Information Systems and Technologies (WorldCIST'19), held from April 16 to 19, at La Toja, Spain.

WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences and challenges in modern information systems and technologies research, together with their technological development and applications. The book covers a number of topics, including A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human-Computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in Radiocommunications; and N) Technologies for Biomedical Applications.

**Advances in Soft Computing** - Félix Castro 2018-12-31

The two-volume set LNAI 10632 and 10633 constitutes the proceedings of the 16th Mexican International Conference on Artificial Intelligence, MICAI 2017, held in Ensenada,

Mexico, in October 2017. The total of 60 papers presented in these two volumes was carefully reviewed and selected from 203 submissions. The contributions were organized in the following topical sections: Part I: neural networks; evolutionary algorithms and optimization; hybrid intelligent systems and fuzzy logic; and machine learning and data mining. Part II: natural language processing and social networks; intelligent tutoring systems and educational applications; and image processing and pattern recognition.

**Fashion Forecasting** - Akhil J K 2015-09-22

Now, Fashion is at its peak. Fashion always changes; the forecasting methods are varying and developing fast through the ever widening network of post-modern media. But, the basics remain the same. This book is aimed at giving the basic ideas and methods in Fashion Forecasting to the new comers and aspirants.

**Applications of Artificial Intelligence**

**Techniques in the Petroleum Industry** -

Abdolhossein Hemmati Sarapardeh 2020-08-26

Applications of Artificial Intelligence Techniques in the Petroleum Industry gives engineers a critical resource to help them understand the machine learning that will solve specific engineering challenges. The reference begins with fundamentals, covering preprocessing of data, types of intelligent models, and training and optimization algorithms. The book moves on to methodically address artificial intelligence technology and applications by the upstream sector, covering exploration, drilling, reservoir and production engineering. Final sections cover current gaps and future challenges. Teaches how to apply machine learning algorithms that work best in exploration, drilling, reservoir or production engineering Helps readers increase their existing knowledge on intelligent data modeling, machine learning and artificial intelligence, with foundational chapters covering the preprocessing of data and training on algorithms Provides tactics on how to cover complex projects such as shale gas, tight oils, and other types of unconventional reservoirs with more advanced model input

Artificial Intelligence - Gennady S. Osipov

2019-10-17

This volume contains selected tutorial and young scientist school papers of the 5th RAAI Summer

School on Artificial Intelligence, held in July 2019 at Institute of Physics and Technology (MIPT) campus in Dolgoprudny, a suburb of Moscow, Russia. The 11 chapters in this volume present papers focusing on various important aspects of Multiagent systems; Behavior planning; Natural language processing; Modeling of reasoning; and Machine learning and data analysis.

### **Advances in Fuzzy Logic and Technology**

**2017** - Janusz Kacprzyk 2017-08-29

This volume constitutes the proceedings of two collocated international conferences: EUSFLAT-2017 – the 10th edition of the flagship Conference of the European Society for Fuzzy Logic and Technology held in Warsaw, Poland, on September 11–15, 2017, and IWIFSGN'2017 – The Sixteenth International Workshop on Intuitionistic Fuzzy Sets and Generalized Nets, held in Warsaw on September 13–15, 2017. The conferences were organized by the Systems Research Institute, Polish Academy of Sciences, Department IV of Engineering Sciences, Polish Academy of Sciences, and the Polish Operational and Systems Research Society in collaboration with the European Society for Fuzzy Logic and Technology (EUSFLAT), the Bulgarian Academy of Sciences and various European universities. The aim of the EUSFLAT-2017 was to bring together theoreticians and practitioners working on fuzzy logic, fuzzy systems, soft computing and related areas and to provide a platform for exchanging ideas and discussing the latest trends and ideas, while the aim of IWIFSGN'2017 was to discuss new developments in extensions of the concept of a fuzzy set, such as an intuitionistic fuzzy set, as well as other concepts, like that of a generalized net. The papers included, written by leading international experts, as well as the special sessions and panel discussions contribute to the development the field, strengthen collaborations and intensify networking.

