Multiscale Parallel Genetic Algorithms For Optimal

Application of Soft Computing and Intelligent Methods in Geophysics Alireza Hajian 2018-06-21 This book provides a practical guide to applying soft-computing methods to interpret geophysical data. It discusses the design of neural networks with Matlab for geophysical data, as well as fuzzy logic and neuro-fuzzy concepts and their applications. In addition, it describes genetic algorithms for the automatic and/or intelligent processing and interpretation of geophysical data.

Multiscale Approaches to Protein Modeling Andrzej Kolinski 2010-10-13 The book gives a comprehensive review of the most advanced multiscale methods for protein structure prediction, computational studies of protein dynamics, folding mechanisms and macromolecular interactions. It approaches span a wide range of the levels of coarse-grained representations, various sampling techniques and variety of applications to biomedical and biophysical problems. This book is intended to be used as a reference book for those who are just beginning their adventure with biomacromolecular modeling but also as a valuable source of detailed information for those who are already experts in the field of biomacromolecular modeling and in related areas of computational biology or biophysics.

Algorithms and Architectures for Parallel Processing Jaideep Vaidya 2018-12-07 The four-volume set LNCS 11334–11337 constitutes the proceedings of the 18th International Conference on Algorithms and Architectures for Parallel Processing, ICA3PP 2018, held in Guangzhou, China, in November 2018. The 141 full and 50 short papers presented were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections on Distributed and Parallel Computing; High Performance Computing; Big Data and Information Processing; Internet of Things and Cloud Computing; and Security and Privacy in Computing.

Scalable Optimization via Probabilistic Modeling Martin Pelikan 2007-01-12 I'm not usually a fan of edited volumes. Too often they are an incoherent hodgepodge of remnants, renegades, or rejects foisted upon an unsuspecting reading public under a misleading or fraudulent title. The volume Scalable Optimization via Probabilistic Modeling: From Algorithms to Applications is a worthy addition to your library because it succeeds on exactly those dimensions where so many edited volumes fail. For example, take the title, Scalable Optimization via Probabilistic M- eling: From Algorithms to Applications. You need not worry that you're going to pick up this book and ?nd stray articles about anything else. This book focuseslikealaserbeamonononeofthehottesttopicsinevolutionary compu- tion over the last decade or so: estimation of distribution algorithms (EDAs). EDAs borrow evolutionary computation's population orientation and sel- tionism and throw out the genetics to give us a hybrid of substantial power, elegance, and extensibility. The article sequencing in most edited volumes is hard to understand, but from the get go the editors of this volume have assembled a set of articles sequenced in a logical fashion. The book moves from design to e?ciency enhancement and then concludes with relevant applications. The emphasis on e?ciency enhancement is particularly important, because the data-mining perspectiveimplicitinEDAsopensuptheworldofoptimizationtonewme- ods of data-guided adaptation that can further speed solutions through the construction and utilization of e?ective surrogates, hybrids, and parallel and temporal decompositions.

Principles of Multiscale Modeling Weinan E 2011-07-07 A systematic discussion of the fundamental principles, written by a leading contributor to the field.

Parallel Computational Fluid Dynamics 2000 C.B. Jenssen 2001-04-27 Parallel CFD 2000, the Twelfth in an International series of meetings featuring computational fluid dynamics research on parallel computers, was held May 22–25, 2000 in Trondheim, Norway. Following the trend of the past conferences, areas such as numerical schemes and algorithms, tools and environments, load balancing, as well as interdisciplinary topics and various kinds of industrial applications were all well represented in the work presented. In addition, for the first time in the Parallel CFD conference series, the organizing committee chose to draw special attention to certain subject areas by organizing a number of special sessions. We feel the emphasis of the papers presented at the conference reflect the direction of the research within parallel CFD at the beginning of the new millennium. It seems to be a clear tendency towards increased industrial exploitation of parallel CFD. Several presentations also demonstrated how new insight is being achieved from complex simulations, and how powerful parallel computers now make it possible to use CFD within a broader interdisciplinary setting. Obviously, successful application of parallel CFD still rests on the underlying fundamental principles. Therefore, numerical algorithms, development tools, and parallelization techniques are still as important as when parallel CFD was in its infancy. Furthermore, the novel concepts of affordable parallel computing as well as metacomputing show that exciting developments are still taking place. As is often pointed out however, the real power of parallel CFD comes from the combination of all the disciplines involved: Physics, mathematics, and computer science. This is probably one of the principal reasons for the continued popularity of the Parallel CFD Conferences series, as well as the inspiration behind much of the excellent work carried out on the subject. We hope that the papers in this book, both on an individual basis and as a whole, will contribute to that inspiration. Further details of Parallel CFD'99, as well as other conferences in this series, are available at http://www.parcfd.org

