

# Fuzzy Analytical Network Process Implementation With Matlab

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## **Analytical Tools in Research** - L N Pattanaik 2017-02-23

Irrespective of the specialization, researchers in universities or elsewhere often come across a situation where judicious selection of an analytical tool is required for problem solving, modelling, optimization, prediction, data analysis and inference, decision making etc. to proceed with the research work. The book 'Analytical Tools in Research' intends to assist in this crucial step by providing key features of about 80 classical and contemporary analytical tools from statistics, operation research, metaheuristics, artificial intelligence and hybridization of these tools. Some of the popular tools included are Regression analysis (ten types), ANOVA, DoE, Taguchi, RSM, Grey analysis, MCDM (AHP, VIKOR, TOPSIS etc.), Fuzzy logic, ANN, Multi-objective GA, ANFIS, fuzzy-ELECTRE, Grey-Taguchi and so on. Illustrative examples with software applications are presented to reduce the gap between theory and application.

## **MATLAB** - Ali Saghafinia 2018-09-19

Conventionally, the simulation of power engineering applications can be a challenge for both undergraduate and postgraduate students. For the easy implementation of several kinds of power structure and control structures of power engineering applications, simulators such as MATLAB/(Simulink and coding) are necessary, especially for students, to

develop and test various circuits and controllers in all branches of the field of power engineering. This book presents three different applications of MATLAB in the power system domain. The book includes chapters that show how to simulate and work with MATLAB software for MATLAB professional applications of power systems. Moreover, this book presents techniques to simulate power matters easily using the related toolbox existing in MATLAB/Simulink.

## Handbook of Research on Soft Computing and Nature-Inspired Algorithms - Shandilya, Shishir K. 2017-03-10

Soft computing and nature-inspired computing both play a significant role in developing a better understanding to machine learning. When studied together, they can offer new perspectives on the learning process of machines. The Handbook of Research on Soft Computing and Nature-Inspired Algorithms is an essential source for the latest scholarly research on applications of nature-inspired computing and soft computational systems. Featuring comprehensive coverage on a range of topics and perspectives such as swarm intelligence, speech recognition, and electromagnetic problem solving, this publication is ideally designed for students, researchers, scholars, professionals, and practitioners seeking current research on the advanced workings of intelligence in computing systems.

*Imprecision and Uncertainty in Information Representation and Processing* - Plamen Angelov 2015-12-22

The book offers a comprehensive and timely overview of advanced mathematical tools for both uncertainty analysis and modeling of parallel processes, with a special emphasis on intuitionistic fuzzy sets and generalized nets. The different chapters, written by active researchers in their respective areas, are structured to provide a coherent picture of this interdisciplinary yet still evolving field of science. They describe key tools and give practical insights into and research perspectives on the use of Atanassov's intuitionistic fuzzy sets and logic, and generalized nets for describing and dealing with uncertainty in different areas of science, technology and business, in a single, to date unique book. Here, readers find theoretical chapters, dealing with intuitionistic fuzzy operators, membership functions and algorithms, among other topics, as well as application-oriented chapters, reporting on the implementation of methods and relevant case studies in management science, the IT industry, medicine and/or education. With this book, the editors wish to pay homage to Professor Krassimir Todorov Atanassov for his pioneering work on both generalized nets and intuitionistic fuzzy set.

*Multicriteria Decision-Making Under Conditions of Uncertainty* - Petr Ekel 2019-11-07

A guide to the various models and methods to multicriteria decision-making in conditions of uncertainty presented in a systematic approach. *Multicriteria Decision-Making under Conditions of Uncertainty* presents approaches that help to answer the fundamental questions at the center of all decision-making problems: "What to do?" and "How to do it?" The book explores methods of representing and handling diverse manifestations of the uncertainty factor and a multicriteria nature of problems that can arise in system design, planning, operation, and control. The authors—noted experts on the topic—and their book covers essential questions, including notions and fundamental concepts of fuzzy sets, models and methods of multiobjective as well as multiattribute decision-making, the classical approach to dealing with uncertainty of information and its generalization for analyzing multicriteria problems in

