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Data Envelopment Analysis The Delphi Method Handbook of Augmented Reality Recent Trends in Data Science and Soft Computing Computational Science and Its Applications - ICCSA 2014 Digital Content Creation Nanostructured Materials and their Applications Ionizing Radiation Effects and Applications Electrochemical Impedance Spectroscopy and Its Applications Time Series Analysis and Its Applications Soft Computing Fuzzy Set Theory— and Its Applications Benford's Law Handbook Bibliometrics Advances and Applications in Deep Learning Mobile Big Data Perspectives Of Iot And Its Applications The Nature of Business Transformation ICT Analysis and Applications Computer Science Advances Research Methodology Trends and Advancements of Image Processing and Its Applications Multimedia Applications Optical Coherence Tomography Biological Data Mining and Its Applications in Healthcare Qualitative Content Analysis Soliton Nature Applications of Potential Theory in Mechanics Introductory Functional Analysis with Applications Graphene and Its Derivatives Information, Communication, and Space Technology Computational Science and Its Applications - ICCSA 2020 Machine Learning Multivariate Time Series Analysis and Applications Fundamentals of Research An Introduction to Bond Graph Modeling with Applications Virtual Reality and Its Application in Education Computational Intelligence Techniques and Their Applications to Software Engineering Problems SOFT NEUTROSOPHIC CLASSICAL SETS AND THEIR APPLICATIONS IN DECISION-MAKING Internet of Things A to Z

Perspectives Of Iot And Its Applications Jun 19 2021

Advances and Applications in Deep Learning Aug 22 2021 Artificial Intelligence (AI) has attracted the attention of researchers and users alike and is taking an increasingly crucial role in our modern society. From cars, smartphones, and airplanes to medical equipment, consumer applications, and industrial machines, the impact of AI is notoriously changing the world we live in. In this context, Deep Learning (DL) is one of the techniques that has taken the lead for cognitive processes, pattern recognition, object detection, and machine learning, all of which have played a crucial role in the growth of AI. As such, this book examines DL applications and future trends in the field. It is a useful resource for researchers and students alike.

Data Envelopment Analysis Nov 05 2022 This volume systematically details both the basic principles and new developments in Data Envelopment Analysis (DEA), offering a solid understanding of the methodology, its uses, and its potential. New material in this edition includes coverage of recent developments that have greatly extended the power and scope of DEA and have led to new directions for research and DEA uses. Each chapter accompanies its developments with simple numerical examples and discussions of actual applications. The first nine chapters cover the basic principles of DEA, while the final seven chapters provide a more advanced treatment.

SOFT NEUTROSOPHIC CLASSICAL SETS AND THEIR APPLICATIONS IN DECISION-MAKING Jul 29 2019 In this paper, we introduce the concept of soft neutrosophic classical sets and its set theoretical operations such as; union, intersection, complement, AND-product and OR-product. In addition to these concept and operations, we define four basic types of sets of degenerate elements in a soft neutrosophic classical set. Then, we propose a group decision making method based on soft neutrosophic classical sets, and give algorithm of proposed method. We also make an application of proposed method on a problem including soft neutrosophic classical data.

Soliton Nature Aug 10 2020 Dedicated to a broad audience and scientists, this new-generation, easy-to-read, pictorial, interactive book uses beautiful photography, video channel, and computer scripts in R and Python to demonstrate existing and explore new solitons – the magnificent and versatile energy concentration phenomenon of nature. With 200 images and videos collected around the world and on magnificent Australian beaches, we describe captivating stand-alone ocean solitons capable of travelling hundreds of miles uninterrupted. Along with scary tsunamis, the tricky solitonic bores propagating upstream narrow river channels may cause disasters for coastal cities. Sudden killer rogue waves endanger even large ships. Powerful tornadoes, surfing tubes, whirlpools and rotating galaxies are solitonic vortices. Unique videos of breathers and soliton envelope waves, with legendary 'Ninth Wave' in the middle, are commented by some legendary scientists. Beautiful photography of square grid waves confirms tendency of nature to produce multi-dimensional formations. Solitonic dislocations and defects are widespread in metal shapes around us. Solitonic energy localization effects appear in swing movements of humans perfected them in many sports and dances. We also explore new solitonic hypothesis and theories. Geosolitons may have played an important role in formation of mountain ranges and sedimentary rocks. Using solitonic functions for heart blood pressure pulses may lead to new-generation devices. Solitonic dislocation and stability effects may exist in behaviour of correlated financial markets. New class of atomic solitons can be used to describe Higgs boson ('the god particle') fields, spacetime quanta and other fundamental building blocks of nature. Readers are welcomed to subscribe and provide own videos to our dedicated video channel and website www.solitonnature.com.

