

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. *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.

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.

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

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.
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.

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.

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.

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.

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

Advances in Neural Networks - ISNN 2018 - Tingwen Huang 2018-05-25

This book constitutes the refereed proceedings of the 15th International Symposium on Neural Networks, ISNN 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.

Proceedings of the Fifth International Conference on Fuzzy and Neuro Computing (FANCCO - 2015) - V. Ravi 2015-11-24

This proceedings bring together contributions from researchers from academia and industry to report the latest cutting edge research made in the areas of Fuzzy Computing, Neuro Computing and hybrid Neuro-Fuzzy Computing in the paradigm of Soft Computing. The FANCCO 2015 conference explored new application areas, design novel hybrid algorithms for solving different real world application problems. After a rigorous review of the 68 submissions from all over the world, the referees panel selected 27

papers to be presented at the Conference. The accepted papers have a good, balanced mix of theory and applications. The techniques ranged from fuzzy neural networks, decision trees, spiking neural networks, self organizing feature map, support vector regression, adaptive neuro fuzzy inference system, extreme learning machine, fuzzy multi criteria decision making, machine learning, web usage mining, Takagi-Sugeno Inference system, extended Kalman filter, Goedel type logic, fuzzy formal concept analysis, biclustering etc. The applications ranged from social network analysis, twitter sentiment analysis, cross domain sentiment analysis, information security, education sector, e-learning, information management, climate studies, rainfall prediction, brain studies, bioinformatics, structural engineering, sewage water quality, movement of aerial vehicles, etc.

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 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.

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.

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.

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.

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.

Optimal Localization of Internet of Things Nodes - Sheetal N Ghorpade 2021-11-16

This book is a practical resource for designing Internet of Things (IoT) networks and implementing IoT applications from the localization perspective. With the emergence of IoT, machine to machine communication, Industrial IoT, and other societal applications, many applications require knowledge of the

exact location of mobile IoT nodes in real-time. As the IoT nodes have computational and energy limitations, it is a crucial research challenge to optimize the network's performance with the highest localization accuracy. Many researchers are working towards such localization problems. However, there is no single book available for the detailed study on IoT node localization. This book provides one-stop multidisciplinary solutions for IoT node localization, design requirements, challenges, constraints, available techniques, comparison, related applications, and future directions. Special features included are theory supported by algorithmic development, treatment of optimization techniques, and applications.

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.

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.

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

Constraint Decision-Making Systems in Engineering - Das, Santosh Kumar 2023-01-06

In recent years, most applications deal with constraint decision-making systems as problems are based on imprecise information and parameters. It is difficult to understand the nature of data based on applications and it requires a specific model for understanding the nature of the system. Further research on constraint decision-making systems in engineering is required. Constraint Decision-Making Systems in Engineering derives and explores several types of constraint decisions in engineering and focuses on new and innovative conclusions based on problems, robust and efficient systems, and linear and non-linear applications. Covering topics such as fault detection, data mining techniques, and knowledge-based management, this premier reference source is an essential resource for engineers, managers, computer scientists, students and educators of higher education, librarians, researchers, and academicians.

Genetic Algorithms and Fuzzy Logic Systems - Elie Sanchez 1997-03-15

Ever since fuzzy logic was introduced by Lotfi Zadeh in the mid-sixties and genetic algorithms by John Holland in the early seventies, these two fields widely been subjects of academic research the world over. During the last few years, they have been experiencing extremely rapid growth in the industrial world, where they have been shown to be very effective in solving real-world problems. These two substantial fields, together with neurocomputing techniques, are recognized as major parts of soft computing: a set of computing technologies already riding the waves of the next century to produce the human-centered intelligent systems of tomorrow; the collection of papers presented in this book shows the way. The book also contains an extensive bibliography on fuzzy logic and genetic algorithms. Contents:Foreword (L Davies)Preface (E Sanchez, T Shibata & L A Zadeh)Helicopter Flight Control with Fuzzy Logic and Genetic Algorithms (C Philips, C L Karr & G W Walker)Skill