Parallel Computational Fluid Dynamics '97 D. Emerson 1998-04-17 Computational Fluid Dynamics (CFD) is a discipline that has always been in the vanguard of the exploitation of emerging and developing technologies. Advances in both algorithms and computers have rapidly been absorbed by the CFD community in its quest for more accurate simulations and reductions in the time to solution. Within this context, parallel computing has played an increasingly important role. Moreover, the uptake of parallel computing has brought the CFD community into ever-closer contact with hardware vendors and computer scientists. The multidisciplinary subject of parallel CFD and its rapidly evolving nature, in terms of hardware and software, requires a regular international meeting of this nature to keep abreast of the most recent developments. Parallel CFD '97 is part of an annual conference series dedicated to the discussion of recent developments and applications of parallel computing in the field of CFD and related disciplines. This was the 9th in the series, and since the inaugural conference in 1989, many new developments and technologies have emerged. The intervening years have also proved to be extremely volatile for many hardware vendors and a number of companies appeared and then disappeared. However, the belief that parallel computing is the only way forward has remained undiminished. Moreover, the increasing reliability and acceptance of parallel computers has seen many commercial companies now offering parallel versions of their codes, many developed within the EC funded EUROPORT activity, but generally for more modest numbers of processors. It is clear that industry has not moved to large scale parallel systems but it has shown a keen interest in more modest parallel systems recognising that parallel computing will play an important role in the future. This book forms the proceedings of the CFD '97 conference, which was organised by the the Computational Engineering Group at Daresbury Laboratory and held in Manchester, England, on May 19–21 1997. The sessions involved papers on many diverse subjects including turbulence, reactive flows, adaptive schemes, unsteady flows, unstructured mesh applications, industrial applications, developments in software tools and environments, climate modelling, parallel algorithms, evaluation of computer architectures and a special session devoted to parallel CFD at the AEREA research centres. This year's conference, like its predecessors, saw a continued improvement in both the quantity and quality of contributed papers. Since the conference series began many significant milestones have been acheived. For example in 1994, Massively Parallel Processing (MPP) became a reality with the advent of Cray T3D. This, of course, has brought with it the new challenge of scalability for both algorithms and architectures. In the 12 months since the 1996 conference, two more major milestones were achieved: microprocessors with a peak performance of a Gflop/s became available and the world's first Tflop/s calculation was performed. In the 1991 proceedings, the editors indicated that a Tflop/s computer was likely to be available in the latter half of this decade. On December 4th 1996, Intel achieved this breakthrough on the Linpack benchmark using 7,264 (200MHz) Pentium Pro microprocessors as part of the ASCI Red project. With the developments in MPP, the rapid rise of SMP architectures and advances in PC technology, the future for parallel CFD looks both promising and challenging.

Verification and Evaluation of Computer and Communication Systems Belgacem Ben Hedia 2020-12-19 This book constitutes the proceedings of the 14th International Conference on Verification and Evaluation of Computer and Communication Systems, VECoS 2020, which was supposed to be held in Xi'an, China, in October 2020, but was held virtually instead. The 19 full papers and 1 short paper presented in this volume were carefully reviewed and selected from 60 submissions. The aim of the VECoS conference is to bring together researchers and practitioners in the areas of verification, control, performance, and dependability evaluation in order to discuss state of the art and challenges in modern computer and communication systems in which functional and extra-functional properties are strongly interrelated. Thus, the main motivation for VECoS is to encourage the cross-fertilization between various formal verification and evaluation approaches, methods and techniques, and especially those developed for concurrent and distributed hardware/software systems. The papers are organized in the following topical sections: petri-net, simulation, and scheduling; formal modeling and verification, testing; and artificial intelligence and machine learning.

