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KEY=WACE - KATELYN CASSIUS

Research in Computer Science in the Bulgarian Academy of Sciences

Springer Nature This book is a collection of papers devoted to the emergence and development in Bulgarian Academy of Sciences of some of the areas of informatics, including artificial intelligence. The papers are prepared by specialists from the Academy, some of whom are among the founders of these scientific and application areas in Bulgaria and in some cases - in the world. The book is interesting for specialists in informatics and computer science and researchers in history of sciences.

Computer Science and Applications

Proceedings of the 2014 Asia-Pacific Conference on Computer Science and Applications (CSAC 2014), Shanghai, China, 27-28 December 2014

CRC Press The 2014 Asia-Pacific Conference on Computer Science and Applications was held in Shanghai, December 27-28, 2014. These CSAC-2014 proceedings include 105 selected papers, which focus not only on the research of science and technology of computer sciences, but also on the research of applications, aiming at a quick and immediate effect on

Handbook of Research on Modern Cryptographic Solutions for Computer and Cyber Security

IGI Global Internet usage has become a facet of everyday life, especially as more technological advances have made it easier to connect to the web from virtually anywhere in the developed world. However, with this increased usage comes heightened threats to security within digital environments. The Handbook of Research on Modern Cryptographic Solutions for Computer and Cyber Security identifies emergent research and techniques being utilized in the field of cryptology and cyber threat prevention. Featuring theoretical perspectives, best practices, and future research directions, this handbook of research is a vital resource for professionals, researchers, faculty members, scientists, graduate students, scholars, and software developers interested in threat identification and prevention.

Making Healthcare Green

The Role of Cloud, Green IT, and Data Science to Reduce Healthcare Costs and Combat Climate Change

Springer This book offers examples of how data science, big data, analytics, and cloud technology can be used in healthcare to significantly improve a hospital's IT Energy Efficiency along with information on the best ways to improve energy efficiency for healthcare in a cost effective manner. The book builds on the work done in other sectors (mainly data centers) in effectively measuring and improving IT energy efficiency and includes case studies illustrating power and cooling requirements within Green Healthcare. Making Healthcare Green will appeal to professionals and researchers working in the areas of analytics and energy efficiency within the healthcare fields.

MATLAB-based Finite Element Programming in Electromagnetic Modeling

CRC Press This book is a self-contained, programming-oriented and learner-centered book on finite element method (FEM), with special emphasis given to developing MATLAB® programs for numerical modeling of electromagnetic boundary value problems. It provides a deep understanding and intuition of FEM programming by means of step-by-step MATLAB® programs with detailed descriptions, and eventually enabling the readers to modify, adapt and apply the provided programs and formulations to develop FEM codes for similar problems through various exercises. It starts with simple one-dimensional static and time-harmonic problems and extends the developed theory to more complex two- or three-dimensional problems. It supplies sufficient theoretical background on the topic, and it thoroughly covers all phases (pre-processing, main body and post-processing) in FEM. FEM formulations are obtained for boundary value problems governed by a partial differential equation that is expressed in terms of a generic unknown function, and then, these formulations are specialized to various electromagnetic applications together with a post-processing phase. Since the method is mostly described in a general context, readers from other disciplines can also use this book and easily adapt the provided codes to their engineering problems. After forming a solid background on the fundamentals of FEM by means of canonical problems, readers are guided to more advanced applications of FEM in electromagnetics through a survey chapter at the end of the book. Offers a self-contained and easy-to-understand introduction to the theory and programming of finite element method. Covers various applications in the field of static and time-harmonic electromagnetics. Includes one-, two- and three-dimensional finite element codes in MATLAB®. Enables readers to develop finite element programming skills through various MATLAB® codes and exercises. Promotes self-directed learning skills and provides an effective instruction tool.

Kaedah Lelaran Dalam Permasalahan Sainifik

Penerbit USM Kaedah lelaran sesuai digunakan untuk mendapatkan penyelesaian atau nilai hampiran bagi suatu sistem persamaan linear yang dijana menerusi pelaksanaan proses pendiskretan dan/atau pembinaan penyuaian model matematik terbaik. Justeru, perbincangan tentang pengaplikasian kaedah lelaran dalam menyelesaikan pelbagai permasalahan saintifik yang diketengahkan dalam buku ini diharapkan dapat membantu memperkukuh kefahaman pembaca. Atas kelebihan ciri-ciri yang ada pada famili kaedah lelaran, buku ini sesuai sebagai bahan pengajaran dan pembelajaran oleh pensyarah, pelajar dan sesiapa sahaja yang berminat untuk mempelajari kaedah lelaran sebagai penyelesaian kepada permasalahan sistem linear.