### **Deep Learning Techniques and Optimization Strategies in Big Data Analytics**

- Thomas, J. Joshua 2019-11-29

Many approaches have sprouted from artificial intelligence (AI) and produced major breakthroughs in the computer science and engineering industries. Deep learning is a method that is transforming the world of data

and analytics. Optimization of this new approach is still unclear, however, and there's a need for research on the various applications and techniques of deep learning in the field of computing. Deep Learning Techniques and Optimization Strategies in Big Data Analytics is a collection of innovative research on the methods and applications of deep learning strategies in the fields of computer science and information systems. While highlighting topics including data integration, computational modeling, and scheduling systems, this book is ideally designed for engineers, IT specialists, data analysts, data scientists, engineers, researchers, academicians, and students seeking current research on deep learning methods and its application in the digital industry.

### **Hybrid Intelligent Technologies in Energy Demand Forecasting**

- Wei-Chiang Hong

2020-01-01

This book is written for researchers and postgraduates who are interested in developing high-accurate energy demand forecasting models that outperform traditional models by hybridizing intelligent technologies. It covers meta-heuristic algorithms, chaotic mapping mechanism, quantum computing mechanism, recurrent mechanisms, phase space reconstruction, and recurrence plot theory. The book clearly illustrates how these intelligent technologies could be hybridized with those traditional forecasting models. This book provides many figures to demonstrate how these hybrid intelligent technologies are being applied to exceed the limitations of existing models.

### Soft Computing for Problem Solving 2019

- Atulya K. Nagar 2020-04-29

This book features the outcomes of the 9th International Conference on Soft Computing for Problem Solving, SocProS 2019, which brought together researchers, engineers and practitioners to discuss thought-provoking developments and challenges in order to identify potential future directions. The book presents the latest advances and innovations in the interdisciplinary areas of soft computing, including original research papers in areas such as algorithms (artificial immune systems, artificial neural networks, genetic algorithms, genetic programming, and particle swarm optimization) and applications (control systems,

data mining and clustering, finance, weather forecasting, game theory, business and forecasting applications). It is a valuable resource for both young and experienced researchers dealing with complex and intricate real-world problems that cannot easily be solved using traditional methods.

*Nature-Inspired Design of Hybrid Intelligent Systems* - Patricia Melin 2016-12-08

This book highlights recent advances in the design of hybrid intelligent systems based on nature-inspired optimization and their application in areas such as intelligent control and robotics, pattern recognition, time series prediction, and optimization of complex problems. The book is divided into seven main parts, the first of which addresses theoretical aspects of and new concepts and algorithms based on type-2 and intuitionistic fuzzy logic systems. The second part focuses on neural network theory, and explores the applications of neural networks in diverse areas, such as time series prediction and pattern recognition. The book's third part presents enhancements to meta-heuristics based on fuzzy logic techniques and describes new nature-inspired optimization algorithms that employ fuzzy dynamic adaptation of parameters, while the fourth part presents diverse applications of nature-inspired optimization algorithms. In turn, the fifth part investigates applications of fuzzy logic in diverse areas, such as time series prediction and pattern recognition. The sixth part examines new optimization algorithms and their applications. Lastly, the seventh part is dedicated to the design and application of different hybrid intelligent systems.

**Information Systems for the Fashion and Apparel Industry** - Tsan-Ming Jason Choi 2016-04-13

Information Systems for the Fashion and Apparel Industry brings together trends and developments in fashion information systems, industrial case-studies, and insights from an international team of authors. The fashion and apparel industry is fast-growing and highly influential. Computerized information systems are essential to support fashion business operations and recent developments in social media, mobile commerce models, radio frequency identification (RFID) technologies,

and ERP systems are all driving innovative business measures in the industry. After an introductory chapter outlining key decision points and information requirements in fast fashion supply chains, Part One focuses on the principles of fashion information systems, with chapters covering how decision making in the apparel supply chains can be improved through the use of fuzzy logic, RFID technologies, evolutionary optimization techniques, and artificial neural networks. Part Two then reviews the range of applications for information systems in the fashion and apparel industry to improve customer choice, aid design, implement intelligent forecasting and procurement systems, and manage inventory and returns. Provides systematic and comprehensive coverage of information systems for the fashion and apparel industry Combines recent developments and industrial best-practices in apparel supply chain management in order to meet the needs of the fashion and apparel industry professionals and academics Features input from a team of highly knowledgeable authors with a range of professional and academic experience, overseen by an editor who is a leading expert in the field Reviews the range of applications for information systems in the fashion and apparel industry to improve customer choice, aid design, implement intelligent forecasting and procurement systems, and manage inventory and returns

