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Parameter Estimation Techniques and Applications in Aircraft Flight Testing **Technique and Application in Dental Anthropology** [Web Usage Mining Techniques and Applications Across Industries](#) [Techniques and Applications of Path Integration](#) [Applications of Artificial Intelligence](#) [Techniques in Engineering](#) [NMR Techniques & Applications in Geochemistry & Soil Chemistry](#) **TV Content Analysis** **Modern Optimization Techniques with Applications in Electric Power Systems** **Soft Computing Techniques and Applications in Mechanical Engineering** **Advanced Methods, Techniques, and Applications in Modeling and Simulation** [Handbook of Thermal Analysis and Calorimetry](#) [Outlier Detection: Techniques and Applications](#) [Boundary Element Techniques](#) **Data Mining for Business Analytics** [Analytic Techniques in Urban and Regional Planning](#) [Position Location Techniques and Applications](#) **Applications of Artificial Intelligence** **Techniques in the Petroleum Industry**

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[Applications of Artificial Intelligence](#) [Techniques in Engineering](#) Jan 06 2021 The book is a collection of high-quality, peer-reviewed innovative research papers from the International Conference on Signals, Machines and Automation (SIGMA 2018) held at Netaji Subhas Institute of Technology (NSIT), Delhi, India. The conference offered researchers from academic and industry the opportunity to present their original work and exchange ideas, information, techniques and applications in the field of computational intelligence, artificial intelligence and machine intelligence. The book is divided into two volumes discussing a wide variety of industrial, engineering and scientific applications of the emerging techniques.

Data Mining for Business Intelligence Oct 15 2021 Learn how to develop models for classification, prediction, and customer segmentation with the help of Data Mining for Business Intelligence In today's world, businesses are becoming more capable of accessing their ideal consumers, and an understanding of data mining contributes to this success. Data Mining for Business Intelligence, which was developed from a course taught at the Massachusetts Institute of Technology's Sloan School of Management, and the University of Maryland's Smith School of Business, uses real data and actual cases to illustrate the applicability of data mining intelligence to the development of successful business models. Featuring XLMiner, the Microsoft Office Excel add-in, this book allows readers to follow along and implement algorithms at their own speed, with a minimal learning curve. In addition, students and practitioners of data mining techniques are presented with hands-on, business-oriented applications. An abundant amount of exercises and examples are provided to motivate learning and understanding. Data Mining for Business Intelligence: Provides both a theoretical and practical understanding of the key methods of classification, prediction, reduction, exploration, and affinity analysis Features a business decision-making context for these key methods Illustrates the application and interpretation of these methods using real business cases and data This book helps

readers understand the beneficial relationship that can be established between data mining and smart business practices, and is an excellent learning tool for creating valuable strategies and making wiser business decisions. *Handbook of Research on Applications and Implementations of Machine Learning Techniques* Dec 17 2021 "This book examines the practical applications and implementation of various machine learning techniques in various fields such as agriculture, medical, image processing, and networking"-- Outlier Detection: Techniques and Applications May 30 2020 This book, drawing on recent literature, highlights several methodologies for the detection of outliers and explains how to apply them to solve several interesting real-life problems. The detection of objects that deviate from the norm in a data set is an essential task in data mining due to its significance in many contemporary applications. More specifically, the detection of fraud in e-commerce transactions and discovering anomalies in network data have become prominent tasks, given recent developments in the field of information and communication technologies and security. Accordingly, the book sheds light on specific state-of-the-art algorithmic approaches such as the community-based analysis of networks and characterization of temporal outliers present in dynamic networks. It offers a valuable resource for young researchers working in data mining, helping them understand the technical depth of the