Electrochemical Impedance Spectroscopy and its Applications Feb 25 2022 This book presents a complete overview of the powerful but often misused technique of Electrochemical Impedance Spectroscopy (EIS). The book presents a systematic and complete overview of EIS. The book carefully describes EIS and its application in studies of electrocatalytic reactions and other electrochemical processes of practical interest. This book is directed towards graduate students and researchers in Electrochemistry. Concepts are illustrated through detailed graphics and numerous examples. The book also includes practice problems. Additional materials and solutions are available online.

Optical Coherence Tomography Nov 12 2020 Optical coherence tomography (OCT) is the optical analog of ultrasound imaging and is emerging as a powerful imaging technique that enables non-invasive, in vivo, high resolution, cross-sectional imaging in biological tissue. This book introduces OCT technology and applications not only from an optical and technological viewpoint, but also from biomedical and clinical perspectives. The chapters are written by leading research groups, in a style comprehensible to a broad audience.

Qualitative Content Analysis Sep 10 2020 This book is a systematic, eight-step guide to qualitative content analysis, supporting you through each stage of your research project, no matter the type or amount of data.

Ionizing Radiation Effects and Applications Mar 29 2022 The benefits of ionizing radiations have been largely demonstrated through many achievements of human life. Understanding the fundamental elementary interactions of ionizing radiations with material has allowed the development of various applications needed by different industries. This book draws some facets of their applications, such as hardening process for semiconductor devices, biomedical imaging by radiation luminescent quantum dots, hydrogen gas detection by Raman lidar sensor for explosion risk assessment, water and wastewater purification by radiation treatment for environment, doping by the neutron transmutation doping for the semiconductor industry, and polymerization by irradiation, which is useful for industries requiring resistant and protective coating. I wish the chapters of this book can provide some helpful information on ionizing radiation applications.

The Nature of Business Transformation May 19 2021 This book is a practical guide for business professionals to develop and improve business intelligence and collective decision-making within their organisation. It proposes a progressive reconfiguration of the traditional business operating system using a nature-inspired framework called swarm facilitation that enables and facilitates collective decision-making. Organisations have followed the same rigid formula of problem-solving and decision-making for over 100 years. It is dominated by centralised governance and pyramid decision-making. Such an approach is no longer fit for purpose in an environment of employee disengagement, artificial intelligence (AI)/superintelligence, and Covid-19 fallout. By the end of this book, readers will be able to: • solve organisational problems and challenges collectively using swarm intelligence; • upgrade and future-proof business operating systems to reflect a more collective decision-making approach fit for the new connected economy and Industry 4.0; • embrace mindset quotients that support people working in a more networked, self-organising, and collective environment. The book is important reading for leaders and managers who are focused on building organisational capital and engagement and gaining value from the emerging technology by evolving their business operating system into a digital ecosystem as part of an ongoing digital transformation strategy. It will also appeal to experts working in the field of organisational change and development, both within the organisation and as consultants.

Computational Science and Its Applications - ICCSA 2014 Jul 01 2022 The six-volume set LNCS 8579-8584 constitutes the refereed proceedings of the 14th International Conference on Computational Science and Its Applications, ICCSA 2014, held in Guimarães, Portugal, in June/July 2014. The 347 revised papers presented in 30 workshops and a special track were carefully reviewed and selected from 1167. The 289 papers presented in the workshops cover various areas in computational science ranging from computational science technologies to specific areas of computational science such as computational geometry and security.

