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Novel Trends in the Traveling Salesman Problem - Donald Davendra 2020-12-09
The Traveling Salesman Problem (TSP) is widely considered one of the most intensively studied problems in computational mathematics and operations research. Since its inception, it has become the poster child for computational complexity research. A number of problems have been transformed to a TSP problem and its application base now extends into scheduling, manufacturing, routing, and logistics. With the advent of high-performance computing and advanced meta-heuristics such as GPU programming and swarm-based algorithms, the TSP problem is positioned firmly as the go-to problem for the development of the next generation of high-performance intelligent heuristics. This book looks to leverage some of these new paradigms for both students and researchers in this field.

Applications of Combinatorial Optimization - Vangelis Th. Paschos 2014-09-15
Combinatorial optimization is a multidisciplinary scientific area, lying in the interface of three major scientific domains: mathematics, theoretical computer science and management. The three volumes of the Combinatorial Optimization series aim to cover a wide range of topics in this area. These topics also deal with fundamental notions and approaches as with several classical applications of combinatorial optimization. Concepts of Combinatorial Optimization, is divided into three parts: - On the complexity of combinatorial optimization problems, presenting basics about worst-case and randomized complexity; - Classical solution methods, presenting the two most-known methods for solving hard combinatorial optimization problems, that are Branch-and-Bound and Dynamic Programming; - Elements from mathematical programming, presenting fundamentals from mathematical programming based methods that are in the heart of Operations Research since the origins of this field.

The Traveling Salesman Problem - David L. Applegate 2011-09-19
This book presents the latest findings on one of the most intensely investigated subjects in computational mathematics--the traveling salesman problem. It sounds simple enough: given a set of cities and the cost of travel between each pair of them, the problem challenges you to find the cheapest route by which to visit all the cities and return home to where you began. Though seemingly modest, this exercise has inspired studies by mathematicians, chemists, and physicists. Teachers use it in the classroom. It has practical applications in genetics, telecommunications,

and neuroscience. The authors of this book are the same pioneers who for nearly two decades have led the investigation into the traveling salesman problem. They have derived solutions to almost eighty-six thousand cities, yet a general solution to the problem has yet to be discovered. Here they describe the method and computer code they used to solve a broad range of large-scale problems, and along the way they demonstrate the interplay of applied mathematics with increasingly powerful computing platforms. They also give the fascinating history of the problem--how it developed, and why it continues to intrigue us.

Operations Research Proceedings 2005 - Hans-Dietrich Haasis 2006-09-12

This volume contains a selection of 128 papers presented in lectures during the international scientific symposium "Operations Research 2005" (OR 2005) held at the University of Bremen, September 7-9, 2005. This international conference took place under the auspices of the German Operations Research Society (GOR). The symposium had about 600 participants from countries all over the world. It attracted academics and practitioners working in various fields of Operations Research and provided them with the most recent advances in Operations Research as well as related areas in Economics, Mathematics, and Computer Science including the special interest streams Logistics and New Maritime Businesses. The program consisted of 3 plenary and 15 semi-plenary talks and about 400 contributed presentations selected by the program committee to be presented in 20 sections.

Computational Intelligence in Data Mining - Volume 1 - Lakhmi C. Jain 2014-12-10

The contributed volume aims to explicate and address the difficulties and challenges for the seamless integration of two core disciplines of computer science, i.e., computational intelligence and data mining. Data Mining aims at the automatic discovery of underlying non-trivial knowledge from datasets by applying intelligent analysis techniques. The interest in this research area has experienced a considerable growth in the last years due to two key factors: (a) knowledge hidden in organizations' databases can be exploited to improve strategic and managerial decision-making; (b) the large volume of data managed by organizations makes it impossible to carry out a manual analysis. The book addresses different methods and techniques of integration for enhancing the overall goal of data mining. The book helps to disseminate the knowledge about some innovative, active research directions in the field of data mining, machine and computational intelligence, along with some current issues and applications of related topics.

Parallel Problem Solving from Nature - 1991

The Traveling Salesman Problem and Its Variations - G. Gutin 2002-05-31

A brilliant treatment of a knotty problem in computing. This volume contains chapters written by reputable researchers and provides the state of the art in theory and algorithms for the traveling salesman problem (TSP). The book covers all important areas of study on TSP, including polyhedral theory for symmetric and asymmetric TSP, branch and bound, and branch and cut algorithms, probabilistic aspects of TSP, and includes a thorough computational analysis of heuristic and metaheuristic algorithms.

Period Traveling Salesman with Customer Stratification - Huay Huay Lim 2006

The Period Traveling Salesman Problem (PTSP) has been a popular subject in the area of Traveling Salesman Problem (TSP) with the objective to minimize traveling cost over the entire M-day planning period. Most of the previous PTSP studies focused on cost minimization or vehicle capacity maximization. This research, on the other hand, looked at PTSP from a different perspective to measure the quality of customer service level. We believe customer service is the key factor to increase both profits level and customer satisfaction. We utilize the basic concepts of PTSP to develop an advanced PTSP model with customer stratification. Missouri Lottery is used as the main application in our study. The Lottery Sales Representatives (LSRs) play an important role in increasing sales by providing excellent customer service to ticker retailers throughout the state. This research is divided into two sections: (1) improve the efficiency and balance of the routing schedule of LSRs and (2) develop a new strategy to maximize customers' value functions by stratifying visit frequencies. PTSP is a

generalization of TSP as an NP-hard problem; an exact solution approach would most likely to be time-consuming. Therefore, a heuristic model is developed to solve the stratification PTSP model in a reasonable amount of computation time and produces high quality solution. The first part of the research was successfully implemented to decrease the LSRs' travel distance by 15 percent, improve visitation feasibility by 46 percent, increase the balance of routes by 63 percent, and to decrease the overtime days by 32 percent. The PTSP with customer stratification has also successfully projected the improvement of 6.99 percent and 3.43 percent in the total sales values for local and remote LSRs, respectively. This research greatly benefits Missouri Lottery by maximizing customers' value functions and improving LSRs' work efficiency. This research also has a great contribution in the area of Traveling Salesman Problem in developing new efficient heuristic procedures to solve the PTSP with customer stratification model.