outlier detection problem and devise innovative solutions to address related challenges. **Bioinformatics Algorithms** Jun 11 2021 Presents algorithmic techniques for solving problems in bioinformatics, including applications that shed new light on molecular biology This book introduces algorithmic techniques in bioinformatics, emphasizing their application to solving novel problems in post-genomic molecular biology. Beginning with a thought-provoking discussion on the role of algorithms in twenty-first-century bioinformatics education, Bioinformatics Algorithms covers: General algorithmic techniques, including dynamic programming, graph-theoretical methods, hidden Markov models, the fast Fourier transform, seeding, and approximation algorithms Algorithms and tools for genome and sequence analysis, including formal and approximate models for gene clusters, advanced algorithms for non-overlapping local alignments and genome tilings, multiplex PCR primer set selection, and sequence/network motif finding Microarray design and analysis, including algorithms for microarray physical design, missing value imputation, and meta-analysis of gene expression data Algorithmic issues arising in the analysis of genetic variation across human population, including computational inference of haplotypes from genotype data and disease association search in case/control epidemiologic studies Algorithmic approaches in structural and systems biology, including

topological and structural classification in biochemistry, and prediction of protein-protein and domain-domain interactions. Each chapter begins with a self-contained introduction to a computational problem; continues with a brief review of the existing literature on the subject and an in-depth description of recent algorithmic and methodological developments; and concludes with a brief experimental study and a discussion of open research challenges. This clear and approachable presentation makes the book appropriate for researchers, practitioners, and graduate students alike.

Data Analytics Oct 27 2022 Data Analytics, Data Analytics: Concepts, Techniques, and Applications compiles the latest trends and issues of the emerging technologies, concepts, and applications that are based on data analytics. The book is for students, researchers, and professionals working in the area of data analytics and is not focused on any specific application. Data Analytics: Concepts, Techniques, and Applications includes chapters covering the fundamental concepts, relevant techniques, and interesting applications of data analysis. The chapters are categorized into three groups with a total of 16 chapters, with contributions from authors around the globe. Section I contains six chapters that cover the fundamental concepts of data analytics. These chapters reflect the important knowledge areas, such as machine learning, regression, clustering, information retrieval, and graph analysis. Section II has six chapters that cover

the major techniques of data analytics, such as transition from regular database to big data, big graph analysis tools and techniques, and game theoretical approaches for big data analysis. The rest of the chapters in this section cover topics that lead to newer research domains, including project management, Industry 4.0, and dark data. Section III covers the applications of data analytics in different domains, such as education, traffic offenses, sports data visualization, and, last but not the least, two interesting chapters on cybersecurity for big data analytics with specific focus on the health care sector. Data Analytics: Concepts, Techniques, and Applications is for graduate students, researchers, academics, and industry practitioners working in the areas of data science, machine learning, and other related issues. Book jacket.

Preparative Chromatography Techniques Jan 18 2022 Over the past few years, increasing attention has been paid to the search for bioactive compounds from natural sources. The success of plant-derived products such as paclitaxel (Taxol) in tumor therapy or artemisinin in the treatment of malaria has provided the impetus for the introduction of numerous research programmes, especially in Industry. A great deal of effort is being expended in the generation of novel lead molecules of vegetable, marine and microbial origin by the use of high throughput screening protocols. When interesting hits are found, it is essential to have methods available for the

rapid isolation of target compounds. For this reason, both industry and academia need efficient preparative chromatographic separation techniques and experience in their application. Purified natural products are required for complete spectroscopic identification and full characterization of new compounds, for biological testing and for the supply of pharmaceuticals, standards, and starting materials for synthetic work. Obtaining pure products from an extract can be a very long, tedious and expensive undertaking, involving many steps. Sometimes only minute amounts of the desired compounds are at hand and these entities may be labile. Thus it is an advantage to have access to as many different methods as possible in order to aid the isolation process. Although a certain amount of trial and error may be involved, nowadays there is the possibility of devising suitable rapid separation schemes by a judicious choice of the different techniques available.