Nanostructured Materials and their Applications Apr 29 2022 The book provides an introduction to nanostructured materials and guides the reader through their different engineering applications. It gives an overview of nanostructured materials applied in the fields of physics, chemistry, biology, medicine, and materials science. Materials for different applications in engineering such as those used in opto-electronics, energy, tribology, bio-applications, catalysis, reinforcement and many more have been described in this book. The book will be of interest to researchers and students who want to learn about applications of nanostructured materials in engineering.

Benford's Law Oct 24 2021 Benford's law states that the leading digits of many data sets are not uniformly distributed from one through nine, but rather exhibit a profound bias. This bias is evident in everything from electricity bills and street addresses to stock prices, population numbers, mortality rates, and the lengths of rivers. Here, Steven Miller brings together many of the world's leading experts on Benford's law to demonstrate the many useful techniques that arise from the law, show how truly multidisciplinary it is, and encourage collaboration. Beginning with the general theory, the contributors explain the prevalence of the bias, highlighting explanations for when systems should and should not follow Benford's law and how quickly such behavior sets in. They go on to discuss important applications in disciplines ranging from accounting and economics to psychology and the natural sciences. The contributors describe how Benford's law has been successfully used to expose fraud in elections, medical tests, tax filings, and financial reports. Additionally, numerous problems, background materials, and technical details are available online to help instructors create courses around the book. Emphasizing common challenges and techniques across the disciplines, this accessible book shows how Benford's law can serve as a productive meeting ground for researchers and practitioners in diverse fields.

Fuzzy Set Theory— and Its Applications Nov 24 2021

Recent Trends in Data Science and Soft Computing Aug 02 2022 This book presents the proceedings of the 3rd International Conference of Reliable Information and Communication Technology 2018 (IRICT 2018), which was held in Kuala Lumpur, Malaysia, on July 23–24, 2018. The main theme of the conference was "Data Science, AI and IoT Trends for the Fourth Industrial Revolution." A total of 158 papers were submitted to the conference, of which 103 were accepted and considered for publication in this book. Several hot research topics are covered, including Advances in Data Science and Big Data Analytics, Artificial Intelligence and Soft Computing, Business Intelligence, Internet of Things (IoT) Technologies and Applications, Intelligent Communication Systems, Advances in Computer Vision, Health Informatics, Reliable Cloud Computing Environments, Recent Trends in Knowledge Management, Security Issues in the Cyber World, and Advances in Information Systems Research, Theories and Methods.

ICT Analysis and Applications Apr 17 2021 This book proposes new technologies and discusses future solutions for ICT design infrastructures, as reflected in high-quality papers presented at the 4th International Conference on ICT for Sustainable Development (ICT4SD 2019), held in Goa, India, on 5–6 July 2019. The conference provided a valuable forum for cutting-edge research discussions among pioneering researchers, scientists, industrial engineers, and students from all around the world. Bringing together experts from different countries, the book explores a range of central issues from an international perspective.

Digital Content Creation May 31 2022 The very word "digital" has acquired a status that far exceeds its humble dictionary definition. Even the prefix digital, when associated with familiar sectors such as radio, television, photography and telecommunications, has reinvented these industries, and provided a unique opportunity to refresh them with new start-up companies, equipment, personnel, training and working practices - all of which are vital to modern national and international economies. The last century was a period in which new media stimulated new job opportunities, and in many cases

created totally new sectors: video competed with film, CDs transformed LPs, and computer graphics threatened traditional graphic design sectors. Today, even the need for a physical medium is in question. The virtual digital domain allows the capture, processing, transmission, storage, retrieval and display of text, images, audio and animation without familiar materials such as paper, celluloid, magnetic tape and plastic. But moving from these media to the digital domain introduces all sorts of problems, such as the conversion of analog archives, multimedia databases, content-based retrieval and the design of new content that exploits the benefits offered by digital systems. It is this issue of digital content creation that we address in this book. Authors from around the world were invited to comment on different aspects of digital content creation, and their contributions form the 23 chapters of this volume.