Acquisition and Skill-Based Motion Planning for Hierarchical Intelligent Control of a Redundant Manipulator (T Shibata)A Creative Design of Fuzzy Logic Controller Using a Genetic Algorithm (T Hashiyama, T Furuhashi & Y Uchikawa)Automatic Fuzzy Tuning and Its Applications (H Ishigami, T Fukuda, T Shibata)An Evolutionary Algorithm for Fuzzy Controller Synthesis and Optimization Based on SGS-Thomson's W.A.R.P. Fuzzy Processor (R Poluzzi, G G Rizzotto & A G B Tettamanzi)On-Line Self-Structuring Fuzzy Inference Systems for Function Approximation (H Bersini)Fuzzy Classification Based on Adaptive Networks and Genetic Algorithms (C-T Sun & J-S Jang)Intelligent Systems for Fraud Detection (J Kingdon)Genetic Algorithms for Query Optimization in Information Retrieval: Relevance Feedback (D H Kraft, F E Petry, B P Buckles & T Sadasivan)Fuzzy Fitness Assignment in an Interactive Genetic Algorithm for a Cartoon Face Search (K Nishio, M Murakami, E Mizutani & N Honda)An Evolutionary Approach to Simulate Cognitive Feedback Learning in Medical Domain (H S Lopes, M S Coutinho & W C de Lima)A Classified Review on the Combination Fuzzy Logic-Genetic Algorithms Bibliography: 1989-1995 (O Cordón, F Herrera & M Lozano) Readership: Mechanical, systems & knowledge, and control engineers; computer scientists in databases; and researchers in genetic algorithms, fuzzy logic systems, soft computing, artificial intelligence, neural networks, fuzzy logic control, robotics, classification, banking, information retrieval, and medicine. keywords:Genetic Algorithms;Evolutionary Algorithms;Fuzzy Logic Systems;Fuzzy Logic Control;Learning;Fuzzy-Neural Networks;Learning;Soft Computing "This volume displays the power of evolutionary algorithms when combined with fuzzy logic. These are exciting times in the fields of fuzzy logic and evolutionary algorithms, and this book will add to the excitement, because it is the first volume to focus on the growing connections between the fields of evolutionary algorithms and fuzzy logic ... This book will be a valuable aid to anyone considering the application of fuzzy logic and evolutionary algorithms to real problems, because it contains a number of detailed accounts of such applications written by authors in several countries. By making these accounts

available in one place, the editors of this book have made it much easier for us to benefit from the authors' experience, and have done us a great service." From the foreword by Lawrence Davies President of Tica Associates and editor of Handbook of Genetic Algorithms

Artificial Intelligence and Data Analytics for Energy Exploration and Production - Fred Aminzadeh 2022-08-26

ARTIFICIAL INTELLIGENCE AND DATA ANALYTICS FOR ENERGY EXPLORATION AND PRODUCTION

This groundbreaking new book is written by some of the foremost authorities on the application of data science and artificial intelligence techniques in exploration and production in the energy industry, covering the most comprehensive and updated new processes, concepts, and practical applications in the field. The book provides an in-depth treatment of the foundations of Artificial Intelligence (AI) Machine Learning, and Data Analytics (DA). It also includes many of AI-DA applications in oil and gas reservoirs exploration, development, and production. The book covers the basic technical details on many tools used in "smart oil fields". This includes topics such as pattern recognition, neural networks, fuzzy logic, evolutionary computing, expert systems, artificial intelligence machine learning, human-computer interface, natural language processing, data analytics and next-generation visualization. While theoretical details will be kept to the minimum, these topics are introduced from oil and gas applications viewpoints. In this volume, many case histories from the recent applications of intelligent data to a number of different oil and gas problems are highlighted. The applications cover a wide spectrum of practical problems from exploration to drilling and field development to production optimization, artificial lift, and secondary recovery. Also, the authors demonstrate the effectiveness of intelligent data analysis methods in dealing with many oil and gas problems requiring combining machine and human intelligence as well as dealing with linguistic and imprecise data and rules.

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.

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.

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.

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.

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.

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.

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.

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.

Nature-Inspired Intelligent Computing Techniques in Bioinformatics - Khalid Raza 2022-10-31

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.

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 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.

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.

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.

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.

Control and Measurement Applications for Smart Grid - Sathans Suhag 2022-02-01

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.