Multiscale Phenomena And Their Simulation – Proceedings Of The International Conference Karsch Frithjof 1997-06-19 What is superconductivity? How was it discovered? What are the properties of superconductors, how are they applied now, and how are they likely to become widely used in the near future? These are just some of the questions which this important book sets out to answer. Starting with the discovery of superconductivity over ninety years ago, the book guides the readers through the many years of subsequent exploration, right up to the latest sensational findings.Written in a lively, nontechnical style, this book makes ideal background reading for any school or college level study of superconductivity. The authors, who are leading authorities in the field, paint detailed pictures of the phenomena involved without mathematical formalism, appealing instead to physical intuition.

Supercomputing Vladimir Voevodin 2018-12-31 This book constitutes the refereed proceedings of the 4th Russian Supercomputing Days, RuSCDays 2018, held in Moscow, Russia, in September 2018. The 59 revised full papers and one revised short paper presented were carefully reviewed and selected from 136 submissions. The papers are organized in topical sections on parallel algorithms; supercomputer simulation; high performance architectures, tools and technologies.

Water Encyclopedia, Water Quality and Resource Development Jay H. Lehr 2005-06 This volume deals with the big picture of regional water supplies, how they become contaminated, how they can be protected and how they can best serve the surrounding populations and industries. Significant focus is placed upon the natural chemistry of available water supplies and its biological impacts. Case studies from regions around the world offer an excellent picture of the world's water resources.

Critical Examinations of Distance Education Transformation across Disciplines Scheg, Abigail G. 2014-10-31 In recent years, distance education programs have grown to allow greater educational opportunities to a diverse set of learners from all over the world. As remote learning becomes a widespread practice, universities too must adapt to this changing educational landscape. Critical Examinations of Distance Education Transformation across Disciplines provides an interdisciplinary look at the development of distance learning in higher education. This reference work bridges the gap between disciplines by offering practical tools and solutions for successful distance education implementation. Educators, administrators, and researchers across academia will find this publication a timely and relevant resource.

Artificial Evolution El-ghazali Talbi 2006-04-28 This book constitutes the thoroughly refereed post-proceedings of the 7th International Conference on Artificial Evolution, EA 2005, held in Lille, France, in October 2005. The 26 revised full papers presented were carefully reviewed and selected from 78 submissions. The papers cover all aspects of artificial evolution: genetic programming, machine learning, combinatorial optimization, co-evolution, self-assembling, artificial life and bioinformatics.

Scientific and Technical Aerospace Reports 1995

Parallel Processing and Applied Mathematics Roman Wyrzykowski 2016-04-05 This two-volume-set (LNCS 9573 and 9574) constitutes the refereed proceedings of the 11th International Conference of Parallel Processing and Applied Mathematics, PPAM 2015, held in Krakow, Poland, in September 2015. The 111 revised full papers presented in both volumes were carefully reviewed and selected from 196 submissions. The focus of PPAM 2015 was on models, algorithms, and software toolswhich facilitate efficient and convenient utilization of modern parallel and distributed computing architectures, as well as on large-scale applications, including big data problems.

Dissertation Abstracts International 2008

Parallel Problem Solving from Nature — PPSN VII spai Conference on Parallel Problem Solving from Nature 2002 Granada 2002-08-26 This book constitutes the refereed proceedings of the 7th International Conference on Parallel Problem Solving from Nature,PPSN 2002, held in Granada, Spain in September 2002. The 90 revised full papers

presented were carefully reviewed and selected from 181 submissions. The papers are organized in topical sections on evolutionary algorithms theory, representation and codification, variation operators, evolutionary techniques and coevolution, multiobjective optimization, new techniques for evolutionary algorithms, hybrid algorithms, learning classifier systems, implementation of evolutionary algorithms, applications, and cellular automata and ant colony optimization.