Design Solutions for User-Centric Information Systems

IGI Global Continuous improvements in technological applications have allowed more opportunities to develop systems with user-focused designs. This not only leads to higher success in day-to-day usage, but it increases the overall probability of technology adoption. Design Solutions for User-Centric Information Systems provides a comprehensive examination of the latest strategies and methods for creating technological systems with end users as the focal point of the design process. Highlighting innovative practices and applications across a variety of areas, such as cloud-based computing services, e-government adoption, and logistics evaluation, this book is an ideal reference source for computer engineers, practitioners, project managers, graduate students, and researchers interested in the enhancement of user-centric information system development.

Computational Science – ICCS 2020

20th International Conference, Amsterdam, The Netherlands, June 3–5, 2020, Proceedings, Part VI

Springer Nature The seven-volume set LNCS 12137, 12138, 12139, 12140, 12141, 12142, and 12143 constitutes the proceedings of the 20th International Conference on Computational Science, ICCS 2020, held in Amsterdam, The Netherlands, in June 2020.* The total of 101 papers and 248 workshop papers presented in this book set were carefully reviewed and selected from 719 submissions (230 submissions to the main track and 489 submissions to the workshops). The papers were organized in topical sections named: Part I: ICCS Main Track Part II: ICCS Main Track Part III: Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Agent-Based Simulations, Adaptive Algorithms and Solvers; Applications of Computational Methods in Artificial Intelligence and Machine Learning; Biomedical and Bioinformatics Challenges for Computer Science Part IV: Classifier Learning from Difficult Data; Complex Social Systems through the Lens of Computational Science; Computational Health; Computational Methods for Emerging Problems in (Dis-)Information Analysis Part V: Computational Optimization, Modelling and Simulation; Computational Science in IoT and Smart Systems; Computer Graphics, Image Processing and Artificial Intelligence Part VI: Data Driven Computational Sciences; Machine Learning and Data Assimilation for Dynamical Systems; Meshfree Methods in Computational Sciences; Multiscale Modelling and Simulation; Quantum

Computing Workshop Part VII: Simulations of Flow and Transport: Modeling, Algorithms and Computation; Smart Systems: Bringing Together Computer Vision, Sensor Networks and Machine Learning; Software Engineering for Computational Science; Solving Problems with Uncertainties; Teaching Computational Science; UNcErtainty QUantificatiOn for ComputatiOnAI modeLs *The conference was canceled due to the COVID-19 pandemic.

Adventures in Computer Science

From Classical Bits to Quantum Bits

Springer The main focus of this textbook is the basic unit of information and the way in which our understanding of this has evolved over time. In particular the author covers concepts related to information, classical computing, logic, reversible computing, quantum mechanics, quantum computing, thermodynamics and some artificial intelligence and biology, all approached from the viewpoint of computer sciences. The book begins by asking the following nontrivial question: what is a bit? The author then discusses logic, logic gates, reversible computing and reversible architectures, and the concept of disorder. He then tries to establish the relationship between three essential questions that justify quantum approaches in computer sciences: the energy required to perform a real-life computation, the size of current processors, and the reversibility of quantum operations. Based on these concepts, the author establishes the conditions that justify the use of quantum techniques for certain kinds of computational tasks, and he uses formal descriptions and formal argumentations to introduce key quantum mechanical concepts and approaches. The rest of the book is formally different, focusing on practical issues, including a discussion of remarkable quantum algorithms in a treatment based on quantum circuit theory. The book is valuable for graduate students in computer science, and students of other disciplines who are engaged with physical models of information and computing.

Computational Science and its Applications

CRC Press Computational science is a rapidly growing multidisciplinary field concerned with the design, implementation, and use of mathematical models to analyze and solve real-world problems. It is an area of science that spans many disciplines and which involves the development of models and allows the use of computers to perform simulations or numerical analysis to understand problems that are computational and theoretical. Computational Science and its Applications provides an opportunity for readers to develop abilities to pose and solve problems that combine insights from one or more disciplines from the natural sciences with mathematical tools and computational skills. This requires a unique combination of applied and theoretical knowledge and skills. The topics covered in this edited book are applications of wavelet and fractals, modeling by partial differential equations on flat structure as well as on graphs and networks, computational linguistics, prediction of natural calamities and diseases like epilepsy seizure, heart attack, stroke, biometrics, modeling through inverse problems, interdisciplinary topics of physics, mathematics, and medical science, and modeling of terrorist attacks and human behavior. The focus of this book is not to educate computer specialists, but to provide readers with a solid understanding of basic science as well as an integrated knowledge on how to use essential methods from computational science. Features: Modeling of complex systems Cognitive computing systems for real-world problems Presentation of inverse problems in medical science and their numerical solutions Challenging research problems in many areas of computational science This book could be used as a reference book for researchers working in theoretical research as well as those who are doing modeling and simulation in such disciplines as physics, biology, geoscience, and mathematics, and those who have a background in computational science.