Internet of Things A to Z Jun 27 2019 A comprehensive overview of the Internet of Things' core concepts, technologies, and applications *Internet of Things A to Z* offers a holistic approach to the Internet of Things (IoT) model. The Internet of Things refers to uniquely identifiable objects and their virtual representations in an Internet-like structure. Recently, there has been a rapid growth in research on IoT communications and networks, that confirms the scalability and broad reach of the core concepts. With contributions from a panel of international experts, the text offers insight into the ideas, technologies, and applications of this subject. The authors discuss recent developments in the field and the most current and emerging trends in IoT. In addition, the text is filled with examples of innovative applications and real-world case studies. *Internet of Things A to Z* fills the need for an up-to-date volume on the topic. This important book: Covers in great detail the core concepts, enabling technologies, and implications of the Internet of Things Addresses the business, social, and legal aspects of the Internet of Things Explores the critical topic of security and privacy challenges for both individuals and organizations Includes a discussion of advanced topics such as the need for standards and interoperability Contains contributions from an international group of experts in academia, industry, and research Written for ICT researchers, industry professionals, and lifetime IT learners as well as academics and students, *Internet of Things A to Z* provides a much-needed and comprehensive resource to this burgeoning field.

Fundamentals of Research Dec 02 2019 Organized around research design, methodologies, besides other integral elements of research, this book is a step by step platform aimed at providing to its readers a reliable and in-depth understanding of the procedures & core concepts involved in the subject, making it more straightforward and practical to apply. The book has reached its final shape after an extensive literature survey across texts focussing on students of both the undergraduate & post-graduate levels. Doctoral level researchers & professionals can enjoy the book by way of adding a dimension to the understanding of basic research methodology with regard to its application in the research world. The book addresses the specific needs of the students, research scholars & managers by successfully blending concepts of research with its literal applications. The key strengths of this book includes: Caselets that focus on methodology. Exercises that will help to gain insight into research disposition. Marginal definitions as a quick reference. Multiple choice questions with terminal questions and exercises. Explicit illustrations enhancing recapitulating of the text.

Multivariate Time Series Analysis and Applications Jan 03 2020 An essential guide on high dimensional multivariate time series including all the latest topics from one of the leading experts in the field Following the highly successful and much lauded book, *Time Series Analysis—Univariate and Multivariate Methods*, this new work by William W.S. Wei focuses on high dimensional multivariate time series, and is illustrated with numerous high dimensional empirical time series. Beginning with the fundamental concepts and issues of multivariate time series analysis, this book covers many topics that are not found in general multivariate time series books. Some of these are repeated measurements, space-time series modelling, and dimension reduction. The book also looks at vector time series models, multivariate time series regression models, and principle component analysis of multivariate time series. Additionally, it provides readers with information on factor analysis of multivariate time series, multivariate GARCH models, and multivariate spectral analysis of time series. With the development of computers and the internet, we have increased potential for data exploration. In the next few years, dimension will become a more serious problem. *Multivariate Time Series Analysis and its Applications* provides some initial solutions, which may encourage the development of related software needed for the high dimensional multivariate time series analysis. Written by bestselling author and leading expert in the field Covers topics not yet explored in current multivariate books Features classroom tested material Written specifically for time series courses *Multivariate Time Series Analysis and its Applications* is designed for an advanced time series analysis course. It is a must-have for anyone studying time series analysis and is also relevant for students in economics, biostatistics, and engineering.

The Delphi Method Oct 04 2022

Mobile Big Data Jul 21 2021 This book reports on the latest advances in mobile technologies for collecting, storing and processing mobile big data in connection with wireless communications. It presents novel approaches and applications in which mobile big data is being applied from an engineering standpoint and addresses future theoretical and practical challenges related to the big data field from a mobility perspective. Further, it provides an overview of new methodologies designed to take mobile big data to the Cloud, enable the processing of real-time streaming events on-the-move and enhance the integration of resource availability through the 'Anywhere, Anything, Anytime' paradigm. By providing both academia and industry researchers and professionals with a timely snapshot of emerging mobile big data-centric systems and highlighting related pitfalls, as well as potential solutions, the book fills an important gap in the literature and fosters the further development in the area of mobile technologies for exploiting mobile big data.