condition of uncertainty, and more. This comprehensive book contains information on "harmonious solutions" in multiobjective problem-solving (analyzing " $i > X, F >$  models), construction and analysis of " $i > X, R/i$ " models, results aimed at generating robust solutions in analyzing multicriteria problems under uncertainty, and more. In addition, the book includes illustrative examples of various applications, including real-world case studies related to the authors' various industrial projects. This important resource: Explains the design and processing aspect of fuzzy sets, including construction of membership functions, fuzzy numbers, fuzzy relations, aggregation operations, and fuzzy sets transformations. Describes models of multiobjective decision-making (" $i > X, M/i$ " models), their analysis on the basis of using the Bellman-Zadeh approach to decision-making in a fuzzy environment, and their diverse applications, including multicriteria allocation of resources. Investigates models of multiattribute decision-making (" $i > X, R/i$ " models) and their analysis on the basis of the construction and processing of fuzzy preference relations as well as demonstrating their applications to solve diverse classes of multiattribute problems. Explores notions of payoff matrices and fuzzy-set-based generalization and modification of the classic approach to decision-making under conditions of uncertainty to generate robust solutions in analyzing multicriteria problems. Written for students, researchers and practitioners in disciplines in which decision-making is of paramount relevance, *Multicriteria Decision-Making under Conditions of Uncertainty* presents a systematic and current approach that encompasses a range of models and methods as well as new applications.

*Optimization in Practice with MATLAB* - Achille Messac 2015-03-19  
This textbook is designed for students and industry practitioners for a first course in optimization integrating MATLAB® software.

**Modeling and Simulation of Computer Networks and Systems** - Mohammad S. Obaidat 2015-04-21

*Modeling and Simulation of Computer Networks and Systems: Methodologies and Applications* introduces you to a broad array of modeling and simulation issues related to computer networks and

systems. It focuses on the theories, tools, applications and uses of modeling and simulation in order to effectively optimize networks. It describes methodologies for modeling and simulation of new generations of wireless and mobile networks and cloud and grid computing systems. Drawing upon years of practical experience and using numerous examples and illustrative applications recognized experts in both academia and industry, discuss: Important and emerging topics in computer networks and systems including but not limited to; modeling, simulation, analysis and security of wireless and mobile networks especially as they relate to next generation wireless networks Methodologies, strategies and tools, and strategies needed to build computer networks and systems modeling and simulation from the bottom up Different network performance metrics including, mobility, congestion, quality of service, security and more... Modeling and Simulation of Computer Networks and Systems is a must have resource for network architects, engineers and researchers who want to gain insight into optimizing network performance through the use of modeling and simulation. Discusses important and emerging topics in computer networks and Systems including but not limited to; modeling, simulation, analysis and security of wireless and mobile networks especially as they relate to next generation wireless networks Provides the necessary methodologies, strategies and tools needed to build computer networks and systems modeling and simulation from the bottom up Includes comprehensive review and evaluation of simulation tools and methodologies and different network performance metrics including mobility, congestion, quality of service, security and more

Fuzzy Control - Kevin M. Passino 1998

Introduction; Fuzzy control: the basics; Case studies in design and implementation; nonlinear analysis; Fuzzy identification and estimation; Adaptive fuzzy control; Fuzzy supervisory control; Perspectives on fuzzy control.

Recent Advances in Micro- and Macroalgal Processing - Gaurav Rajauria 2021-04-06

Recent Advances in Micro- and Macroalgal Processing A comprehensive

review of algae as novel and sustainable sources of algal ingredients, their extraction and processing This comprehensive text offers an in-depth exploration of the research and issues surrounding the consumption, economics, composition, processing and health effects of algae. With contributions from an international team of experts, the book explores the application of conventional and emerging technologies for algal processing. The book includes recent developments such as drying and milling technologies along with advancements in sustainable greener techniques. The text also highlights individual groups of compounds including polysaccharides, proteins, polyphenols, carotenoids, lipids and fibres from algae. The authors provide insightful reviews of the traditional and more recent applications of algae/algal extracts in food, feed, pharmaceutical and cosmetics products. Offering a holistic view of the various applications, the book looks at the economic feasibility, market trends and considerations, and health hazards associated with algae for industrial applications. This important book: Provides a comprehensive overview of algal biomolecules and the role of emerging processing technologies Explores the potential biological and health benefits of algae and their applications in food, pharmaceuticals and cosmetic products Includes a current review of algal bioactives and processing technologies for food and ingredient manufacturers Contains contributions from leading academic and industrial experts Written for food scientists, allied researchers and professional food technologists, Recent Advances in Micro- and Macroalgal Processing: Food and Health Perspectives offers a guide to the novel processing and extraction techniques for exploring and harnessing the immense potential of algae. *Computational Intelligence Techniques for Green Smart Cities* - Mohamed Lahby 2022-04-22