Position Location Techniques and Applications Jan 26 2020 This book is the definitive guide to the techniques and applications of position location, covering both terrestrial and satellite systems. It gives all the techniques, theoretical models, and algorithms that engineers need to improve their current location schemes and to develop future location algorithms and systems. Comprehensive coverage is given to system design trade-offs, complexity issues, and the design of efficient positioning algorithms to enable the creation of high-performance

location positioning systems. Traditional methods are also reexamined in the context of the challenges posed by reconfigurable and multihop networks. Applications discussed include wireless networks (WiFi, ZigBee, UMTS, and DVB networks), cognitive radio, sensor networks and multihop networks. Features Contains a complete guide to models, techniques, and applications of position location Includes applications to wireless networks, demonstrating the relevance of location positioning to these "hot" areas in research and development Covers system design trade-offs and the design of efficient positioning algorithms, enabling the creation of future location positioning systems Provides a theoretical underpinning for understanding current position location algorithms, giving researchers a foundation to develop future algorithms David Muñoz is Director and César Vargas is a member of the Center for Electronics and Telecommunications, Tecnológico de Monterrey, Mexico. Frantz Bouchereau is a senior communications software developer at The MathWorks Inc. in Natick, MA. Rogerio Enríquez-Caldera is at Instituto Nacional de Atrofísica, Óptica y Electrónica (INAOE), Puebla, Mexico. Contains a complete guide to models, techniques and applications of position location Includes applications to wireless networks (WiFi, ZigBee, DVB networks), cognitive radio, sensor networks and reconfigurable and multi-hop networks, demonstrating the relevance of

location positioning to these 'hot' areas in research and development Covers system design trade-offs, and the design of efficient positioning algorithms enables the creation of future location positioning systems Provides a theoretical underpinning for understanding current position location algorithms, giving researchers a foundation to develop future algorithms

Flow Control Techniques and Applications Oct 23 2019 Providing comprehensive coverage, this is the first book to systematically introduce different flow control techniques. With a dedicated chapter for each technique, all of the most important, typical and up-to-date methods are discussed, including the vortex generator, biological techniques, the jet and synthetic jet, the plasma actuator, and closed-loop control. Understand their key characteristics and control mechanisms, and learn about their applications in different fields such as aviation and aerospace, mechanical engineering, and building construction. The necessary background on flow control is provided, including the history of the discipline, and the definition, classification and development of each technique, making this essential reading for graduate students, researchers and engineers working in the field.

[Data Science Concepts and Techniques with Applications](#) Feb 19 2022 This book comprehensively covers the topic of data science. Data science is an umbrella term that encompasses data analytics, data mining,

machine learning, and several other related disciplines. This book synthesizes both fundamental and advanced topics of a research area that has now reached maturity. The chapters of this book are organized into three sections: The first section is an introduction to data science. Starting from the basic concepts, the book will highlight the types of data, its use, its importance and issues that are normally faced in data analytics. Followed by discussion on wide range of applications of data science and widely used techniques in data science. The second section is devoted to the tools and techniques of data science. It consists of data pre-processing, feature selection, classification and clustering concepts as well as an introduction to text mining and opinion mining. And finally, the third section of the book focuses on two programming languages commonly used for data science projects i.e. Python and R programming language. Although this book primarily serves as a textbook, it will also appeal to industrial practitioners and researchers due to its focus on applications and references. The book is suitable for both undergraduate and postgraduate students as well as those carrying out research in data science. It can be used as a textbook for undergraduate students in computer science, engineering and mathematics. It can also be accessible to undergraduate students from other areas with the adequate background. The more advanced chapters can be used by postgraduate researchers intending to gather a

deeper theoretical understanding.