**Nature Inspired Computing for Wireless Sensor Networks** - Debashis De 2020-02-01

This book presents nature inspired computing applications for the wireless sensor network (WSN). Although the use of WSN is increasing rapidly, it has a number of limitations in the context of battery issue, distraction, low communication speed, and security. This means there is a need for innovative intelligent algorithms to address these issues. The book is divided into three sections and also includes an introductory chapter providing an overview of WSN and its various applications and algorithms as well as the associated challenges. Section 1 describes bio-inspired optimization algorithms, such as genetic algorithms (GA), artificial neural networks (ANN) and artificial immune systems (AIS) in the contexts of fault analysis and diagnosis, and traffic management. Section 2

highlights swarm optimization techniques, such as African buffalo optimization (ABO), particle swarm optimization (PSO), and modified swarm intelligence technique for solving the problems of routing, network parameters optimization, and energy estimation. Lastly, Section 3 explores multi-objective optimization techniques using GA, PSO, ANN, teaching-learning-based optimization (TLBO), and combinations of the algorithms presented. As such, the book provides efficient and optimal solutions for WSN problems based on nature-inspired algorithms.

*Spatial Modelling of Flood Risk and Flood Hazards* - Biswajeet Pradhan 2022

Floods and flash floods with hydro-meteorological and tropical cyclones are the some of the most devastating natural disasters causing massive damages to natural and man-made features. Flood hazards are a major threat to human life, properties (agricultural area, yield production, building and homes) and infrastructures (bridges, roads, railways, urban infrastructures, etc). Flood hazards susceptibility mapping (risk assessment) and modelling is an essential step for early warning systems, emergency services, prevention and mitigation of future environmental and social hazards and implementation of risk management strategies. Due to the lack of proper information, technology-based policies and strategies, mapping and modelling can often not be implemented to the best possible level. Geo-spatial techniques have enjoyed rising interest in recent decades among the earth environmental and social sciences research communities for their powerful ability to solve and understand various complex problems and develop novel approaches toward sustainable earth and human society. By linking geo-spatial computational intelligence techniques with societal and environmental-oriented problems, this book demonstrates geospatial technology approaches to data mining techniques, data analysis, modelling, risk assessment and visualization and management strategies in different aspects of flood hazards. We believe that a diverse group of academics, scientists, geographers, hydrologist, remote sensing and GIS expertise, environmentalists, meteorologists and computing experts with a common interest in geospatial sciences within the earth

environmental sciences and humanistic and social sciences will find this book to be of great value.

**Intelligent Technologies and Applications** - Imran Sarwar Bajwa 2020-05-08

This book constitutes the refereed proceedings of the Second International Conference on Intelligent Technologies and Applications, INTAP 2019, held in Bahawalpur, Pakistan, in November 2019. The 60 revised full papers and 6 revised short papers presented were carefully reviewed and selected from 224 submissions. Additionally, the volume presents 1 invited paper. The papers of this volume are organized in topical sections on AI and health; sentiment analysis; intelligent applications; social media analytics; business intelligence; Natural Language Processing; information extraction; machine learning; smart systems; semantic web; decision support systems; image analysis; automated software engineering.

**Neural Information Processing** - Sabri Arik 2015-11-21

The four volume set LNCS 9489, LNCS 9490, LNCS 9491, and LNCS 9492 constitutes the proceedings of the 22nd International Conference on Neural Information Processing, ICONIP 2015, held in Istanbul, Turkey, in November 2015. The 231 full papers presented were carefully reviewed and selected from 375 submissions. The 4 volumes represent topical sections containing articles on Learning Algorithms and Classification Systems; Artificial Intelligence and Neural Networks: Theory, Design, and Applications; Image and Signal Processing; and Intelligent Social Networks.

*Fault Diagnosis of Hybrid Dynamic and Complex Systems* - Moamar Sayed-Mouchaweh 2018-03-27

Online fault diagnosis is crucial to ensure safe operation of complex dynamic systems in spite of faults affecting the system behaviors. Consequences of the occurrence of faults can be severe and result in human casualties, environmentally harmful emissions, high repair costs, and economical losses caused by unexpected stops in production lines. The majority of real systems are hybrid dynamic systems (HDS). In HDS, the dynamical behaviors evolve continuously with time according to the discrete mode (configuration) in which the

system is. Consequently, fault diagnosis approaches must take into account both discrete and continuous dynamics as well as the interactions between them in order to perform correct fault diagnosis. This book presents recent and advanced approaches and techniques that address the complex problem of fault diagnosis of hybrid dynamic and complex systems using different model-based and data-driven approaches in different application domains (inductor motors, chemical process formed by tanks, reactors and valves, ignition engine, sewer networks, mobile robots, planetary rover prototype etc.). These approaches cover the different aspects of performing single/multiple online/offline parametric/discrete abrupt/tear and wear fault diagnosis in incremental/non-incremental manner, using different modeling tools (hybrid automata, hybrid Petri nets, hybrid bond graphs, extended Kalman filter etc.) for different classes of hybrid dynamic and complex systems.