Computational Science – ICCS 2018

18th International Conference, Wuxi, China, June 11-13, 2018, Proceedings, Part II

Springer The three-volume set LNCS 10860, 10861 and 10862 constitutes the proceedings of the 18th International Conference on Computational Science, ICCS 2018, held in Wuxi, China, in June 2018. The total of 155 full and 66 short papers presented in this book set was carefully reviewed and selected from 404 submissions. The papers were organized in topical sections named: Part I: ICCS Main Track Part II: Track of Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Track of Agent-Based Simulations, Adaptive Algorithms and Solvers; Track of Applications of Matrix Methods in Artificial Intelligence and Machine Learning; Track of Architecture, Languages, Compilation and Hardware Support for Emerging ManYcore Systems; Track of Biomedical and Bioinformatics Challenges for Computer Science; Track of Computational Finance and Business Intelligence; Track of Computational Optimization, Modelling and Simulation; Track of Data, Modeling, and Computation in IoT and Smart Systems; Track of Data-Driven Computational Sciences; Track of Mathematical-Methods-and-Algorithms for Extreme Scale; Track of Multiscale Modelling and Simulation Part III: Track of Simulations of Flow and Transport: Modeling, Algorithms and Computation; Track of Solving Problems with Uncertainties; Track of Teaching Computational Science; Poster Papers

Climate Change: An Encyclopedia of Science, Society, and Solutions [3 volumes]

ABC-CLIO This three-volume set presents entries and primary sources that will impress on readers that what we do—or don't do—today regarding climate change will dramatically influence what life on this planet will be like for untold numbers of generations. • Provides readers with a clearly written description of global-warming science and its role in shaping a body of knowledge regarding a worldwide issue that affects everyone • Suggests remedies for this serious problem, most notably a rapid rise in the implementation of wind power generation and a coming revolution in solar energy • Impresses on readers that what Americans and the citizens and governments of other nations around the globe do over the next decades will determine the future of this planet for many tens of thousands of years to come • Includes primary documents sourced from major scientific journals and from the many reports on recent climate change from governmental organizations, including the Intergovernmental Panel on Climate Change (IPCC) and World Meteorological Organization (WMO), both part of the United Nations; and the U.S. government's National Climate Assessment

Directory of Corporate Counsel, Spring 2020 Edition

Wolters Kluwer

Computational Science – ICCS 2021

21st International Conference, Krakow, Poland, June 16–18, 2021, Proceedings, Part VI

Springer Nature The six-volume set LNCS 12742, 12743, 12744, 12745, 12746, and 12747 constitutes the proceedings of the 21st International Conference on Computational Science, ICCS 2021, held in Krakow, Poland, in June 2021.* The total of 260 full papers and 57 short papers presented in this book set were carefully reviewed and selected from 635 submissions. 48 full and 14 short papers were accepted to the main track from 156 submissions; 212 full and 43 short papers were accepted to the workshops/ thematic tracks from 479 submissions. The papers were organized in topical sections named: Part I: ICCS Main Track Part II: Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Applications of Computational Methods in Artificial Intelligence and Machine Learning; Artificial Intelligence and High-Performance Computing for Advanced Simulations; Biomedical and Bioinformatics Challenges for Computer Science Part III: Classifier Learning from Difficult Data; Computational Analysis of Complex Social Systems; Computational Collective Intelligence; Computational Health Part IV: Computational Methods for Emerging Problems in (dis-)Information Analysis; Computational Methods in Smart Agriculture; Computational Optimization, Modelling and Simulation; Computational Science in IoT and Smart Systems Part V: Computer Graphics, Image Processing and Artificial Intelligence; Data-Driven Computational Sciences; Machine Learning and Data Assimilation for Dynamical Systems; MeshFree Methods and Radial Basis Functions in Computational Sciences; Multiscale Modelling and Simulation Part VI: Quantum Computing Workshop; Simulations of Flow and Transport: Modeling, Algorithms and Computation; Smart Systems: Bringing Together Computer Vision, Sensor Networks and Machine Learning; Software Engineering for Computational Science; Solving Problems with Uncertainty; Teaching Computational Science; Uncertainty Quantification for Computational Models *The conference was held virtually.