This book contains high-quality and original research on computational intelligence for green smart cities research. In recent years, the use of smart city technology has rapidly increased through the successful development and deployment of Internet of Things (IoT) architectures. The citizens' quality of life has been improved in several sensitive areas of the city, such as transportation, buildings, health care, education,

environment, and security, thanks to these technological advances. Computational intelligence techniques and algorithms enable a computational analysis of enormous data sets to reveal patterns that recur. This information is used to inform and improve decision-making at the municipal level to build smart computational intelligence techniques and sustainable cities for their citizens. Machine intelligence allows us to identify trends (patterns). The smart city could better integrate its transportation network, for example. By offering a better public transportation network adapted to the demand, we could reduce personal vehicles and energy consumption. A smart city could use models to predict the consequences of a change, such as pedestrianizing a street or adding a bike lane. A city can even create a 3D digital twin to test hypothetical projects. This book comprises many state-of-the-art contributions from scientists and practitioners working in machine intelligence and green smart cities. It aspires to provide a relevant reference for students, researchers, engineers, and professionals working in this area or those interested in grasping its diverse facets and exploring the latest advances in machine intelligence for green and sustainable smart city applications.

Optimization Models in Software Reliability - Anu G. Aggarwal  
2021-09-29

The book begins with an introduction to software reliability, models and techniques. The book is an informative book covering the strategies needed to assess software failure behaviour and its quality, as well as the application of optimization tools for major managerial decisions related to the software development process. It features a broad range of topics including software reliability assessment and apportionment, optimal allocation and selection decisions and upgradations problems. It moves through a variety of problems related to the evolving field of optimization of software reliability engineering, including software release time, resource allocating, budget planning and warranty models, which are each explored in depth in dedicated chapters. This book provides a comprehensive insight into present-day practices in software reliability engineering, making it relevant to students, researchers, academics and

practising consultants and engineers.

Multi-Criteria Decision Models in Software Reliability - Ashish Mishra  
2022-11-24

This book provides insights into contemporary issues and challenges in multi-criteria decision models. It is a useful guide for identifying, understanding and categorising multi-criteria decision models, and ultimately implementing the analysis for effective decision-making. The use of multi-criteria decision models in software reliability engineering is a relatively new field of study, and this book collects all the latest methodologies, tools and techniques in one single volume. It covers model selection, assessment, resource allocation, release management, up-grade planning, open-source systems, bug tracking system management and defect prediction. Multi-Criteria Decision Models in Software Reliability: Methods and Applications will cater to researchers, academicians, post-graduate students, software developers, software reliability engineers and IT managers.

Index to Theses with Abstracts Accepted for Higher Degrees by the Universities of Great Britain and Ireland and the Council for National Academic Awards - 2003

Theses on any subject submitted by the academic libraries in the UK and Ireland.

Introduction to Genetic Algorithms - S.N. Sivanandam 2007-10-24

This book offers a basic introduction to genetic algorithms. It provides a detailed explanation of genetic algorithm concepts and examines numerous genetic algorithm optimization problems. In addition, the book presents implementation of optimization problems using C and C++ as well as simulated solutions for genetic algorithm problems using MATLAB 7.0. It also includes application case studies on genetic algorithms in emerging fields.

**Uncertainty Management with Fuzzy and Rough Sets** - Rafael Bello  
2019-01-22

This book offers a timely overview of fuzzy and rough set theories and methods. Based on selected contributions presented at the International Symposium on Fuzzy and Rough Sets, ISFUROS 2017, held in Varadero,

Cuba, on October 24-26, 2017, the book also covers related approaches, such as hybrid rough-fuzzy sets and hybrid fuzzy-rough sets and granular computing, as well as a number of applications, from big data analytics, to business intelligence, security, robotics, logistics, wireless sensor networks and many more. It is intended as a source of inspiration for PhD students and researchers in the field, fostering not only new ideas but also collaboration between young researchers and institutions and established ones.