**Intelligent Soft Computation and Evolving Data Mining: Integrating Advanced Technologies** - Wang, Leon Shyue-Liang  
2010-03-31

"This book provides a reference to researchers, practitioners, and students in both soft computing and data mining communities for generating creative ideas of securing and managing data mining"--Provided by publisher.  
*Energy Management—Collective and Computational Intelligence with Theory and Applications* - Cengiz Kahraman 2018-03-21

This book presents a selection of recently developed collective and computational intelligence techniques, which it subsequently applies to energy management problems ranging from performance analysis to economic analysis, and from strategic analysis to operational analysis, with didactic numerical examples. As a form of intelligence emerging from the collaboration and competition of individuals, collective and computational intelligence addresses new methodological, theoretical, and practical aspects of complex energy management problems. The book offers an excellent reference guide for practitioners, researchers, lecturers and postgraduate students pursuing research on intelligence in energy management. The contributing authors

are recognized researchers in the energy research field.

**Internet of Things (IoT)** - Mansaf Alam  
2020-05-25

This book's objective is to explore the concepts and applications related to Internet of Things with the vision to identify and address existing challenges. Additionally, the book provides future research directions in this domain, and explores the different applications of IoT and its associated technologies. Studies investigate applications for crowd sensing and sourcing, as well as smart applications to healthcare solutions, agriculture and intelligent disaster management. This book will appeal to students, practitioners, industry professionals and researchers working in the field of IoT and its integration with other technologies to develop comprehensive solutions to real-life problems  
*Advances in Neural Networks – ISSN 2018* - Tingwen Huang 2018-05-25

This book constitutes the refereed proceedings of the 15th International Symposium on Neural Networks, ISSN 2018, held in Minsk, Belarus in June 2018. The 98 revised regular papers presented in this volume were carefully reviewed and selected from 214 submissions. The papers cover many topics of neural network-related research including intelligent control, neurodynamic analysis, bio-signal, bioinformatics and biomedical engineering, clustering, classification, forecasting, models, algorithms, cognitive computation, machine learning, and optimization.

**NEURAL NETWORKS, FUZZY SYSTEMS AND EVOLUTIONARY ALGORITHMS : SYNTHESIS AND APPLICATIONS** - S. RAJASEKARAN 2017-05-01

The second edition of this book provides a comprehensive introduction to a consortium of technologies underlying soft computing, an evolving branch of computational intelligence, which in recent years, has turned synonymous to it. The constituent technologies discussed comprise neural network (NN), fuzzy system (FS), evolutionary algorithm (EA), and a number of hybrid systems, which include classes such as neuro-fuzzy, evolutionary-fuzzy, and neuro-evolutionary systems. The hybridization of the technologies is demonstrated on architectures such as fuzzy backpropagation network (NN-FS

hybrid), genetic algorithm-based backpropagation network (NN-EA hybrid), simplified fuzzy ARTMAP (NN-FS hybrid), fuzzy associative memory (NN-FS hybrid), fuzzy logic controlled genetic algorithm (EA-FS hybrid) and evolutionary extreme learning machine (NN-EA hybrid) Every architecture has been discussed in detail through illustrative examples and applications. The algorithms have been presented in pseudo-code with a step-by-step illustration of the same in problems. The applications, demonstrative of the potential of the architectures, have been chosen from diverse disciplines of science and engineering. This book, with a wealth of information that is clearly presented and illustrated by many examples and applications, is designed for use as a text for the courses in soft computing at both the senior undergraduate and first-year postgraduate levels of computer science and engineering. It should also be of interest to researchers and technologists desirous of applying soft computing technologies to their respective fields of work.