Directory of Corporate Counsel, 2020 Edition (2 vols)

Wolters Kluwer The Directory of Corporate Counsel, 2020 Edition remains the only comprehensive source for information on the corporate law departments and practitioners of the companies of the United States and Canada. Profiling over 22,000 attorneys and more than 5,000 companies, it supplies complete, uniform listings compiled through a major research effort, including information on company organization, department structure and hierarchy, and the background and specialties of the attorneys. This newly revised 2 volume edition is easier to use than ever before and includes five quick-search indexes to simplify your search: Corporations and Organizations Index Geographic Index Attorney Index Law School Alumni Index Nonprofit Organizations Index Former 2016 -2017 Edition: ISBN 9781454871798 Former 2015 - 2016 Edition: ISBN 9781454856535 Former 2014 - 2015 Edition: ISBN 9781454843474 Former 2013 -2014 Edition: ISBN #9781454825913 Former 2012 -2013 Edition: ISBN #9781454809593 Former 2017-2018 Edition: ISBN #9781454884460 Former 2018 Mid-Year Edition: ISBN #9781454889250 Former 2019 Edition ISBN #9781543803488

Information Technology for Management: New Ideas and

Real Solutions

14th Conference, AITM 2016, and 11th Conference, ISM 2016, held as Part of FedCSIS, Gdansk, Poland, September 11-14, 2016, Revised Selected Papers

Springer This book constitutes revised selected papers from the 14th Conference on Advanced Information Technologies for Management, AITM 2016, and the 11th Conference on Information Systems Management, ISM 2016, held as part of the Federated Conference on Computer Science and Information Systems, FedCSIS, which took place in Gdansk, Poland, in September 2016. The 13 papers presented in this volume were carefully reviewed and selected from 51 submissions. They were organized in topical sections named: information technology and systems for knowledge management; information technology and systems for business transformation; and implementation and evaluation of information systems.

SiGe-based Re-engineering of Electronic Warfare Subsystems

Springer This book provides readers a thorough understanding of the applicability of new-generation silicon-germanium (SiGe) electronic subsystems for electronic warfare and defensive countermeasures in military contexts. It explains in detail the theoretical and technical background, and addresses all aspects of the integration of SiGe as an enabling technology for maritime, land, and airborne / spaceborne electronic warfare, including research, design, development, and implementation. The coverage is supported by mathematical derivations, informative illustrations, practical examples, and case studies. While SiGe technology provides speed, performance, and price advantages in many markets, to date only limited information has been available on its use in electronic warfare systems, especially in developing nations. Addressing that need, this book offers essential engineering guidelines that especially focus on the speed and reliability of current-generation SiGe circuits and highlight emerging innovations that help to ensure the sustainable long-term integration of SiGe into electronic warfare systems.

Invitation to Computer Science

Cengage Learning Discover a contemporary overview of today's computer science with Schneider/Gersting's best-selling INVITATION TO COMPUTER SCIENCE, 8E. This flexible, non-language-specific approach provides a solid foundation in computer science using an algorithm-centered approach that's ideal for the reader's first introduction to the field. Measurable learning objectives and an easy-to-follow hierarchy guide readers through algorithms, hardware, virtual machines, software development, applications of computing, and social issues. Readers connect the dots as the book emphasizes real-life context throughout each chapter. Updates introduce the latest developments concerning privacy, drones, cloud computing, and net neutrality. Visual and hands-on activities let readers experience the fundamentals of today's computer science. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Noise and Environment

BoD - Books on Demand Noise pollution is one of the factors that affect the quality of life of the general population, especially in urban areas, where the noise levels are often high due to the presence of numerous sources, such as transport infrastructures, activities production and commercial areas, entertainment venues and other sound sources which, although temporary, such as construction sites and outdoor music events, affect general noise levels. Even if noise is one of the oldest pollutants referred to in history, for years, the problem of noise pollution has been often considered less important than others related to the environment, such as air pollution, water pollution, and waste management. The regulations in force to contain the noise have become increasingly stringent as each individual is constantly exposed to noise and often the noise is treated just as a scourge of modern society. Making noise is becoming easier and cheaper each day, but just the opposite for controlling it. Deeper studies are needed to understand the core of current noise problems; new materials and techniques are needed to control them. This book is a combination of theory and practice based on the latest research. The studies in this book range from evaluation methods for the perception of noise and outline forecast criteria that can be integrated with applications for acoustic mapping as well as the use of innovative techniques and materials for its abatement. The main purpose of this book, organized in 8 chapters, is to provide an overview of the recent studies in this field and the applications in different research studies. The authors, contributing to the success of this book, provide a series of practical applications of their recent studies aimed at the reduction of noise in different environments. The editors would like to thank all the authors who, through their studies and research, have accepted our invitation to share recent discoveries in this field with the scientific community.