**Smart Computing and Informatics** - Suresh Chandra Satapathy  
2017-12-20

This volume contains 74 papers presented at SCI 2016: First International Conference on Smart Computing and Informatics. The conference was held during 3-4 March 2017, Visakhapatnam, India and organized communally by ANITS, Visakhapatnam and supported technically by CSI Division V - Education and Research and PRF, Vizag. This volume contains papers mainly focused on applications of advanced intelligent techniques to video processing, medical imaging, machine learning, sensor technologies, and network security.

*Futuristic Trends in Network and Communication Technologies* -  
Pradeep Kumar Singh 2018-12-24

This book constitutes the refereed proceedings of the First International Conference on Futuristic Trends in Network and Communication Technologies, FTNCT 2018, held in Solan, India, in February 2018. The 37 revised full papers presented were carefully reviewed and selected from 239 submissions. The prime aim of the conference is to invite researchers from different domains of network and communication technologies to a single platform to showcase their research ideas. The selected papers are organized in topical sections on communication technologies, Internet of Things (IoT), network technologies, and wireless networks.

*Fuzzy Systems and Data Mining VII* - C. Shen 2021-11-04

Fuzzy systems and data mining are indispensable aspects of the computer systems and algorithms on which the world has come to depend. This book presents papers from FSDM 2021, the 7th International Conference

on Fuzzy Systems and Data Mining. The conference, originally due to take place in Seoul, South Korea, was held online on 26-29 October 2021, due to ongoing restrictions connected with the COVID-19 pandemic. The annual FSDM conference provides a platform for knowledge exchange between international experts, researchers, academics and delegates from industry. This year, the committee received 266 submissions, and this book contains 52 papers, including keynotes and invited presentations, oral and poster contributions. The papers cover four main areas: 1) fuzzy theory, algorithms and systems - including topics like stability; 2) fuzzy applications - which are widely used and cover various types of processing as well as hardware and architecture for big data and time series; 3) the interdisciplinary field of fuzzy logic and data mining; and 4) data mining itself. The topic most frequently addressed this year is fuzzy systems. The book offers an overview of research and developments in fuzzy logic and data mining, and will be of interest to all those working in the field of data science.

**Model Predictive Control System Design and Implementation Using MATLAB®** - Liuping Wang 2009-02-14

Model Predictive Control System Design and Implementation Using MATLAB® proposes methods for design and implementation of MPC systems using basis functions that confer the following advantages: - continuous- and discrete-time MPC problems solved in similar design frameworks; - a parsimonious parametric representation of the control trajectory gives rise to computationally efficient algorithms and better on-line performance; and - a more general discrete-time representation of MPC design that becomes identical to the traditional approach for an appropriate choice of parameters. After the theoretical presentation, coverage is given to three industrial applications. The subject of quadratic programming, often associated with the core optimization algorithms of MPC is also introduced and explained. The technical contents of this book is mainly based on advances in MPC using state-space models and basis functions. This volume includes numerous analytical examples and problems and MATLAB® programs and exercises.

Modeling and Simulation of Systems Using MATLAB and Simulink - Devendra K. Chaturvedi 2017-12-19

Not only do modeling and simulation help provide a better understanding of how real-world systems function, they also enable us to predict system behavior before a system is actually built and analyze systems accurately under varying operating conditions. Modeling and Simulation of Systems Using MATLAB® and Simulink® provides comprehensive, state-of-the-art coverage of all the important aspects of modeling and simulating both physical and conceptual systems. Various real-life examples show how simulation plays a key role in understanding real-world systems. The author also explains how to effectively use MATLAB and Simulink software to successfully apply the modeling and simulation techniques presented. After introducing the underlying philosophy of systems, the book offers step-by-step procedures for modeling different types of systems using modeling techniques, such as the graph-theoretic approach, interpretive structural modeling, and system dynamics modeling. It then explores how simulation evolved from pre-computer days into the current science of today. The text also presents modern soft computing techniques, including artificial neural networks, fuzzy systems, and genetic algorithms, for modeling and simulating complex and nonlinear systems. The final chapter addresses discrete systems modeling. Preparing both undergraduate and graduate students for advanced modeling and simulation courses, this text helps them carry out effective simulation studies. In addition, graduate students should be able to comprehend and conduct simulation research after completing this book.