**Machine Learning and Data Science in the Power Generation Industry** - Patrick Bangert 2021-01-14

Machine Learning and Data Science in the Power Generation Industry explores current best practices and quantifies the value-add in developing data-oriented computational programs in the power industry, with a particular focus on thoughtfully chosen real-world case studies. It provides a set of realistic pathways for organizations seeking to develop machine learning methods, with a discussion on data selection and curation as well as organizational implementation in terms of staffing and continuing operationalization. It articulates a body of case study-driven best practices, including renewable energy sources, the smart grid, and the finances around spot markets, and forecasting. Provides best practices on how to design and set up ML projects in power systems, including all nontechnological aspects necessary to be successful Explores implementation pathways, explaining key ML algorithms and approaches as well as the choices that must be made, how to make them, what outcomes may be expected, and how the data must be prepared for them

Determines the specific data needs for the collection, processing, and operationalization of data within machine learning algorithms for power systems Accompanied by numerous supporting real-world case studies, providing practical evidence of both best practices and potential pitfalls

**Intelligent Software Methodologies, Tools and Techniques** - Hamido Fujita 2015-05-06

This book constitutes the best papers selection from the proceedings of the 13th International Conference on Intelligent Software Methodologies, Tools and Techniques, SoMeT 2014, held in Langkawi, Malaysia, in September 2014. The 27 full papers presented were carefully reviewed, thoroughly revised or enlarged, and selected as best papers from the 79 published proceedings papers, which had originally been selected from 192 submissions. The papers are organized in topical sections on artificial intelligence techniques in software engineering; requirement engineering, high-assurance system; intelligent software systems design; creative and arts in interactive software design; software methodologies for reliable software design; software quality and assessment for business enterprise; software analysis and performance model; software applications systems.

Nature-Inspired Intelligent Computing Techniques in Bioinformatics - Khalid Raza 2022-12-02

This book encapsulates and occupies recent advances and state-of-the-art applications of nature-inspired computing (NIC) techniques in the field of bioinformatics and computational biology, which would aid medical sciences in various clinical applications. This edited volume covers fundamental applications, scope, and future perspectives of NIC techniques in bioinformatics including genomic profiling, gene expression data classification, DNA computation, systems and network biology, solving personalized therapy complications, antimicrobial resistance in bacterial pathogens, and computer-aided drug design, discovery, and therapeutics. It also covers the role of NIC techniques in various diseases and disorders, including cancer detection and diagnosis, breast cancer, lung disorder detection, disease biomarkers, and potential therapeutics

identifications.

**Introduction to Sensors in IoT and Cloud Computing Applications** - Ambika Nagaraj  
2021-02-01

Introduction to Sensors in IoT and Cloud Computing Applications provides information about sensors and their applications. Readers are first introduced to the concept of small instruments and their application as sensors. The chapters which follow explain Internet of Things (IoT) architecture while providing notes on the implementation, demonstration and related issues of IoT systems. The book continues to explore the topic by providing information about sensor-cloud infrastructure, mobile cloud, fog computing (an extension of cloud computing that takes cloud computing to the cutting-edge of networking where data is produced) and integration of IoT devices with cloud computing. The book also presents notes on the taxonomy of fog-computing systems. The six chapters in this book provide essential information for general readers, and students of computer science to understand the basics of cloud computing networks, related concepts and applications.

*Trends and Advances in Information Systems and Technologies* - Álvaro Rocha 2018-03-24

This book includes a selection of papers from the 2018 World Conference on Information Systems and Technologies (WorldCIST'18), held in Naples, Italy on March 27-29, 2018. WorldCIST is a global forum for researchers and practitioners to present and discuss recent results and innovations, current trends, professional experiences and the challenges of modern information systems and technologies research together with their technological development and applications. The main topics covered are: A) Information and Knowledge Management; B) Organizational Models and Information Systems; C) Software and Systems Modeling; D) Software Systems, Architectures, Applications and Tools; E) Multimedia Systems and Applications; F) Computer Networks, Mobility and Pervasive Systems; G) Intelligent and Decision Support Systems; H) Big Data Analytics and Applications; I) Human-Computer Interaction; J) Ethics, Computers & Security; K) Health Informatics; L) Information Technologies in Education; M) Information Technologies in

Radiocommunications; N) Technologies for Biomedical Applications.

Fuzzy Optimization Techniques in the Areas of Science and Management - Santosh Kumar Das  
2022-10-17

This book helps to enhance the application of fuzzy logic optimization in the areas of science and engineering. It includes implementation and models and paradigms, such as path planning and routing design for different wireless networks, organization behavior strategies models, and so forth. It also: Explains inventory control management, uncertainties management, loss minimization, game optimization, data analysis and prediction, different decision-making system and management, and so forth Describes applicability of fuzzy optimization techniques in areas of science and management Resolves several issues based on uncertainty using member function Helps map different problems based on mathematical models Includes issues and problems based on linear and nonlinear optimizations Focuses on management science such as manpower management and inventory planning This book is aimed at researchers and graduate students in signal processing, power systems, systems and industrial engineering, and computer networks.