Protecting Mobile Networks and Devices

Challenges and Solutions

CRC Press This book gathers and analyzes the latest attacks, solutions, and trends in mobile networks. Its broad scope covers attacks and solutions related to mobile networks, mobile phone security, and wireless security. It examines the previous and emerging attacks and solutions in the mobile networking worlds, as well as other pertinent security issues. The many attack samples present the severity of this problem, while the delivered methodologies and countermeasures show how to build a truly secure mobile computing environment.

Handbook of Research on Big Data Clustering and Machine Learning

IGI Global As organizations continue to develop, there is an increasing need for technological methods that can keep up with the rising amount of data and information that is being generated. Machine learning is a tool that has become powerful due to its ability to analyze large amounts of data quickly. Machine learning is one of many technological advancements that is being implemented into a multitude of specialized fields. An extensive study on the execution of these advancements within professional industries is necessary. The Handbook of Research on Big Data Clustering and Machine Learning is an essential reference source that synthesizes the analytic principles of clustering and machine learning to big data and provides an interface between the main disciplines of engineering/technology and the organizational, administrative, and planning abilities of management. Featuring research on topics such as project management, contextual data modeling, and business information systems, this book is ideally designed for engineers, economists, finance officers, marketers, decision makers, business professionals, industry practitioners, academicians, students, and researchers seeking coverage on the implementation of big data and machine learning within specific professional fields.

Advanced Engineering Materials and Modeling

John Wiley & Sons The engineering of materials with advanced features is driving the research towards the design of innovative materials with high performances. New materials often deliver the best solution for structural applications, precisely contributing towards the finest combination of mechanical properties and low weight. The mimicking of nature's principles lead to a new class of structural materials including biomimetic composites, natural hierarchical materials and smart materials. Meanwhile, computational modeling approaches are the valuable tools complementary to experimental techniques and provide significant information at the microscopic level and explain the properties of materials and their very existence. The modeling also provides useful insights to possible strategies to design and fabricate materials with novel and improved properties. The book brings together these two fascinating areas and offers a comprehensive view of cutting-edge research on materials interfaces and technologies the engineering materials. The topics covered in this book are divided into 2 parts: Engineering of Materials, Characterizations & Applications and Computational Modeling of Materials. The chapters include the following: Mechanical and resistance behavior of structural glass beams Nanocrystalline metal carbides - microstructure characterization SMA-reinforced laminated glass panel Sustainable sugarcane bagasse cellulose for papermaking Electrospun scaffolds for cardiac tissue engineering Bio-inspired composites Density functional theory for studying extended systems First principles based approaches for modeling materials Computer aided materials design Computational materials for stochastic electromagnets Computational methods for thermal analysis of heterogeneous materials Modelling of resistive bilayer structures Modeling tunneling of superluminal photons through Brain Microtubules Computer aided surgical workflow modeling Displaced multiwavelets and splitting algorithms

Multi-Agent-Based Simulations Applied to Biological and Environmental Systems

IGI Global The discovery and development of new computational methods have expanded the capabilities and uses of simulations. With agent-based models, the applications of computer simulations are significantly enhanced. Multi-Agent-Based Simulations Applied to Biological and Environmental Systems is a pivotal reference source for the latest research on the implementation of autonomous agents in computer simulation paradigms. Featuring extensive coverage on relevant applications, such as biodiversity conservation, pollution reduction, and environmental risk assessment, this publication is an ideal source for researchers, academics, engineers, practitioners, and professionals seeking material on various issues surrounding the use of agent-based simulations.

Generalized Fractional Order Differential Equations Arising in Physical Models

CRC Press This book analyzes the various semi-analytical and analytical methods for finding approximate and exact solutions of fractional order partial differential equations. It explores approximate and exact solutions obtained by various analytical methods for fractional order partial differential equations arising in physical models.

Smart Intelligent Computing and Applications

Proceedings of the Second International Conference on SCI 2018, Volume 1

Springer The proceedings covers advanced and multi-disciplinary research on design of smart computing and informatics. The theme of the book broadly focuses on various innovation paradigms in system knowledge, intelligence and sustainability that may be applied to provide realistic solution to varied problems in society, environment and industries. The volume publishes quality work pertaining to the scope of the conference which is extended towards deployment of emerging computational and knowledge transfer approaches, optimizing solutions in varied disciplines of science, technology and healthcare.

Advanced Numerical Methods for Differential Equations Applications in Science and Engineering

CRC Press Mathematical models are used to convert real-life problems using mathematical concepts and language. These models are governed by differential equations whose solutions make it easy to understand real-life problems and can be applied to engineering and science disciplines. This book presents numerical methods for solving various mathematical models. This book offers real-life applications, includes research problems on numerical treatment, and shows how to develop the numerical methods for solving problems. The book also covers theory and applications in engineering and science. Engineers, mathematicians, scientists, and researchers working on real-life mathematical problems will find this book useful.