Applications of Artificial Intelligence

Techniques in the Petroleum Industry Dec 25 2019 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

Handbook of Thermal Analysis and Calorimetry Jun 30 2020 Handbook of Thermal Analysis and Calorimetry: Recent Advances, Techniques and Applications, Volume Six, Second Edition, presents the latest in a series that has been well received by the thermal analysis and

calorimetry community. This volume covers recent advances in techniques and applications that complement the earlier volumes. There has been tremendous progress in the field in recent years, and this book puts together the most high-impact topics selected for their popularity by new editors Sergey Vyazovkin, Nobuyoshi Koga and Christoph Schick—all editors of *Thermochimica Acta*. Among the important new techniques covered are biomass conversion; sustainable polymers; polymer nanocomposites; nonmetallic glasses; phase change materials; propellants and explosives; applications to pharmaceuticals; processes in ceramics, metals, and alloys; ionic liquids; fast-scanning calorimetry, and more. Features 19 all-new chapters to bring readers up to date on the current status of the field Provides a broad overview of recent progress in the most popular techniques and applications Includes chapters authored by a recognized leader in each field and compiled by a new team of editors, each with at least 20 years of experience in the field of thermal analysis and calorimetry Enables applications across a wide range of modern materials, including polymers, metals, alloys, ceramics, energetics and pharmaceuticals Overviews the current status of the field and summarizes recent progress in the most popular techniques and applications

Modern Heuristic Optimization Techniques

Nov 16 2021 This book explores how developing solutions with heuristic tools offers two major advantages: shortened development

time and more robust systems. It begins with an overview of modern heuristic techniques and goes on to cover specific applications of heuristic approaches to power system problems, such as security assessment, optimal power flow, power system scheduling and operational planning, power generation expansion planning, reactive power planning, transmission and distribution planning, network reconfiguration, power system control, and hybrid systems of heuristic methods.

Advanced Methods, Techniques, and Applications in Modeling and Simulation

Aug 01 2020 This book is a compilation of research accomplishments in the fields of modeling, simulation, and their applications, as presented at AsiaSim 2011 (Asia Simulation Conference 2011). The conference, held in Seoul, Korea, November 16–18, was organized by ASIASIM (Federation of Asian Simulation Societies), KSS (Korea Society for Simulation), CASS (Chinese Association for System Simulation), and JSST (Japan Society for Simulation Technology). AsiaSim 2011 provided a forum for scientists, academicians, and professionals from the Asia-Pacific region and other parts of the world to share their latest exciting research findings in modeling and simulation methodologies, techniques, and their tools and applications in military, communication network, industry, and general engineering problems.

Optimization Techniques and Applications with Examples Jun 23 2022 A guide to modern

optimization applications and techniques in newly emerging areas spanning optimization, data science, machine intelligence, engineering, and computer sciences

Optimization Techniques and Applications with Examples introduces the fundamentals of all the commonly used techniques in optimization that encompass the broadness and diversity of the methods (traditional and new) and algorithms. The author—a noted expert in the field—covers a wide range of topics including mathematical foundations, optimization formulation, optimality conditions, algorithmic complexity, linear programming, convex optimization, and integer programming. In addition, the book discusses artificial neural network, clustering and classifications, constraint-handling, queueing theory, support vector machine and multi-objective optimization, evolutionary computation, nature-inspired algorithms and many other topics. Designed as a practical resource, all topics are explained in detail with step-by-step examples to show how each method works. The book's exercises test the acquired knowledge that can be potentially applied to real problem solving. By taking an informal approach to the subject, the author helps readers to rapidly acquire the basic knowledge in optimization, operational research, and applied data mining. This important resource: Offers an accessible and state-of-the-art introduction to the main optimization techniques Contains both traditional optimization techniques and the

most current algorithms and swarm intelligence-based techniques Presents a balance of theory, algorithms, and implementation Includes more than 100 worked examples with step-by-step explanations Written for upper undergraduates and graduates in a standard course on optimization, operations research and data mining,

Optimization Techniques and Applications with Examples is a highly accessible guide to understanding the fundamentals of all the commonly used techniques in optimization.

Recent Techniques and Applications in Ionizing Radiation Research Sep 21 2019

Ionizing radiation can be found everywhere; in the Earth, inside buildings, in space, in the food we eat, and even inside our bodies. It is of much importance to know more about radiation and how it can improve human life, including how to make use of it and how to avoid its harm. This book covers several topics on ionizing radiation to enrich our knowledge about its applications and effects.