Control and Measurement Applications for Smart Grid - Sathans Suhag 2022

The book contains select proceedings of the International Conference on Smart Grid Energy Systems and Control (SGESC 2021). The proceedings is divided into 03 volumes, and this volume focuses on adaptive control and intelligent sensors, wide-area measurements, and applications in the smart grid. This book includes papers on topics such as SMART sensors, vision sensors, sensor fusion, wireless sensors, and the internet of things, MEMS, Mechatronics, Remote sensing, telemetry, and its applications in automated vehicle control. This book is a unique collection of chapters from different areas with a common theme and will be immensely useful to academic researchers and practitioners in the industry.

**Explainable Artificial Intelligence Based on Neuro-Fuzzy Modeling with Applications in Finance** - Tom Rutkowski 2021-06-07

The book proposes techniques, with an emphasis

on the financial sector, which will make recommendation systems both accurate and explainable. The vast majority of AI models work like black box models. However, in many applications, e.g., medical diagnosis or venture capital investment recommendations, it is essential to explain the rationale behind AI systems decisions or recommendations. Therefore, the development of artificial intelligence cannot ignore the need for interpretable, transparent, and explainable models. First, the main idea of the explainable recommenders is outlined within the background of neuro-fuzzy systems. In turn, various novel recommenders are proposed, each characterized by achieving high accuracy with a reasonable number of interpretable fuzzy rules. The main part of the book is devoted to a very challenging problem of stock market recommendations. An original concept of the explainable recommender, based on patterns from previous transactions, is developed; it recommends stocks that fit the strategy of investors, and its recommendations are explainable for investment advisers.

**Intelligent Industrial Systems: Modeling, Automation and Adaptive Behavior** - Rigatos, Gerasimos 2010-06-30

In recent years, there has been growing interest in industrial systems, especially in robotic manipulators and mobile robot systems. As the cost of robots goes down and become more compact, the number of industrial applications of robotic systems increases. Moreover, there is need to design industrial systems with intelligence, autonomous decision making capabilities, and self-diagnosing properties. *Intelligent Industrial Systems: Modeling, Automation and Adaptive Behavior* analyzes current trends in industrial systems design, such as intelligent, industrial, and mobile robotics, complex electromechanical systems, fault diagnosis and avoidance of critical conditions, optimization, and adaptive behavior. This book discusses examples from major areas of research for engineers and researchers, providing an extensive background on robotics and industrial systems with intelligence, autonomy, and adaptive behavior giving emphasis to industrial systems design.

[Machine Learning and Deep Learning](#)

[Techniques in Wireless and Mobile Networking Systems](#) - K. Suganthi 2021-09-14

This book offers the latest advances and results in the fields of Machine Learning and Deep Learning for Wireless Communication and provides positive and critical discussions on the challenges and prospects. It provides a broad spectrum in understanding the improvements in Machine Learning and Deep Learning that are motivating by the specific constraints posed by wireless networking systems. The book offers an extensive overview on intelligent Wireless Communication systems and its underlying technologies, research challenges, solutions, and case studies. It provides information on intelligent wireless communication systems and its models, algorithms and applications. The book is written as a reference that offers the latest technologies and research results to various industry problems.

[Security and Privacy-Preserving Techniques in Wireless Robotics](#) - Amit Kumar Tyagi 2022-08-01

The wide gap between the existing security solutions and the actual practical deployment in smart manufacturing, smart home, and remote environments (with respect to wireless robotics) is one of the major reasons why we require novel strategies, mechanisms, architectures, and frameworks. Furthermore, it is also important to access and understand the different level of vulnerabilities and attack vectors in Wireless Sensor Network (WSN) and Wireless Robotics. This book includes an in-depth explanation of a secure and dependable Wireless Robotics (WR) architecture, to ensure confidentiality, authenticity, and availability. Features Blockchain technology for securing data at end/server side Emerging technologies/networking, like Cloud, Edge, Fog, etc., for communicating and storing data (securely). Various open issues, challenges faced in this era towards wireless robotics, including several future research directions for the future. Several real world's case studies are included Chapters on ethical concerns and privacy laws, i.e., laws for service providers Security and privacy challenges in wireless sensor networks and wireless robotics The book is especially useful for academic researchers, undergraduate students, postgraduate students, and industry

researchers and professionals.