Fuzzy Multi-Criteria Decision Making - Cengiz Kahraman 2008-08-09

This work examines all the fuzzy multicriteria methods recently developed, such as fuzzy AHP, fuzzy TOPSIS, interactive fuzzy multiobjective stochastic linear programming, fuzzy multiobjective dynamic programming, grey fuzzy multiobjective optimization, fuzzy multiobjective geometric programming, and more. Each of the 22 chapters includes practical applications along with new developments/results. This book may be used as a textbook in graduate

operations research, industrial engineering, and economics courses. It will also be an excellent resource, providing new suggestions and directions for further research, for computer programmers, mathematicians, and scientists in a variety of disciplines where multicriteria decision making is needed.

**Multi-Criteria Decision-Making Techniques for Improvement Sustainability Engineering Processes** - Edmundas Kazimieras Zavadskas 2020-12-15

The success of any activity and process depends fundamentally on the possibility of balancing (symmetry) needs and their satisfaction. That is, the ability to properly define a set of success indicators. The application of the developed new multi-criteria decision-making (MCDM) methods can be eliminated or decreased by decision-makers' subjectivity, which leads to consistency or symmetry in the weight values of the criteria. In this Special Issue, 40 research papers and one review study co-authored by 137 researchers from 23 different countries explore aspects of multi-criteria modeling and optimization in crisp or uncertain environments. The papers propose new approaches and elaborate case studies in the following areas of application: MCDM optimization in sustainable engineering, environmental sustainability in engineering processes, sustainable multi-criteria production and logistics processes planning, integrated approaches for modeling processes in engineering, new trends in the multi-criteria evaluation of sustainable processes, and multi-criteria decision-making in strategic management based on sustainable criteria.

Renewable Energy Devices and Systems with Simulations in MATLAB® and ANSYS® - Frede Blaabjerg 2017-05-18

Due to the increasing world population, energy consumption is steadily climbing, and there is a demand to provide solutions for sustainable and renewable energy production, such as wind turbines and photovoltaics. Power electronics are being used to interface renewable sources in order to maximize the energy yield, as well as smoothly integrate them within the grid. In many cases, power electronics are able to ensure a large amount of energy saving in pumps, compressors, and ventilation

systems. This book explains the operations behind different renewable generation technologies in order to better prepare the reader for practical applications. Multiple chapters are included on the state-of-the-art and possible technology developments within the next 15 years. The book provides a comprehensive overview of the current renewable energy technology in terms of system configuration, power circuit usage, and control. It contains two design examples for small wind turbine system and PV power system, respectively, which are useful for real-life installation, as well as many computer simulation models.

*Logistics 4.0* - Turan Paksoy 2020-12-18

Industrial revolutions have impacted both, manufacturing and service. From the steam engine to digital automated production, the industrial revolutions have conducted significant changes in operations and supply chain management (SCM) processes. Swift changes in manufacturing and service systems have led to phenomenal improvements in productivity. The fast-paced environment brings new challenges and opportunities for the companies that are associated with the adaptation to the new concepts such as Internet of Things (IoT) and Cyber Physical Systems, artificial intelligence (AI), robotics, cyber security, data analytics, block chain and cloud technology. These emerging technologies facilitated and expedited the birth of Logistics 4.0. Industrial Revolution 4.0 initiatives in SCM has attracted stakeholders' attentions due to its ability to empower using a set of technologies together that helps to execute more efficient production and distribution systems. This initiative has been called Logistics 4.0 of the fourth Industrial Revolution in SCM due to its high potential. Connecting entities, machines, physical items and enterprise resources to each other by using sensors, devices and the internet along the supply chains are the main attributes of Logistics 4.0. IoT enables customers to make more suitable and valuable decisions due to the data-driven structure of the Industry 4.0 paradigm. Besides that, the system's ability of gathering and analyzing information about the environment at any given time and adapting itself to the rapid changes add significant value to the SCM processes. In this peer-reviewed book, experts from all over the world, in

the field present a conceptual framework for Logistics 4.0 and provide examples for usage of Industry 4.0 tools in SCM. This book is a work that will be beneficial for both practitioners and students and academicians, as it covers the theoretical framework, on the one hand, and includes examples of practice and real world.