Journal of Mechanical Design 2008-07

Deutsche Nationalbibliographie und Bibliographie der im Ausland erschienenen deutschsprachigen Veröffentlichungen 1996

Computational Multiscale Modeling of Fluids and Solids Martin Oliver Steinhauser 2016-11-29 The idea of the book is to provide a comprehensive overview of computational physics methods and techniques, that are used for materials modeling on different length and time scales. Each chapter first provides an overview of the basic physical principles which are the basis for the numerical and mathematical modeling on the respective length-scale. The book includes the micro-scale, the meso-scale and the macro-scale, and the chapters follow this classification. The book explains in detail many tricks of the trade of some of the most important methods and techniques that are used to simulate materials on the perspective levels of spatial and temporal resolution. Case studies are included to further illustrate some methods or theoretical considerations. Example applications for all techniques are provided, some of which are from the author's own contributions to some of the research areas. The second edition has been expanded by new sections in computational models on meso/macroscopic scales for ocean and atmosphere dynamics. Numerous applications in environmental physics and geophysics had been added.

A Parallel Genetic Algorithm for Optimizing Multicellular Models Applied to Biofilm Wrinkling Christopher Douglas Johnson 2017 Multiscale computational models integrating sub-cellular, cellular, and multicellular levels can be powerful tools that help researchers replicate, understand, and predict multicellular biological phenomena. To leverage their potential, these models need correct parameter values, which specify cellular physiology and affect multicellular outcomes. This work presents a robust parameter optimization method, utilizing a parallel and distributed genetic-algorithm software package. A genetic algorithm was chosen because of its superiority in fitting complex functions for which mathematical techniques are less suited. Searching for optimal parameters proceeds by comparing the multicellular behavior of a simulated system to that of a real biological system on the basis of features extracted from each which capture high-level, emergent multicellular outcomes. The goal is to find the set of parameters which minimizes discrepancy between the two sets of features. The method is first validated by demonstrating its effectiveness on synthetic data, then it is applied to calibrating a simple mechanical model of biofilm wrinkling, a common type of morphology observed in biofilms. Spatiotemporal convergence of cellular movement derived from experimental observations of different strains of Bacillus subtilis colonies is used as the basis of comparison.

Advances in Intelligent Modelling and Simulation Joanna Ko?odziej 2012-07-11 One of the most challenging issues in today's large-scale computational modeling and design is to effectively manage the complex distributed environments, such as computational clouds, grids, ad hoc, and P2P networks operating under various types of users with evolving relationships fraught with uncertainties. In this context, the IT resources and services usually belong to different owners (institutions, enterprises, or individuals) and are managed by different administrators. Moreover, uncertainties are presented to the system at hand in various forms of information that are incomplete, imprecise, fragmentary, or overloading, which hinders in the full and precise resolve of the evaluation criteria, subsequencing and selection, and the assignment scores. Intelligent scalable systems enable the flexible routing and charging, advanced user interactions and the aggregation and sharing of geographically-distributed resources in modern large-scale systems. This book presents new ideas, theories, models, technologies, system architectures and implementation of applications in intelligent scalable computing systems. In 15 chapters, several important Artificial Intelligence-based techniques, such as fuzzy logic, neural networks, evolutionary, and memetic algorithms are studied and implemented. All of those technologies have formed the foundation for the intelligent scalable computing that we know of today. We believe that this book will serve as a reference for students, researchers, and industry practitioners working or interested in joining interdisciplinary research in the areas of intelligent decision systems using emergent distributed computing paradigms. It will also allow newcomers (students and researchers alike) to grasp key issues and potential solutions on the selected topics. This book presents new ideas, theories, models, technologies, system architectures and implementation of applications in intelligent scalable computing systems. In 15 chapters, several important Artificial Intelligence-based techniques, such as fuzzy logic, neural networks, evolutionary, and memetic algorithms are studied and implemented. All of those technologies have formed the foundation for the intelligent scalable computing that we know of today. We believe that this book will serve as a reference for students, researchers, and industry practitioners working or interested in joining interdisciplinary research in the areas of intelligent decision systems using emergent distributed computing paradigms. It will also allow newcomers (students and researchers alike) to grasp key issues and potential solutions on the selected topics.