Parameter Estimation Techniques and Applications in Aircraft Flight Testing May 10 2021

[Analytic Techniques in Urban and Regional Planning](#) Feb 25 2020

[Laser Surface Modification of Biomaterials](#) Apr 21 2022 **Laser Surface Modification of Biomaterials: Techniques and Applications** covers this expanding field, which has many potential applications, including biomaterials. **Laser surface modification of biomaterials**

enables the production of hybrid materials with different functionality in the bulk as well as the thin, sub-micrometer surface layer. This book will provide readers with a comprehensive review of the technology and its applications. Chapters in Part 1 look at the techniques and considerations of laser surface modification, while Part 2 reviews laser surface modification techniques of the most important classes of biomaterials, with a final set of chapters discussing application specific laser surface modification. Offers a comprehensive review of laser surface modification techniques Presents recent developments, fundamentals, and progress in laser surface modification Reviews laser surface modification applications across a range of materials Emphasizes applications in biomaterials

Soft Computing Techniques and Applications in Mechanical Engineering Sep 02 2020

The evolution of soft computing applications has offered a multitude of methodologies and techniques that are useful in facilitating new ways to address practical and real scenarios in a variety of fields. In particular, these concepts have created significant developments in the engineering field. **Soft Computing Techniques and Applications in Mechanical Engineering** is a pivotal reference source for the latest research findings on a comprehensive range of soft computing techniques applied in various fields of mechanical engineering. Featuring extensive coverage on relevant areas such as

thermodynamics, fuzzy computing, and computational intelligence, this publication is an ideal resource for students, engineers, research scientists, and academicians involved in soft computing techniques and applications in mechanical engineering areas.

Advanced AI Techniques and Applications in Bioinformatics Sep 26 2022 The advanced AI techniques are essential for resolving various problematic aspects emerging in the field of bioinformatics. This book covers the recent approaches in artificial intelligence and machine learning methods and their applications in Genome and Gene editing, cancer drug discovery classification, and the protein folding algorithms among others. Deep learning, which is widely used in image processing, is also applicable in bioinformatics as one of the most popular artificial intelligence approaches. The wide range of applications discussed in this book are an indispensable resource for computer scientists, engineers, biologists, mathematicians, physicians, and medical informaticists. Features: Focusses on the cross-disciplinary relation between computer science and biology and the role of machine learning methods in resolving complex problems in bioinformatics Provides a comprehensive and balanced blend of topics and applications using various advanced algorithms Presents cutting-edge research methodologies in the area of AI methods when applied to bioinformatics and innovative solutions Discusses the AI/ML techniques, their

use, and their potential for use in common and future bioinformatics applications Includes recent achievements in AI and bioinformatics contributed by a global team of researchers

Technique and Application in Dental Anthropology Apr 09 2021 Bringing together a variety of accomplished dental researchers, this book covers a range of topics germane to the study of human and other primate teeth. The chapters encompass work on individuals to samples, ranging from prehistoric to modern times. The focus throughout the book is the methodology required for the study of modern dental anthropology, comprising the scientific methods in use today - ranging from simple observation to advanced computer-based analyses - which can be utilized by the reader in their own dental research. Originating from the 20th anniversary meeting of the Dental Anthropology Association, this is a valuable reference source for graduate students, academic researchers and professionals in the social and life sciences, as well as clinicians.

Bioaugmentation Techniques and Applications in Remediation Nov 23 2019 This book provides detailed information on bioaugmentation approaches for remediation of sediments, water, and soil polluted with organic and inorganic pollutants. Practical applications of bioaugmentation techniques performed in restricted systems under controlled conditions, laboratory investigations, and field applications are all addressed.