**Handbook of Research on Engineering Education in a Global Context** - Smirnova, Elena V. 2018-08-31

Engineering education methods and standards are important features of engineering programs that should be carefully designed both to provide students and stakeholders with valuable, active, integrated learning experiences, and to provide a vehicle for assessing program outcomes. With the driving force of the globalization of the engineering profession, standards should be developed for mutual recognition of engineering education across the world, but it is proving difficult to achieve. The Handbook of Research on Engineering Education in a Global Context provides innovative insights into the importance of quality training and preparation for engineering students. It explores the common and current problems encountered in areas such as quality and standards, management information systems, innovation and enhanced learning technologies in education, as well as the challenges of employability, entrepreneurship, and diversity. This publication is vital reference source for science and engineering educators, engineering professionals, and educational administrators interested in topics centered on the education of students in the field of engineering.

Fuzzy Analytic Hierarchy Process - Ali Emrouznejad 2017-09-18

This book is the first in the literature to present the state of the art and some interesting and relevant applications of the Fuzzy Analytic Hierarchy Process (FAHP). The AHP is a conceptually and mathematically simple, easily implementable, yet extremely powerful tool for group decision making and is used around the world in a wide variety of decision situations, in fields such as government, business, industry, healthcare, and education. The aim of this book is to study various fuzzy methods for dealing with the imprecise and ambiguous data in AHP. Features: First book available on FAHP. Showcases state-of-the-art

developments. Contains several novel real-life applications. Provides useful insights to both academics and practitioners in making group decisions under uncertainty This book provides the necessary background to work with existing fuzzy AHP models. Once the material in this book has been mastered, the reader will be able to apply fuzzy AHP models to his or her problems for making decisions with imprecise data.

**Proceedings of the International Conference on Soft Computing Systems** - L. Padma Suresh 2015-12-07

The book is a collection of high-quality peer-reviewed research papers presented in International Conference on Soft Computing Systems (ICSCS 2015) held at Noorul Islam Centre for Higher Education, Chennai, India. These research papers provide the latest developments in the emerging areas of Soft Computing in Engineering and Technology. The book is organized in two volumes and discusses a wide variety of industrial, engineering and scientific applications of the emerging techniques. It presents invited papers from the inventors/originators of new applications and advanced technologies.

**Electronic Batch Recording Solutions** - Monika Futschik 2017-10-11

Monika Futschik introduces an evaluation model that allows a holistic assessment of the advantages and disadvantages of electronic batch recording solutions versus traditional paper batch ticket solutions. In comparison to former studies, this newly developed evaluation model considers the change management efforts and the financial investments required for system deployment. The model proves the overall performance value through the implementation of electronic batch recording solutions and supports decision-makers in finding the most effective solution. The development and effectiveness of this model is based on various surveys, expert interviews, a Delphi study as well as a case study with a real-life pharmaceutical company. The outcome of her research can be easily applied to other industries as well.

**Advances in Artificial Systems for Medicine and Education IV** - Zhengbing Hu 2021-03-14

This book covers the latest advances for the development of artificial

intelligence systems and their applications in various fields from medicine and technology to education. The proceedings comprise refereed papers presented at the Fourth International Conference of Artificial Intelligence, Medical Engineering, Education (AIMEE2020), held at the Mechanical Engineering Institute of the Russian Academy of Sciences, Moscow, Russia, in 3-4 October 2020. Given the rapid development of artificial intelligence systems, the book emphasizes the need for the intensification of training of a growing number of relevant specialists, in particular, in medical engineering to increase the effectiveness of medical diagnosing and treatment. In digital artificial intelligence systems, scientists endeavor to reproduce the innate intellectual abilities of human and other organisms, and the in-depth study of genetic systems and inherited biological processes can provide new approaches to create more and more effective artificial intelligence methods. Topics of the included papers concern thematic materials in the following spheres: mathematics and biomathematics; medical approaches; technological and educational approaches. The book is a compilation of state-of-the-art papers in the field, covering a comprehensive range of subjects that is relevant to business managers and engineering professionals alike. The breadth and depth of these proceedings make them an excellent resource for asset management practitioners, researchers, and academics, as well as undergraduate and postgraduate students interested in artificial intelligence and bioinformatics systems as well as their growing applications. Intended readership includes specialists, students, and other circles of readers who would like to know where artificial intelligence systems can be applied in the future with great benefit.