Computer Science Advances Mar 17 2021 This book is comprised of eleven chapters about computer application and research areas to discuss the latest issues and technologies. Interesting and important topics like fuzzy and cognitive applications, fuzzy classifiers, neural network, data analytics, clustering and classification models, artificial intelligence, controller area network, digital technology industry 4.0, etc. are included in this book. The first chapter presents neuro-fuzzy and cognitive researches for the development of objects on the basis of location and territory. The second chapter is about the method of parametric identification using a neuro-fuzzy classifier. The third chapter describes the research on the internet of things enabled smart campus for effectual data transit from one entity to another for classroom notes. Chapters Four and Five are dedicated to the use of advanced computer science of the medical applications. Chapter Six presents the detection and estimation of obstacle position for imminent crash prediction to enhance the driver and vehicle interface using the controller area network. Chapter Seven presents the development of accurate models for estimation of pure CO₂-oil minimum miscibility pressure based on artificial intelligence methods. Chapter Eight addresses dynamic, massive data handling with swarm intelligence based algorithms for finding the solution of a difficult problem. The next chapter proposes an encryption model which focuses on bit-level confusion and bit-level diffusion followed by block-level diffusion by using 1-D chaotic maps. Chapter Ten is dedicated to digital technologies of the industry 4.0. The last chapter compares the pattern sequence based forecasting method with ARIMA in univariate time series forecasting.

Handbook Bibliometrics Sep 22 2021 Bibliometrics and altmetrics are increasingly becoming the focus of interest in the context of research evaluation. The *Handbook Bibliometrics* provides a comprehensive introduction to quantifying scientific output in addition to a historical derivation, individual indicators, institutions, application perspectives and data bases. Furthermore, application scenarios, training and qualification on bibliometrics and their implications are considered.

Information, Communication, and Space Technology Apr 05 2020 Many books have covered the rapidly evolving fields of information and communication technology (ICT) and space technology separately. However, no single book has ever focused on how the integration of these two areas is creating a stronger platform for various scientific advancements—including some research work that cannot be performed on Earth. To fill the void, *Information, Communication, and Space Technology* provides a novel illustration of that connection. Dividing content into sections that cover ICT, existing and future space technologies, and satellites, the author demonstrates the individual and combined power of each of these parts of the overall system. He explores how the combination of concepts from each of these interrelated fields is creating massive potential for broader advances in areas such as robotics, communications, navigation, agriculture, health care, and nanotechnology. The book introduces particular potential innovations, including "rocket-less" spacecraft launches, and development of a global system to balance energy distribution by using satellites that would collect solar energy and transmit it via microwave beams to different locations around the world. Equally useful to students and professionals, this work is a culmination of the domestic and international experience that the author has acquired throughout more than three decades as an instructor and researcher. Emphasizing the strong need to incorporate ICT and space technology into the general university curriculum, the book starts with basic explanations of key concepts and theories, building toward more concrete, application-oriented examples that reveal the importance and impact of new technologies. This includes coverage of how satellites transfer voice, video, and other data across continents, as well as techniques used to obtain very-high-resolution images from space for use in agricultural and environmental sciences. This timely work employs a logical, practically structured approach that will help readers to better understand existing and emerging ICT and space technologies, including the most recent developments and achievements in the field.

Trends and Advancements of Image Processing and Its Applications Jan 15 2021 This book covers current technological innovations and applications in image processing, introducing analysis techniques and describing applications in remote sensing and manufacturing, among others. The authors include new concepts of color space transformation like color interpolation, among others. Also, the concept of Shearlet Transform and Wavelet Transform and their implementation are discussed. The authors include a perspective about concepts and techniques of remote sensing like image mining, geographical, and agricultural resources. The book also includes several applications of human organ biomedical image analysis. In addition, the principle of moving object detection and tracking — including recent trends in moving vehicles and ship detection — is described. Presents developments of current research in various areas of image processing; Includes applications of image processing in remote sensing, astronomy, and manufacturing; Pertains to researchers, academics, students, and practitioners in image processing.