Computational Modelling of Multi-scale Solute Dispersion in Porous Media Don Kulasiri 2011-11-04 This research monograph presents a mathematical approach based on stochastic calculus which tackles the "cutting edge" in porous media science and engineering – prediction of dispersivity from covariance of hydraulic conductivity (velocity). The problem is of extreme importance for tracer analysis, for enhanced recovery by injection of miscible gases, etc. This book explains a generalised mathematical model and effective numerical methods that may highly impact the stochastic porous media hydrodynamics. The book starts with a general overview of the problem of scale dependence of the dispersion coefficient in porous media. Then a review of pertinent topics of stochastic calculus that would be useful in the modeling in the subsequent chapters is succinctly presented. The development of a generalised stochastic solute transport model for any given velocity covariance without resorting to Fickian assumptions from laboratory scale to field scale is discussed in detail. The mathematical approaches presented here may be useful for many other problems related to chemical dispersion in porous media.

Massively Parallel Processing Applications and Development L. Dekker 2013-10-22 The contributions of a diverse selection of international hardware and software specialists are assimilated in this book's exploration of the development of massively parallel processing (MPP). The emphasis is placed on industrial applications and collaboration with users and suppliers from within the industrial community consolidates the scope of the publication. From a practical point of view, massively parallel data processing is a vital step to further innovation in all areas where large amounts of data must be processed in parallel or in a distributed manner, e.g. fluid dynamics, meteorology, seismics, molecular engineering, image processing, parallel data base processing. MPP technology can make the speed of computation higher and substantially reduce the computational costs. However, to achieve these features, the MPP software has to be developed further to create user-friendly programming systems and to become transparent for present-day computer software. Application of novel electro-optic components and devices is continuing and will be a key for much more general and powerful architectures. Vanishing of communication hardware limitations will result in the elimination of programming bottlenecks in parallel data processing. Standardization of the functional characteristics of a programming model of massively parallel computers will become established. Then efficient programming environments can be developed. The result will be a widespread use of massively parallel processing systems in many areas of application.

Multiscale Parallel Genetic Algorithms for Optimal Groundwater Remediation Design Meghna Babbar 2002

Metaheuristics for Finding Multiple Solutions Mike Preuss

Parallel Problem Solving from Nature - PPSN XII Carlos Coello Coello 2012-08-27 The two volume set LNCS 7491 and 7492 constitutes the refereed proceedings of the 12th International Conference on Parallel Problem Solving from Nature, PPSN 2012, held in Taormina, Sicily, Italy, in September 2012. The total of 105 revised full papers were carefully reviewed and selected from 226 submissions. The meeting began with 5 workshops which offered an ideal opportunity to explore specific topics in evolutionary computation, bio-inspired computing and metaheuristics. PPSN 2012 also included 8 tutorials. The papers are organized in topical sections on evolutionary computation; machine learning, classifier systems, image processing; experimental analysis, encoding, EDA, GP; multiobjective optimization; swarm intelligence, collective behavior, coevolution and robotics; memetic algorithms, hybridized techniques, meta and hyperheuristics; and applications.

Parallel Computing: Technology Trends I. Foster 2020-03-25 The year 2019 marked four decades of cluster computing, a history that began in 1979 when the first cluster systems using Components Off The Shelf (COTS) became operational. This achievement resulted in a rapidly growing interest in affordable parallel computing for solving compute intensive and large scale problems. It also directly lead to the founding of the Parco conference series. Starting in 1983, the International Conference on Parallel Computing, ParCo, has long been a leading venue for discussions of important developments, applications, and future trends in cluster computing, parallel computing, and high-performance computing. ParCo2019, held in Prague, Czech Republic, from 10 – 13 September 2019, was no exception. Its papers, invited talks, and specialized mini-symposia addressed cutting-edge topics in computer architectures, programming methods for specialized devices such as field programmable gate arrays (FPGAs) and graphical processing units (GPUs), innovative applications of parallel computers, approaches to reproducibility in parallel computations, and other relevant areas. This book presents the proceedings of ParCo2019, with the goal of making the many fascinating topics discussed at the meeting accessible to a broader audience. The proceedings contains 57 contributions in total, all of which have been peer-reviewed after their presentation. These papers give a wide ranging overview of the current status of research, developments, and applications in parallel computing.