Connected and Autonomous Vehicles in Smart Cities

CRC Press This book presents a comprehensive coverage of the five fundamental yet intertwined pillars paving the road towards the future of connected autonomous electric vehicles and smart cities. The connectivity pillar covers all the latest advancements and various technologies on vehicle-to-everything (V2X) communications/networking and vehicular cloud computing, with special emphasis on their role towards vehicle autonomy and smart cities applications. On the other hand, the autonomy track focuses on the different efforts to improve vehicle spatiotemporal perception of its surroundings using multiple sensors and different perception technologies. Since most of CAVs are expected to run on electric power, studies on their electrification technologies, satisfaction of their charging demands, interactions with the grid, and the reliance of these components on their connectivity and autonomy, is the third pillar that this book covers. On the smart services side, the book highlights the game-changing roles CAV will play in future mobility services and intelligent transportation systems. The book also details the ground-breaking directions exploiting CAVs in broad spectrum of smart cities applications. Example of such revolutionary applications are autonomous mobility on-demand services with integration to public transit, smart homes, and buildings. The fifth and final pillar involves the illustration of security mechanisms, innovative business models, market opportunities, and societal/economic impacts resulting from the soon-to-be-deployed CAVs. This book contains an archival collection of top quality, cutting-edge and multidisciplinary research on connected autonomous electric vehicles and smart cities. The book is an authoritative reference for smart city decision makers, automotive manufacturers, utility operators, smart-mobility service providers, telecom operators, communications engineers, power engineers, vehicle charging providers, university professors, researchers, and students who would like to learn more about the advances in CAEVs connectivity, autonomy, electrification, security, and integration into smart cities and intelligent transportation systems.

Computational Science – ICCS 2019

19th International Conference, Faro, Portugal, June

12-14, 2019, Proceedings, Part I

Springer The five-volume set LNCS 11536, 11537, 11538, 11539, and 11540 constitutes the proceedings of the 19th International Conference on Computational Science, ICCS 2019, held in Faro, Portugal, in June 2019. The total of 65 full papers and 168 workshop papers presented in this book set were carefully reviewed and selected from 573 submissions (228 submissions to the main track and 345 submissions to the workshops). The papers were organized in topical sections named: Part I: ICCS Main Track Part II: ICCS Main Track; Track of Advances in High-Performance Computational Earth Sciences: Applications and Frameworks; Track of Agent-Based Simulations, Adaptive Algorithms and Solvers; Track of Applications of Matrix Methods in Artificial Intelligence and Machine Learning; Track of Architecture, Languages, Compilation and Hardware Support for Emerging and Heterogeneous Systems Part III: Track of Biomedical and Bioinformatics Challenges for Computer Science; Track of Classifier Learning from Difficult Data; Track of Computational Finance and Business Intelligence; Track of Computational Optimization, Modelling and Simulation; Track of Computational Science in IoT and Smart Systems Part IV: Track of Data-Driven Computational Sciences; Track of Machine Learning and Data Assimilation for Dynamical Systems; Track of Marine Computing in the Interconnected World for the Benefit of the Society; Track of Multiscale Modelling and Simulation; Track of Simulations of Flow and Transport: Modeling, Algorithms and Computation Part V: Track of Smart Systems: Computer Vision, Sensor Networks and Machine Learning; Track of Solving Problems with Uncertainties; Track of Teaching Computational Science; Poster Track ICCS 2019 Chapter "Comparing Domain-decomposition Methods for the Parallelization of Distributed Land Surface Models" is available open access under a Creative Commons Attribution 4.0 International License via link.springer.com.

Intelligent Multimedia Data Analysis

Walter de Gruyter GmbH & Co KG This volume comprises eight well-versed contributed chapters devoted to report the latest findings on the intelligent approaches to multimedia data analysis. Multimedia data is a combination of different discrete and continuous content forms like text, audio, images, videos, animations and interactional data. At least a single continuous media in the transmitted information generates multimedia information. Due to these different types of varieties, multimedia data present varied degrees of uncertainties and imprecision, which cannot be easy to deal by the conventional computing paradigm. Soft computing technologies are quite efficient to handle the imprecision and uncertainty of the multimedia data and they are flexible enough to process the real-world information. Proper analysis of multimedia data finds wide applications in medical diagnosis, video surveillance, text annotation etc. This volume is intended to be used as a reference by undergraduate and post graduate students of the disciplines of computer science, electronics and telecommunication, information science and electrical engineering. THE SERIES: FRONTIERS IN COMPUTATIONAL INTELLIGENCE The series Frontiers In Computational Intelligence is envisioned to provide comprehensive coverage and understanding of cutting edge research in computational intelligence. It intends to augment the scholarly discourse on all topics relating to the advances in artificial life and machine learning in the form of metaheuristics, approximate reasoning, and robotics. Latest research findings are coupled with applications to varied domains of engineering and computer sciences. This field is steadily growing especially with the advent of novel machine learning algorithms being applied to different domains of engineering and technology. The series brings together leading researchers that intend to continue to advance the field and create a broad knowledge about the most recent state of the art.