Multimedia Applications Dec 14 2020 *Multimedia Applications* discusses the basic characteristics of multimedia document handling, programming, security, human computer interfaces, and multimedia application services. The overall goal of the book is to provide a broad understanding of multimedia systems and applications in an integrated manner: a multimedia application and its user interface must be developed in an integrated fashion with underlying multimedia middleware, operating systems, networks, security, and multimedia devices. Fundamental information and properties of hypermedia document handling, multimedia security and various aspects of multimedia applications are presented, especially about document handling and their standards, programming of multimedia applications, design of multimedia information at human computer interfaces, multimedia security challenges such as encryption and watermarking, multimedia in education, as well as multimedia applications to assist preparation, processing and application of multimedia content.

Machine Learning Feb 02 2020 Machine learning, one of the top emerging sciences, has an extremely broad range of applications. However, many books on the subject provide only a theoretical approach, making it difficult for a newcomer to grasp the subject material. This book provides a more practical approach by explaining the concepts of machine learning algorithms and describing the areas of application for each algorithm, using simple practical examples to demonstrate each algorithm and showing how different issues related to these algorithms are applied.

Research Methodology Feb 13 2021

Virtual Reality and Its Application in Education Sep 30 2019 Virtual reality is a set of technologies that enables two-way communication, from computer to user and vice versa. In one direction, technologies are used to synthesize visual, auditory, tactile, and sometimes other sensory experiences in order to provide the illusion that practically non-existent things can be seen, heard, touched, or otherwise felt. In the other direction, technologies are used to adequately record human movements, sounds, or other potential input data that computers can process and use. This book contains six chapters that cover topics including definitions and principles of VR, devices, educational design principles for effective use of VR, technology education, and use of VR in technical and natural sciences.

Graphene and Its Derivatives May 07 2020 Graphene and its derivatives are potential nanomaterials currently being widely investigated for diverse applications due to its exceptional mechanical, electrical, physical, and chemical properties. Examples of the applications include drug delivery, shape memory polymers, gene delivery, biosensor, tissue engineering, flexible electronic devices, antibacterial composites, photovoltaic devices, and physical sensors. Its excellent properties can be used to develop smart nanomaterials with enhanced properties for various advanced applications. There is no doubt that graphene-based nanomaterials are helping to develop next generation technologies with enhancing properties to change people's lifestyles. This book provides an overview of recent research and development of synthesis of graphene and its applications.

Applications of Potential Theory in Mechanics Jul 09 2020

An Introduction to Bond Graph Modeling with Applications Oct 31 2019 *An Introduction to Bond Graph Modeling with Applications* presents a collection of exercises on dynamical systems, modeling and control for university students in the areas of engineering, physics and applied mathematics. We can find several books on bond graphs, but most merely a small set of exercises and, in a few cases, some commands for computer packages like MATLAB or Mathematica. It is difficult to find books with a broad set of solved exercises and proposed exercises with solutions, guiding researchers starting their work with bond graphs, or students who are just beginning their study of the topic. This book aims to fill that gap, and provide a comprehensive, reader-friendly introduction to the Bond Graph modeling tool. Features Gives in-depth theoretical background coupled with practical, hands-on instructions. Provides a clear pedagogical framework, with numerous exercises and problems. Suitable for

students and researchers who work with bond graphs: principally such as applied mathematicians, physicist and engineers.