Multilevel Optimization in VLSICAD Jingsheng Jason Cong 2013-03-14 In the last few decades, multiscale algorithms have become a dominant trend in large-scale scientific computation. Researchers have successfully applied these methods to a wide range of simulation and optimization problems. This book gives a general overview of multiscale algorithms; applications to general combinatorial optimization problems such as graph partitioning and the traveling salesman problem; and VLSICAD applications, including circuit partitioning, placement, and VLSI routing. Additional chapters discuss optimization in reconfigurable computing, convergence in multilevel optimization, and model problems with PDE constraints. Audience: Written at the graduate level, the book is intended for engineers and mathematical and computational scientists studying large-scale optimization in electronic design automation.

Multiscale Modelling and Optimisation of Materials and Structures Tadeusz Burczynski 2022-05-19 Addresses the very topical, crucial and original subject of parameter identification and optimization within multiscale modeling methods Multiscale Modelling and Optimization of Materials and Structures presents an important and challenging area of research that enables the design of new materials and structures with better quality, strength and performance parameters as well as the creation of reliable models that take into account structural, material and topological properties at different scales. The authors' approach is four-fold; 1) the basic principles of micro and nano scale modeling techniques; 2) the connection of micro and/or nano scale models with macro simulation software; 3) optimization development in the framework of multiscale engineering and the solution of identification problems; 4) the computer science techniques used in this model and advice for scientists interested in developing their own models and software for multiscale analysis and optimization. The authors present several approaches such as the bridging and homogenization methods, as well as the general formulation of complex optimization and identification problems in multiscale modelling. They apply global optimization algorithms based on robust bioinspired algorithms, proposing parallel and multi-subpopulation approaches in order to speed-up computations, and discuss several numerical examples of multiscale modeling, optimization and identification of composite and functionally graded engineering materials and bone tissues. Multiscale Modelling and Optimization of Materials and Structures is thereby a valuable source of information for young scientists and students looking to develop their own models, write their own computer programs and implement them into simulation systems. Describes micro and nano scale models developed by the authors along with case studies of analysis and optimization Discusses the problems of computing costs, efficiency of information transfer, effective use of the computer memory and several other aspects of development of multiscale models Includes real physical, chemical and experimental studies with modern experimental techniques Provides a valuable source of information for young scientists and students looking to develop their own models, write their own computer programs, and implement them into simulation systems.

Computational Intelligence and Security Yue Hao 2005-12-05 The two volume set LNAI 3801 and LNAI 3802 constitute the refereed proceedings of the annual International Conference on Computational Intelligence and Security, CIS 2005, held in Xi'an, China, in December 2005. The 338 revised papers presented – 254 regular and 84 extended papers – were carefully reviewed and selected from over 1800 submissions. The first volume is organized in topical sections on learning and fuzzy systems, evolutionary computation, intelligent agents and systems, intelligent information retrieval, support vector machines, swarm intelligence, data mining, pattern recognition, and applications. The second volume is subdivided in topical sections on cryptography and coding, cryptographic protocols, intrusion detection, security models and architecture, security management, watermarking and information hiding, web and network applications, image and signal processing, and applications.

Encyclopedia of Bioinformatics and Computational Biology 2018-08-21 Encyclopedia of Bioinformatics and Computational Biology: ABC of Bioinformatics combines elements of computer science, information technology, mathematics, statistics and biotechnology, providing the methodology and in silico solutions to mine biological data and processes. The book covers Theory, Topics and Applications, with a special focus on Integrative -omics and Systems Biology. The theoretical, methodological underpinnings of BCB, including phylogeny are covered, as are more current areas of focus, such as translational bioinformatics, cheminformatics, and environmental informatics. Finally, Applications provide guidance for commonly asked questions. This major reference work spans basic and cutting-edge methodologies authored by leaders in the field, providing an invaluable resource for students, scientists, professionals in research institutes, and a broad swath of researchers in biotechnology and the biomedical and pharmaceutical industries. Brings together information from computer science, information technology, mathematics, statistics and biotechnology