Harmonic Wave Systems: Partial Differential Equations of the Helmholtz Decomposition

Scientific Research Publishing, Inc. USA Harmonic Wave Systems is the first textbook about the computational method of Decomposition in Invariant Structures (DIS) that generalizes the analytical methods of separation of variables, undetermined coefficients, asymptotic expansions, and series expansions. In recent years, there has been a boom in publications on propagation of nonlinear waves described by a fascinating list of partial differential equations (PDEs). The vast majority of wave problems are reducible to one-dimensional ones in propagation variables. However, a list of publications with two- and three-dimensional applications of the DIS method is brief. The book offers a comprehensive and rigorous treatment of the DIS method in two and three dimensions using the PDE approach to the Helmholtz decomposition that provides the most general background for mathematical modelling of harmonic waves in fluid dynamics, electrodynamics, heat transfer, and other numerous areas of science and engineering, which are dealing with propagation and interaction of N internal waves.

Hearing on the Nominations of Ann Dunkin to be Assistant Administrator, EPA Office of Environmental

Information; Thomas Burke to be Assistant Administrator, EPA Office of Research and Development; and Jane Nishida to be Assistant Administrator, EPA Office of International and Tribal Affairs

Hearing Before the Committee on Environment and Public Works, United States Senate, One Hundred Fourteenth Congress, First Session, June 11, 2015

Enabling Technologies and Architectures for Next-Generation Networking Capabilities

IGI Global With the rise of mobile and wireless technologies, more sustainable networks are necessary to support communication. These next-generation networks can now be utilized to extend the growing era of the Internet of Things. **Enabling Technologies and Architectures for Next-Generation Networking Capabilities** is an essential reference source that explores the latest research and trends in large-scale 5G technologies deployment, software-defined networking, and other emerging network technologies. Featuring research on topics such as data management, heterogeneous networks, and spectrum sensing, this book is ideally designed for computer engineers, technology developers, network administrators and researchers, professionals, and graduate-level students seeking coverage on current and future network technologies.

Transactions on Engineering Technologies

Springer This volume presents selected peer-reviewed, revised and extended research articles written by prominent researchers who participated in the World Congress on Engineering 2015, held in London, UK, 1-3 July, 2015. This large international conference covered advances in engineering technologies and the physical sciences, with contributions on subjects including mechanical engineering, bioengineering, internet engineering, image engineering, wireless networks, knowledge engineering, manufacturing engineering, and industrial applications. This book offers a snapshot of the state-of-the-art, highlighting tremendous advances in engineering technologies and physical sciences and their applications, and will serve as an excellent reference for researchers and graduate students working in many different disciplines of physical sciences and engineering.

Wireless Medical Systems and Algorithms

Design and Applications

CRC Press **Wireless Medical Systems and Algorithms: Design and Applications** provides a state-of-the-art overview of the key steps in the development of wireless medical systems, from biochips to brain-computer interfaces and beyond. The book also examines some of the most advanced algorithms and data processing in the field. Addressing the latest challenges and solutions related to the medical needs, electronic design, advanced materials chemistry, wireless body sensor networks, and technologies suitable for wireless medical devices, the text: Investigates the technological and manufacturing issues associated with the development of wireless medical devices Introduces the techniques and strategies that can optimize the performances of algorithms for medical applications and provide robust results in terms of data reliability Includes a variety of practical examples and case studies relevant to engineers, medical doctors, chemists, and biologists **Wireless Medical Systems and Algorithms: Design and Applications** not only highlights new technologies for the continuous surveillance of patient health conditions, but also shows how disciplines such as chemistry, biology, engineering, and medicine are merging to produce a new class of smart devices capable of managing and monitoring a wide range of cognitive and physical disabilities.