Introductory Functional Analysis with Applications Jun 07 2020 KREYSZIG The Wiley Classics Library consists of selected books originally published by John Wiley & Sons that have become recognized classics in their respective fields. With these new unabridged and inexpensive editions, Wiley hopes to extend the life of these important works by making them available to future generations of mathematicians and scientists. Currently available in the Series: Emil Artin Geometric Algebra R. W. Carter Simple Groups Of Lie Type Richard Courant Differential and Integral Calculus. Volume I Richard Courant Differential and Integral Calculus. Volume II Richard Courant & D. Hilbert Methods of Mathematical Physics, Volume I Richard Courant & D. Hilbert Methods of Mathematical Physics. Volume II Harold M. S. Coxeter Introduction to Modern Geometry. Second Edition Charles W. Curtis, Irving Reiner Representation Theory of Finite Groups and Associative Algebras Nelson Dunford, Jacob T. Schwartz, Linear Operators. Part One. General Theory Nelson Dunford, Jacob T. Schwartz, Linear Operators, Part Two. Spectral Theory—Self Adjoint Operators in Hilbert Space Nelson Dunford, Jacob T. Schwartz, Linear Operators. Part Three. Spectral Operators Peter Henrici Applied and Computational Complex Analysis. Volume I—Power Series-Integration-Contour Mapping-Location of Zeros Peter Hilton, Yet-Chiang Wu A Course in Modern Algebra Harry Hochstadt Integral Equations Erwin Kreyszig Introductory Functional Analysis with Applications P. M. Prenter Splines and Variational Methods C. L. Siegel Topics in Complex Function Theory. Volume I—Elliptic Functions and Uniformization Theory C. L. Siegel Topics in Complex Function Theory. Volume II—Automorphic and Abelian Integrals C. L. Siegel Topics in Complex Function Theory. Volume III—Abelian Functions & Modular Functions of Several Variables J. J. Stoker Differential Geometry Computational Science and Its Applications – ICCSA 2020 Mar 05 2020 The seven volumes LNCS 12249-12255 constitute the refereed proceedings of the 20th International Conference on Computational Science and Its Applications, ICCSA 2020, held in Cagliari, Italy, in July 2020. Due to COVID-19 pandemic the conference was organized in an online event. Computational Science is the main pillar of most of the present research, industrial and commercial applications, and plays a unique role in exploiting ICT innovative technologies. The 466 full papers and 32 short papers presented were carefully reviewed and selected from 1450 submissions. Apart from the general track, ICCSA 2020 also include 52 workshops, in various areas of computational sciences, ranging from computational science technologies, to specific areas of computational sciences, such as software engineering, security, machine learning and artificial intelligence, blockchain technologies, and of applications in many fields.

Handbook of Augmented Reality Sep 03 2022 Augmented Reality (AR) refers to the merging of a live view of the physical, real world with context-sensitive, computer-generated images to create a mixed reality. Through this augmented vision, a user can digitally interact with and adjust information about their surrounding environment on-the-fly. Handbook of Augmented Reality provides an extensive overview of the current and future trends in Augmented Reality, and chronicles the dramatic growth in this field. The book includes contributions from world experts in the field of AR from academia, research laboratories and private industry. Case studies and examples throughout the handbook help introduce the basic concepts of AR, as well as outline the Computer Vision and Multimedia techniques most commonly used today. The book is intended for a wide variety of readers including academicians, designers, developers, educators, engineers, practitioners, researchers, and graduate students. This book can also be beneficial for business managers, entrepreneurs, and investors.