Written and reviewed by leading experts in the field, providing a unique and authoritative resource Focuses on the main theoretical and methodological concepts before expanding on specific topics and applications Includes interactive images, multimedia tools and crosslinking to further resources and databases

Stochastic Optimal Control of Structures Yongbo Peng 2019-06-27 This book proposes, for the first time, a basic formulation for structural control that takes into account the stochastic dynamics induced by engineering excitations in the nature of non-stationary and non-Gaussian processes. Further, it establishes the theory of and methods for stochastic optimal control of randomly-excited engineering structures in the context of probability density evolution methods, such as physically-based stochastic optimal (PSO) control. By logically integrating randomness into control gain, the book helps readers design elegant control systems, mitigate risks in civil engineering structures, and avoid the dilemmas posed by the methods predominantly applied in current practice, such as deterministic control and classical linear quadratic Gaussian (LQG) control associated with nominal white noises.

Intelligent Systems: Concepts, Methodologies, Tools, and Applications Management Association, Information Resources 2018-06-04 Ongoing advancements in modern technology have led to significant developments in intelligent systems. With the numerous applications available, it becomes imperative to conduct research and make further progress in this field. Intelligent Systems: Concepts, Methodologies, Tools, and Applications contains a compendium of the latest academic material on the latest breakthroughs and recent progress in intelligent systems. Including innovative studies on information retrieval, artificial intelligence, and software engineering, this multi-volume book is an ideal source for researchers, professionals, academics, upper-level students, and practitioners interested in emerging perspectives in the field of intelligent systems.

Advances in Heat Transfer 2015-10-27 Advances in Heat Transfer fills the information gap between regularly scheduled journals and university-level textbooks by providing in-depth review articles over a broader scope than in traditional journals or texts. The articles, which serve as a broad review for experts in the field are also of great interest to non-specialists who need to keep up-to-date with the results of the latest research. This serial is essential reading for all mechanical, chemical, and industrial engineers working in the field of heat transfer, or in graduate schools or industry. Compiles the expert opinions of leaders in the industry Fills the information gap between regularly scheduled journals and university-level textbooks by providing in-depth review articles over a broader scope than in traditional journals or texts Essential reading for all mechanical, chemical, and industrial engineers working in the field of heat transfer, or in graduate schools or industry

Eurosymposium Computer Aided Process Engineering ESPUNA 2005-05-17 Eurosymposium Computer Aided Process Engineering

Parallel Computing Works! Geoffrey C. Fox 2014-06-28 A clear illustration of how parallel computers can be successfully applied to large-scale scientific computations. This book demonstrates how a variety of applications in physics, biology, mathematics and other sciences were implemented on real parallel computers to produce new scientific results. It investigates issues of fine-grained parallelism relevant for future supercomputers with particular emphasis on hypercube architecture. The authors describe how they used an experimental approach to configure different massively parallel machines, design and implement basic system software, and develop algorithms for frequently used mathematical computations. They also devise performance models, measure the performance characteristics of several computers, and create a high-performance computing facility based exclusively on parallel computers. By addressing all issues involved in scientific problem solving, Parallel Computing Works! provides valuable insight into computational science for large-scale parallel architectures. For those in the sciences, the findings reveal the usefulness of an important experimental tool. Anyone in supercomputing and related computational fields will gain a new perspective on the potential contributions of parallelism. Includes over 30 full-color illustrations.

Multiscale Modeling to Tackle the Complexity of Load-Bearing Organ and Tissue Regulation Jerome Noailly 2022-03-11

Multiscale Modeling Marco A.R. Ferreira 2007-07-17 This highly useful book contains methodology for the analysis of data that arise from multiscale processes. It brings together a number of recent developments and makes them accessible to a wider audience. Taking a Bayesian approach allows for full accounting of uncertainty, and also addresses the delicate issue of uncertainty at multiple scales. These methods can handle different amounts of prior knowledge at different scales, as often occurs in practice.

Multiscale Modeling of Cardiac Electrophysiology: Adaptation to Atrial and Ventricular Rhythm Disorders and Pharmacological Treatment Mathias Wilhelms 2013