TV Content Analysis Nov 04 2020 The rapid

advancement of digital multimedia technologies has not only revolutionized the production and distribution of audiovisual content, but also created the need to efficiently analyze TV programs to enable applications for content managers and consumers. Leaving no stone unturned, TV Content Analysis: Techniques and Applications provides a de

Modern Optimization Techniques with Applications in Electric Power Systems Oct 03 2020 This book presents the application of some AI related optimization techniques in the operation and control of electric power systems. With practical applications and examples the use of functional analysis, simulated annealing, Tabu-search, Genetic algorithms and fuzzy systems for the optimization of power systems is discussed in detail. Preliminary mathematical concepts are presented before moving to more advanced material. Researchers and graduate students will benefit from this book. Engineers working in utility companies, operations and control, and resource management will also find this book useful.

Web Usage Mining Techniques and Applications Across Industries Mar 08 2021 Web usage mining is defined as the application of data mining technologies to online usage patterns as a way to better understand and serve the needs of web-based applications. Because the internet has become a central component in information sharing and commerce, having the ability to analyze user

behavior on the web has become a critical component to a variety of industries. *Web Usage Mining Techniques and Applications Across Industries* addresses the systems and methodologies that enable organizations to predict web user behavior as a way to support website design and personalization of web-based services and commerce. Featuring perspectives from a variety of sectors, this publication is designed for use by IT specialists, business professionals, researchers, and graduate-level students interested in learning more about the latest concepts related to web-based information retrieval and mining.

Data Mining for Business Analytics Mar 28 2020 *Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python* presents an applied approach to data mining concepts and methods, using Python software for illustration. Readers will learn how to implement a variety of popular data mining algorithms in Python (a free and open-source software) to tackle business problems and opportunities. This is the sixth version of this successful text, and the first using Python. It covers both statistical and machine learning algorithms for prediction, classification, visualization, dimension reduction, recommender systems, clustering, text mining and network analysis. It also includes: A new co-author, Peter Gedeck, who brings both experience teaching business analytics courses using Python, and expertise in the application of machine learning methods to the drug-

discovery process. A new section on ethical issues in data mining. Updates and new material based on feedback from instructors teaching MBA, undergraduate, diploma and executive courses, and from their students. More than a dozen case studies demonstrating applications for the data mining techniques described. End-of-chapter exercises that help readers gauge and expand their comprehension and competency of the material presented. A companion website with more than two dozen data sets, and instructor materials including exercise solutions, PowerPoint slides, and case solutions. *Data Mining for Business Analytics: Concepts, Techniques, and Applications in Python* is an ideal textbook for graduate and upper-undergraduate level courses in data mining, predictive analytics, and business analytics. This new edition is also an excellent reference for analysts, researchers, and practitioners working with quantitative methods in the fields of business, finance, marketing, computer science, and information technology. "This book has by far the most comprehensive review of business analytics methods that I have ever seen, covering everything from classical approaches such as linear and logistic regression, through to modern methods like neural networks, bagging and boosting, and even much more business specific procedures such as social network analysis and text mining. If not the bible, it is at the least a definitive manual on the subject." —Gareth M. James, University of Southern

California and co-author (with Witten, Hastie and Tibshirani) of the best-selling book *An Introduction to Statistical Learning, with Applications in R*

Data Science Aug 13 2021 "The proposed book covers the topic of data science in a very comprehensive manner and synthesizes both fundamental and advanced topics of a research area that has now reached maturity. The book starts from the basic concepts of data science; it highlights the types of data, its use and its importance, followed by discussion on a wide range of applications of data science and widely used techniques in data science. Key features: provides an internationally respected collection of scientific research methods, technologies and applications in the area of data science, presents predictive outcomes by applying data science techniques on real life applications, provides readers with the tools, techniques and cases required to excel with modern artificial intelligence methods, and gives the reader variety of intelligent applications that can be designed using data science and its allied fields. The book is aimed primarily at advanced undergraduates and graduates studying machine learning and data science. Researchers and professionals will also find this book useful"--