Handbook of Research on Next Generation Mobile

Communication Systems

IGI Global Anyone who has ever shopped for a new smart phone, laptop, or other tech gadget knows that staying connected is crucial. There is a lot of discussion over which service provider offers the best coverage—enabling devices to work anywhere and at any time—with 4G and LTE becoming a pervasive part of our everyday language. The **Handbook of Research on Next Generation Mobile Communication Systems** offers solutions for optimal connection of mobile devices. From satellite signals to cloud technologies, this handbook focuses on the ways communication is being revolutionized, providing a crucial reference source for consumers, researchers, and business professionals who want to be on the frontline of the next big development in wireless technologies. This publication features a wide variety of research-based articles that discuss the future of topics such as bandwidth, energy-efficient power, device-to-device communication, network security and privacy, predictions for 5G communication systems, spectrum sharing and connectivity, and many other relevant issues that will influence our everyday use of technology.

Handbook of Fractional Calculus for Engineering and Science

CRC Press Fractional calculus is used to model many real-life situations from science and engineering. The book includes different topics associated with such equations and their relevance and significance in various scientific areas of study and research. In this book readers will find several important and useful methods and techniques for solving various types of fractional-order models in science and engineering. The book should be useful for graduate students, PhD students, researchers and educators interested in mathematical modelling, physical sciences, engineering sciences, applied mathematical sciences, applied sciences, and so on. This Handbook: Provides reliable methods for solving fractional-order models in science and engineering. Contains efficient numerical methods and algorithms for engineering-related equations. Contains comparison of various methods for accuracy and validity. Demonstrates the applicability of fractional calculus in science and engineering. Examines qualitative as well as quantitative properties of solutions of various types of science- and engineering-related equations. Readers will find this book to be useful and valuable in increasing and updating their knowledge in this field and will be it will be helpful for engineers, mathematicians, scientist and researchers working on various real-life problems.

Methods of Mathematical Modelling

Fractional Differential Equations

CRC Press This book features original research articles on the topic of mathematical modelling and fractional differential equations. The contributions, written by leading researchers in the field, consist of chapters on classical and modern dynamical systems modelled by fractional differential equations in physics, engineering, signal processing, fluid mechanics, and bioengineering, manufacturing, systems engineering, and project management. The book offers theory and practical applications for the solutions of real-life problems and will be of interest to graduate level students, educators, researchers, and scientists interested in mathematical modelling and its diverse applications. Features Presents several recent developments in the theory and applications of fractional calculus Includes chapters on different analytical and numerical methods dedicated to several mathematical equations Develops methods for the mathematical models which are governed by fractional differential equations Provides methods for models in physics, engineering, signal processing, fluid mechanics, and bioengineering Discusses real-world problems, theory, and applications

Scientific Computing, Computer Arithmetic, and Validated Numerics

16th International Symposium, SCAN 2014, Würzburg, Germany, September 21-26, 2014. Revised Selected Papers

Springer This book constitutes the refereed post proceedings of the 16th International Symposium, SCAN 2014, held in Würzburg, Germany, in September 2014. The 22 full papers presented were carefully reviewed and selected from 60 submissions. The main concerns of research addressed by SCAN conferences are validation, verification or reliable assertions of numerical computations. Interval arithmetic and other treatments of uncertainty are developed as appropriate tools.

Handbook of Computability and Complexity in Analysis

Springer Nature Computable analysis is the modern theory of computability and complexity in analysis that arose out of Turing's seminal work in the 1930s. This was motivated by questions such as: which real numbers and real number functions are computable, and which mathematical tasks in analysis can be solved by algorithmic means? Nowadays this theory has many different facets that embrace topics from computability theory, algorithmic randomness, computational complexity, dynamical systems, fractals, and analog computers, up to logic, descriptive set theory, constructivism, and reverse mathematics. In recent decades computable analysis has invaded many branches of analysis, and researchers have studied computability and complexity questions arising from real and complex analysis, functional analysis, and the theory of differential equations, up to (geometric) measure theory and topology. This handbook represents the first coherent cross-section through most active research topics on the more theoretical side of the field. It contains 11 chapters grouped into parts on computability in analysis; complexity, dynamics, and randomness; and constructivity, logic, and descriptive complexity. All chapters are written by leading experts working at the cutting edge of the respective topic. Researchers and graduate students in the areas of theoretical computer science and mathematical logic will find systematic introductions into many branches of computable analysis, and a wealth of information and references that will help them to navigate the modern research literature in this field.

Powering the Internet of Things With 5G Networks

IGI Global With the rise of mobile and wireless technologies, more sustainable networks are necessary to support such communications. These next generation networks can now be utilized to strengthen the growing era of the Internet of Things. **Powering the Internet of Things With 5G Networks** is a comprehensive reference source for the latest scholarly research on the progression and design of fifth generation networks and their role in supporting the Internet of Things. Including a range of perspectives on topics such as privacy and security, large scale monitoring, and scalable architectures, this book is ideally designed for technology developers, academics, researchers, and practitioners interested in the convergence of the Internet of Things and 5G networks.