**Advanced Wireless Sensing Techniques for 5G Networks** - Ashish Bagwari 2018-09-21

This book written for students of electronics and communication, students of computer science and communications engineers addresses topics such as Introduction of CRN, Advanced spectrum sensing techniques, Cooperative sensing techniques, Distributed sensing techniques, Issues in advanced sensing techniques, and Applications of

5G Networks. It provides new algorithms, explores recent results, and evaluates the performance of technologies in use in this area. It also provides new research topics and sensing techniques related to 5G networks for researchers.

**Deep Learning and Neural Networks: Concepts, Methodologies, Tools, and Applications** - Management Association, Information Resources 2019-10-11

Due to the growing use of web applications and communication devices, the use of data has increased throughout various industries. It is necessary to develop new techniques for managing data in order to ensure adequate usage. Deep learning, a subset of artificial intelligence and machine learning, has been recognized in various real-world applications such as computer vision, image processing, and pattern recognition. The deep learning approach has opened new opportunities that can make such real-life applications and tasks easier and more efficient. Deep Learning and Neural Networks: Concepts, Methodologies, Tools, and Applications is a vital reference source that trends in data analytics and potential technologies that will facilitate insight in various domains of science, industry, business, and consumer applications. It also explores the latest concepts, algorithms, and techniques of deep learning and data mining and analysis. Highlighting a range of topics such as natural language processing, predictive analytics, and deep neural networks, this multi-volume book is ideally designed for computer engineers, software developers, IT professionals, academicians, researchers, and upper-level students seeking current research on the latest trends in the field of deep learning.

**Selected Issues in Experimental Economics** - Kesra Nermend 2016-03-24

The aim of this volume is to provide deep insights and the latest scientific developments and trends in experimental economics. Derived from the 2015 Computational Methods in Experimental Economics (CMEE) conference, this book features papers containing research and analysis of economic experiments concerning research in such areas as management science, decision theory, game theory, marketing and

political science. The goal is to present possibilities for using various computer methods in the scope of experimental economics to further provide researchers with a wide variety of tools. The field of experimental economics is rapidly evolving. Modern use of experimental economics requires the integration of knowledge in the domains of economic sciences, computer science, psychology, and neuroscience. Recent research includes experiments conducted both in the laboratory and in the field, and the results are used for testing and a better understanding of economic theories. Researchers working in this field use mainly a set of well-established methods and computer tools that support the experiments. Methods such as artificial intelligence, computer simulation and computer graphics, however, are not represented enough in experimental economics studies and most experimenters do not consider their usage. The goal of the conference and the enclosed papers is to allow for an exchange of experiences and to promote joint initiatives to insight change in this trend.

*Business Economics and Finance with MATLAB, GIS, and Simulation Models* - Patrick L. Anderson 2004-07-27

This book takes recent theoretical advances in Finance and Economics and shows how they can be implemented in the real world. It presents tactics for using mathematical and simulation models to solve complex tasks of forecasting income, valuing businesses, predicting retail sales, and evaluating markets and tax and regulatory problems. *Business Introduction to Fuzzy Arithmetic* - Arnold Kaufmann 1991

**Neural and Fuzzy Logic Control of Drives and Power Systems** - Marcian Cirstea 2002-10-08

\*Introduces cutting-edge control systems to a wide readership of engineers and students \*The first book on neuro-fuzzy control systems to take a practical, applications-based approach, backed up with worked examples and case studies \*Learn to use VHDL in real-world applications Introducing cutting edge control systems through real-world applications Neural networks and fuzzy logic based systems offer a modern control solution to AC machines used in variable speed drives, enabling industry

to save costs and increase efficiency by replacing expensive and high-maintenance DC motor systems. The use of fast micros has revolutionised the field with sensorless vector control and direct torque control. This book reflects recent research findings and acts as a useful guide to the new generation of control systems for a wide readership of advanced undergraduate and graduate students, as well as practising engineers. The authors guide readers quickly and concisely through the complex topics of neural networks, fuzzy logic, mathematical modelling of electrical machines, power systems control and VHDL design. Unlike the academic monographs that have previously been published on each of these subjects, this book combines them and is based round case studies of systems analysis, control strategies, design, simulation and implementation. The result is a guide to applied control systems design that will appeal equally to students and professional design engineers. The book can also be used as a unique VHDL design aid, based on real-world power engineering applications.