Applications of Artificial Intelligence Techniques in Engineering Aug 21 2019 The book is a collection of high-quality, peer-reviewed innovative research papers from the International Conference on Signals, Machines

and Automation (SIGMA 2018) held at Netaji Subhas Institute of Technology (NSIT), Delhi, India. The conference offered researchers from academic and industry the opportunity to present their original work and exchange ideas, information, techniques and applications in the field of computational intelligence, artificial intelligence and machine intelligence. The book is divided into two volumes discussing a wide variety of industrial, engineering and scientific applications of the emerging techniques.

Computational Intelligence in Medical Imaging Mar 20 2022 CI Techniques & Algorithms for a Variety of Medical Imaging Situations

Documents recent advances and stimulates further research A compilation of the latest trends in the field, Computational Intelligence in Medical Imaging: Techniques and Applications explores how intelligent computing can bring enormous benefit to existing technology in medical image processing as well as improve medical imaging research. The contributors also cover state-of-the-art research toward integrating medical image processing with artificial intelligence and machine learning approaches. The book presents numerous techniques, algorithms, and models. It describes neural networks, evolutionary optimization techniques, rough sets, support vector machines, tabu search, fuzzy logic, a Bayesian probabilistic framework, a statistical parts-based appearance model, a reinforcement learning-based multistage image segmentation algorithm, a machine learning

approach, Monte Carlo simulations, and intelligent, deformable models. The contributors discuss how these techniques are used to classify wound images, extract the boundaries of skin lesions, analyze prostate cancer, handle the inherent uncertainties in mammographic images, and encapsulate the natural intersubject anatomical variance in medical images. They also examine prostate segmentation in transrectal ultrasound images, automatic segmentation and diagnosis of bone scintigraphy, 3-D medical image segmentation, and the reconstruction of SPECT and PET tomographic images.

Applied Soft Computing Jul 12 2021 This new volume explores a variety of modern techniques that deal with estimated models and give resolutions to complex real-life issues. Soft computing has played a crucial role not only with theoretical paradigms but is also popular for its pivotal role for designing a large variety of expert systems and artificial intelligence-based applications. Involving the concepts and practices of soft computing in conjunction with other frontier research domains, this book begins with the basics and goes on to explore a variety of modern applications of soft computing in areas such as approximate reasoning, artificial neural networks, Bayesian networks, big data analytics, bioinformatics, cloud computing, control systems, data mining, functional approximation, fuzzy logic, genetic and evolutionary algorithms, hybrid models, machine learning, metaheuristics, neuro fuzzy

system, optimization, randomized searches, and swarm intelligence. This book will be helpful to a wide range of readers who wish to learn applications of soft computing approaches. It will be useful for academicians, researchers, students, and machine learning experts who use soft computing techniques and algorithms to develop cutting-edge artificial intelligence-based applications.

NMR Techniques & Applications in Geochemistry & Soil Chemistry Dec 05 2020

The book provides an in-depth review of the state of the art of NMR spectroscopy as applied to a wide range of geochemical problems. It is intended to assist geochemists and spectroscopists working at the interface between geochemistry and NMR, and almost all areas of organic and inorganic geochemistry where NMR has had an influence are discussed.

Multidisciplinary Computational Intelligence Techniques: Applications in Business,

Engineering, and Medicine Aug 25 2022 "This book explores the complex world of computational intelligence, which utilizes computational methodologies such as fuzzy logic systems, neural networks, and evolutionary computation for the purpose of managing and using data effectively to address complicated real-world problems"--