Biological Data Mining and Its Applications in Healthcare Oct 12 2020 Biologists are stepping up their efforts in understanding the biological processes that underlie disease pathways in the clinical contexts. This has resulted in a flood of biological and clinical data from genomic and protein sequences, DNA microarrays, protein interactions, biomedical images, to disease pathways and electronic health records. To exploit these data for discovering new knowledge that can be translated into clinical applications, there are fundamental data analysis difficulties that have to be overcome. Practical issues such as handling noisy and incomplete data, processing compute-intensive tasks, and integrating various data sources, are new challenges faced by biologists in the post-genome era. This book will cover the fundamentals of state-of-the-art data mining techniques which have been designed to handle such challenging data analysis problems, and demonstrate with real applications how biologists and clinical scientists can employ data mining to enable them to make meaningful observations and discoveries from a wide array of heterogeneous data from molecular biology to pharmaceutical and clinical domains. Contents: Sequence Analysis: Mining the Sequence Databases for Homology Detection: Application to Recognition of Functions of Trypanosoma brucei Proteins and Drug Targets (G Ramakrishnan, V S Gowri, R Mudgal, N R Chandra and N Srinivasan) Identification of Genes and Their Regulatory Regions Based on Multiple Physical and Structural Properties of a DNA Sequence (Xi Yang, Nancy Yu Song and Hong Yan) Mining Genomic Sequence Data for Related Sequences Using Pairwise Statistical Significance (Yuhong Zhang and Yunbo Rao) Biological Network Mining: Indexing for Similarity Queries on Biological Networks (Günhan Gülsoy, Md Mahmudul Hasan, Yusuf Kavurucu and Tamer Kahveci) Theory and Method of Completion for a Boolean Regulatory Network Using Observed Data (Takeyuki Tamura and Tatsuya Akutsu) Mining Frequent Subgraph Patterns for Classifying Biological Data (Saeed Salem) On the Integration of Prior Knowledge in the Inference of Regulatory Networks (Catharina Olsen, Benjamin Haibe-Kains, John Quackenbush and Gianluca Bontempi) Classification, Trend Analysis and 3D Medical Images: Classification and Its Application to Drug-Target Prediction (Jian-Ping Mei, Chee-Keong Kwoh, Peng Yang and Xiao-Li Li) Characterization and Prediction of Human Protein-Protein Interactions (Yi Xiong, Dan Szymanski and Daisuke Kihara) Trend Analysis (Wen-Chuan Xie, Miao He and Jake Yue Chen) Data Acquisition and Preprocessing on Three Dimensional Medical Images (Yuhua Jiao, Liang Chen and Jin Chen) Text Mining and Its Biomedical Applications: Text Mining in Biomedicine and Healthcare (Hong-Jie Dai, Chi-Yang Wu, Richard Tzong-Han Tsai and Wen-Lian Hsu) Learning to Rank Biomedical Documents with Only Positive and Unlabeled Examples: A Case Study (Mingzhu Zhu, Yi-Fang Brook Wu, Meghana Samir Vasavada and Jason T L Wang) Automated Mining of Disease-Specific Protein Interaction Networks Based on Biomedical Literature (Rajesh Chowdhary, Boris R Jankovic, Rachel V Stankowski, John A C Archer, Xiangliang Zhang, Xin Gao, Vladimir B Bajic) Readership: Students, professionals, those who perform biological, medical and bioinformatics research. Keywords: Healthcare; Data Mining; Biological Data Mining; Protein Interactions; Gene Regulation; Text Mining; Biological Literature Mining; Drug Discovery; Disease Network; Biological Network; Graph Mining; Sequence Analysis; Structure Analysis; Trend Analysis; Medical Images Key Features: Each chapter of this book will include a section to introduce a specific class of data mining techniques, which will be written in a tutorial style so that even non-computational readers such as biologists and healthcare researchers can appreciate them. The book will disseminate the impact research results and best practices of data mining approaches to the cross-disciplinary researchers and practitioners from both the data mining disciplines and the life sciences domains. The authors of the book will be well-known data mining experts, bioinformaticians and clinicians. Each chapter will also provide a detailed description on how to apply the data mining techniques in real-world biological and clinical applications. Thus, readers of this book can easily appreciate the computational techniques and how they can be used to address their own research issues.

Computational Intelligence Techniques and Their Applications to Software Engineering Problems Aug 29 2019 Computational Intelligence Techniques and Their Applications to Software Engineering Problems focuses on computational intelligence approaches as applicable in varied areas of software engineering such as software requirement prioritization, cost estimation, reliability assessment, defect prediction, maintainability and quality prediction, size estimation, vulnerability prediction, test case selection and prioritization, and much more. The concepts of expert systems, case-based reasoning, fuzzy logic, genetic algorithms, swarm computing, and rough sets are introduced with their applications in software engineering. The field of knowledge discovery is explored using neural networks and data mining techniques by determining the underlying and hidden patterns in software data sets. Aimed at graduate students and researchers in computer science engineering, software engineering, information technology, this book: Covers various aspects of in-depth solutions of software engineering problems using computational intelligence techniques. Discusses the latest evolutionary approaches to preliminary theory of different solve optimization problems under software engineering domain. Covers heuristic as well as meta-heuristic algorithms designed to provide better and optimized solutions. Illustrates applications including software requirement prioritization, software cost estimation, reliability assessment, software defect prediction, and more. Highlights swarm intelligence-based optimization solutions for software testing and reliability problems.

Soft Computing Dec 26 2021 This book is an introduction to some new fields in soft computing with its principal components of fuzzy logic, ANN and EA. The approach in this book is to provide an understanding of the soft computing field and to work through soft computing using examples. It also aims to integrate pseudo-code operational summaries and Matlab codes, to present computer simulation, to include real world applications and to highlight the distinctive work of human consciousness in machine.

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