MATLAB - Vasilios Katsikis 2012-09-26

This excellent book represents the final part of three-volumes regarding MATLAB-based applications in almost every branch of science. The book consists of 19 excellent, insightful articles and the readers will find the results very useful to their work. In particular, the book consists of three parts, the first one is devoted to mathematical methods in the applied sciences by using MATLAB, the second is devoted to MATLAB applications of general interest and the third one discusses MATLAB for educational purposes. This collection of high quality articles, refers to a large range of professional fields and can be used for science as well as for various educational purposes.

**Computer Applications in Engineering and Management** - Parveen Berwal 2022-04-08

The book Computer Applications in Engineering and Management is about computer applications in management, electrical engineering, electronics engineering, and civil engineering. It covers the software tools for office automation, introduces the basic concepts of database management, and provides an overview about the concepts of data

communication, internet, and e-commerce. Additionally, the book explains the principles of computing management used in construction of buildings in civil engineering and the role of computers in power grid automation in electronics engineering. Features Provides an insight to prospective research and application areas related to industry and technology Includes industry-based inputs Provides a hands-on approach for readers of the book to practice and assimilate learning This book is primarily aimed at undergraduates and graduates in computer science, information technology, civil engineering, electronics and electrical engineering, management, academicians, and research scholars.

**Soft Computing: Theories and Applications** - Rajesh Kumar  
2022-06-01

This book focuses on soft computing and how it can be applied to solve real-world problems arising in various domains, ranging from medicine and healthcare, to supply chain management, image processing, and cryptanalysis. It gathers high-quality papers presented at the International Conference on Soft Computing: Theories and Applications (SoCTA 2021), organized online. The book offers valuable insights into soft computing for teachers and researchers alike; the book will inspire further research in this dynamic field.

*Analytic Methods in Systems and Software Testing* - Ron S. Kenett  
2018-06-20

A comprehensive treatment of systems and software testing using state of the art methods and tools This book provides valuable insights into state of the art software testing methods and explains, with examples, the statistical and analytic methods used in this field. Numerous examples are used to provide understanding in applying these methods to real-world problems. Leading authorities in applied statistics, computer science, and software engineering present state-of-the-art methods addressing challenges faced by practitioners and researchers involved in system and software testing. Methods include: machine learning, Bayesian methods, graphical models, experimental design, generalized regression, and reliability modeling. Analytic Methods in Systems and Software Testing presents its comprehensive collection of

methods in four parts: Part I: Testing Concepts and Methods; Part II: Statistical Models; Part III: Testing Infrastructures; and Part IV: Testing Applications. It seeks to maintain a focus on analytic methods, while at the same time offering a contextual landscape of modern engineering, in order to introduce related statistical and probabilistic models used in this domain. This makes the book an incredibly useful tool, offering interesting insights on challenges in the field for researchers and practitioners alike. Compiles cutting-edge methods and examples of analytical approaches to systems and software testing from leading authorities in applied statistics, computer science, and software engineering Combines methods and examples focused on the analytic aspects of systems and software testing Covers logistic regression, machine learning, Bayesian methods, graphical models, experimental design, generalized regression, and reliability models Written by leading researchers and practitioners in the field, from diverse backgrounds including research, business, government, and consulting Stimulates research at the theoretical and practical level Analytic Methods in Systems and Software Testing is an excellent advanced reference directed toward industrial and academic readers whose work in systems

and software development approaches or surpasses existing frontiers of testing and validation procedures. It will also be valuable to post-graduate students in computer science and mathematics.

**Fuzzy TOPSIS** - Mohamed El Alaoui 2021-05-27

This book aims to justify the use of fuzzy logic as a logic and as an uncertainty theory in the decision-making context. It also discusses the development of the TOPSIS method (Technique for Order of Preference by Similarity to Ideal Solution) with related examples and MATLAB codes. This is the first book devoted to TOPSIS and its fuzzy versions. It presents the use of fuzzy logic as a logic and as an uncertainty theory in the decision-making content and discusses the development of the TOPSIS method in classical and fuzzy context. The book justifies the use of fuzzy logic as an uncertainty theory and provides illustrative examples for each fuzzy TOPSIS extension, along with related MATLAB codes and case studies. This book is for industrial engineers, operations research engineers, systems engineers, and production engineers working in the areas of decision analysis, multi-criteria decision making, and multiple objective optimization.