Boundary Element Techniques Apr 28 2020

Intelligent Techniques and Applications in Science and Technology Dec 29 2022 This book provides innovative ideas on achieving sustainable development and using green

technologies to conserve our ecosystem. Innovation is the successful exploitation of a new idea. Through innovation, we can achieve MORE while using LESS. Innovations in science & technology will not only help mankind as a whole, but also contribute to the economic growth of individual countries. It is essential that the global problem of environmental degradation be addressed immediately, and thus, we need to rethink the concept of sustainable development. Indeed, new environmentally friendly technologies are fundamental to attaining sustainable development. The book shares a wealth of innovative green technological ideas on how to preserve and improve the quality of the environment, and how to establish a more resource-efficient and sustainable society. The book provides an interdisciplinary approach to addressing various technical issues and capitalizing on advances in computing & optimization for scientific & technological development, smart information, communication, bio-monitoring, smart cities, food quality assessment, waste management, environmental aspects, alternative energies, sustainable infrastructure development, etc. In short, it offers valuable information and insights for budding engineers, researchers, upcoming young minds and industry professionals, promoting awareness for recent advances in the various fields mentioned above. *Techniques and Applications of Path Integration* Feb 07 2021 Suitable for advanced

undergraduates and graduate students, this text develops the techniques of path integration and deals with applications, covering a host of illustrative examples. 26 figures. 1981 edition. **Techniques and Applications of Hyperspectral Image Analysis** May 22 2022 Techniques and Applications of Hyperspectral Image Analysis gives an introduction to the field of image analysis using hyperspectral techniques, and includes definitions and instrument descriptions. Other imaging topics that are covered are segmentation, regression and classification. The book discusses how high quality images of large data files can be structured and archived. Imaging techniques also demand accurate calibration, and are covered in sections about multivariate calibration techniques. The book explains the most important instruments for hyperspectral imaging in more technical detail. A number of applications from medical and chemical imaging are presented and there is an emphasis on data analysis including modeling, data visualization, model testing and statistical interpretation. *Chemical Analysis of Food: Techniques and Applications* Nov 28 2022 Chemical Analysis of Food: Techniques and Applications reviews new technology and challenges in food analysis from multiple perspectives: a review of novel technologies being used in food analysis, an in-depth analysis of several specific approaches, and an examination of the most innovative applications and future trends. This book won a

2012 PROSE Award Honorable Mention in Chemistry and Physics from the Association of American Publishers. The book is structured in two parts: the first describes the role of the latest developments in analytical and bio-analytical techniques and the second reviews the most innovative applications and issues in food analysis. Each chapter is written by experts on the subject and is extensively referenced in order to serve as an effective resource for more detailed information. The techniques discussed range from the non-invasive and non-destructive, such as infrared spectroscopy and ultrasound, to emerging areas such as nanotechnology, biosensors and electronic noses and tongues. Important tools for problem-solving in chemical and biological analysis are discussed in detail. Winner of a PROSE Award 2012, Book: Honorable Mention in Physical Sciences and Mathematics - Chemistry and Physics from the American Association of Publishers Provides researchers with a single source for up-to-date information in food analysis Single go-to reference for emerging techniques and technologies Over 20 renowned international contributors Broad coverage of many important techniques makes this reference useful for a range of food scientists **Model Order Reduction Techniques with Applications in Electrical Engineering** Sep 14 2021 Model Order Reduction Techniques focuses on model reduction problems with particular applications in electrical

engineering. Starting with a clear outline of the technique and their wide methodological background, central topics are introduced including mathematical tools, physical processes, numerical computing experience, software developments and knowledge of system theory. Several model reduction algorithms are then discussed. The aim of this work is to give the reader an overview of reduced-order model design and an operative

guide. Particular attention is given to providing basic concepts for building expert systems for model reduction.

Evolutionary Computation Jul 24 2022 Edited by professionals with years of experience, this book provides an introduction to the theory of evolutionary algorithms and single- and multi-objective optimization, and then goes on to discuss to explore applications of evolutionary algorithms for many uses with real-world

applications. Covering both the theory and applications of evolutionary computation, the book offers exhaustive coverage of several topics on nontraditional evolutionary techniques, details working principles of new and popular evolutionary algorithms, and discusses case studies on both scientific and real-world applications of optimization

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