**Intelligent Fashion Forecasting Systems: Models and Applications** - Tsan-Ming Choi  
2013-11-29

Forecasting is a crucial function for companies in the fashion industry, but for many real-life forecasting applications in the, the data patterns are notorious for being highly volatile and it is very difficult, if not impossible, to analytically learn about the underlying patterns. As a result, many traditional methods (such as pure statistical models) will fail to make a sound prediction. Over the past decade, advances in artificial intelligence and computing technologies have provided an alternative way of generating precise and accurate forecasting results for fashion businesses. Despite being an important and timely topic, there is currently an absence of a comprehensive reference source that provides up-to-date theoretical and applied research findings on the subject of intelligent fashion forecasting systems. This three-part handbook fulfills this need and covers materials ranging from introductory studies and technical reviews, theoretical modeling research, to intelligent fashion forecasting applications and analysis. This book is suitable for academic researchers, graduate students, senior undergraduate students and practitioners who are interested in the latest research on fashion forecasting.

*Handbook of Research on Machine Learning Applications and Trends: Algorithms, Methods, and Techniques* - Olivas, Emilio Soria  
2009-08-31

"This book investigates machine learning (ML), one of the most fruitful fields of current research, both in the proposal of new techniques and theoretic algorithms and in their application to real-life problems"--Provided by publisher.

Smart Sensor Networks Using AI for Industry 4.0 - Soumya Ranjan Nayak 2021-10-10

Smart Sensor Networks (WSNs) using AI have left a mark on the lives of all by aiding in various sectors, such as manufacturing, education, healthcare, and monitoring of the environment and industries. This book covers recent AI applications and explores aspects of modern sensor technologies and the systems needed to operate them. The book reviews the fundamental concepts of gathering, processing, and analyzing

different AI-based models and methods. It covers recent WSN techniques for the purpose of effective network management on par with the standards laid out by international organizations in related fields and focuses on both core concepts along with major applicational areas. The book will be used by technical developers, academicians, data sciences, industrial professionals, researchers, and students interested in the latest innovations on problem-oriented processing techniques in sensor networks using IoT and evolutionary computer applications for Industry 4.0.

Recent Advances in AI-enabled Automated Medical Diagnosis - Richard Jiang 2022-10-20  
Developments in deep learning in the past decade have led to phenomenal growth in AI-based automated medical diagnosis, opening a door to a new era of both medical research and medical industry. It is a golden age for researchers involved in the development and application of advanced machine learning techniques for medical and clinical problems. This book captures the most recent important advances in this cross-disciplinary topic and brings the latest advances to a wide audience including experts, researchers, students, industry developers and medical services.

**Computational Science and Its Applications - ICCSA 2019** - Sanjay Misra 2019-06-28

The six volumes LNCS 11619-11624 constitute the refereed proceedings of the 19th International Conference on Computational Science and Its Applications, ICCSA 2019, held in Saint Petersburg, Russia, in July 2019. The 64 full papers, 10 short papers and 259 workshop papers presented were carefully reviewed and selected from numerous submissions. The 64 full papers are organized in the following five general tracks: computational methods, algorithms and scientific applications; high performance computing and networks; geometric modeling, graphics and visualization; advanced and emerging applications; and information systems and technologies. The 259 workshop papers were presented at 33 workshops in various areas of computational sciences, ranging from computational science technologies to specific areas of computational sciences, such as software engineering, security, artificial intelligence and blockchain

technologies.

**Machine Learning and Intelligent Communications** - Xiangping Bryce Zhai  
2019-10-27

This volume constitutes the refereed post-conference proceedings of the Fourth International Conference on Machine Learning and Intelligent Communications, MLICOM 2019, held in Nanjing, China, in August 2019. The 65 revised full papers were carefully selected from 114 submissions. The papers are organized

thematically in machine learning, intelligent positioning and navigation, intelligent multimedia processing and security, wireless mobile network and security, cognitive radio and intelligent networking, IoT, intelligent satellite communications and networking, green communication and intelligent networking, ad-hoc and sensor networks, resource allocation in wireless and cloud networks, signal processing in wireless and optical communications, and intelligent cooperative communications and networking.