Advances in Bio-inspired Computing for Combinatorial Optimization Problems - Camelia-Mihaela Pintea 2013-08-13

"Advances in Bio-inspired Combinatorial Optimization Problems" illustrates several recent bio-inspired efficient algorithms for solving NP-hard problems. Theoretical bio-inspired concepts and models, in particular for agents, ants and virtual robots are described. Large-scale optimization problems, for example: the Generalized Traveling Salesman Problem and the Railway Traveling Salesman Problem, are solved and their results are discussed. Some of the main concepts and models described in this book are: inner rule to guide ant search - a recent model in ant optimization, heterogeneous sensitive ants; virtual sensitive robots; ant-based techniques for static and dynamic routing problems; stigmergic collaborative agents and learning sensitive agents. This monograph is useful for researchers, students and all people interested in the recent natural computing frameworks. The reader is presumed to have knowledge of combinatorial optimization, graph theory, algorithms and programming. The book should furthermore allow readers to acquire ideas, concepts and models to use and develop new software for solving complex real-life problems.

Robot Intelligence Technology and Applications 3 - Jong-Hwan Kim 2015-04-15

This book covers all aspects of robot intelligence from perception at sensor level and reasoning at cognitive level to behavior planning at execution level for each low level segment of the machine. It also presents the technologies for cognitive reasoning, social interaction with humans, behavior generation, ability to cooperate with other robots, ambience awareness, and an artificial genome that can be passed on to other robots. These technologies are to materialize cognitive intelligence, social intelligence, behavioral intelligence, collective intelligence, ambient intelligence and genetic intelligence. The book aims at serving researchers and practitioners with a timely dissemination of the recent progress on robot intelligence technology and its applications, based on a collection of papers presented at the 3rd International Conference on Robot Intelligence Technology and Applications (RiTA), held in Beijing, China, November 6 - 8, 2014. For better readability, this edition has the total 74 papers grouped into 3 chapters: Chapter I: Ambient, Behavioral, Cognitive, Collective, and Social Robot Intelligence, Chapter II: Computational Intelligence and Intelligent Design for Advanced Robotics, Chapter III: Applications of Robot Intelligence Technology, where individual chapters, edited respectively by Peter Sincak, Hyun Myung, Jun Jo along with Weimin Yang and Jong-Hwan Kim, begin with a brief introduction written by the respective chapter editors.

Recent Advances in Soft Computing - Radek Matoušek 2017-05-20

This proceeding book contains a collection of selected accepted papers of the Mendel conference held in Brno, Czech Republic in June 2016. The proceedings book contains three chapters which present recent advances in soft computing including intelligent image processing. The Mendel conference was established in 1995 and is named after the scientist and Augustinian priest Gregor J. Mendel who discovered the famous Laws of Heredity. The main aim of the conference is to create a regular possibility for students, academics and researchers to exchange ideas

and novel research methods on a yearly basis.
Smart City 360° - Alberto Leon-Garcia 2016-06-28
This volume constitutes the thoroughly refereed post-conference proceedings of the First EAI International Summit, Smart City 360°, held in Bratislava, Slovakia and Toronto, ON, Canada, in October 2015. The 77 carefully reviewed papers include eight conferences: The Bratislava program covered the Conference on Sustainable Solutions beyond Mobility of Goods (SustainableMoG 2015), the MOBIDANUBE conference which strengthens research in the field of mobility opportunities and within Danube strategy, and the conference on Social Innovation and Community Aspects of Smart Cities (SmartCityCom 2015). In parallel the SmartCity360 Toronto included five conferences addressing urban mobility (SUMS), sustainable cities (S2CT), smart grids SGSC), wearable devices for health and wellbeing SWIT Health), and big data (BigDASC).
Nature-Inspired Algorithms and Applications - S. Balamurugan 2021-11-18
Mit diesem Buch soll aufgezeigt werden, wie von der Natur inspirierte Berechnungen eine praktische Anwendung im maschinellen Lernen finden, damit wir ein besseres Verständnis für die Welt um uns herum entwickeln. Der Schwerpunkt liegt auf der Darstellung und Präsentation aktueller Entwicklungen in den Bereichen, in denen von der Natur inspirierte Algorithmen speziell konzipiert und angewandt werden, um komplexe reale Probleme in der Datenanalyse und Mustererkennung zu lösen, und zwar durch Anwendung fachspezifischer Lösungen. Mit einer detaillierten Beschreibung verschiedener, von der Natur inspirierter Algorithmen und ihrer multidisziplinären Anwendung (beispielsweise in Maschinenbau und Elektrotechnik, beim maschinellen Lernen, in der Bildverarbeitung, beim Data Mining und in Drahtlosnetzwerken) ist dieses Buch ein praktisches Nachschlagewerk.
Advanced Intelligent Systems for Sustainable Development (AI2SD'2018) - Mostafa Ezziyyani 2019-03-06
This book includes the outcomes of the International Conference on Advanced Intelligent Systems for Sustainable Development (AI2SD-2018), held in Tangier, Morocco on July 12–14, 2018. Presenting the latest research in the field of computing sciences and information technology, it discusses new challenges and provides valuable insights into the field, the goal being to stimulate debate, and to promote closer interaction and interdisciplinary collaboration between researchers and practitioners. Though chiefly intended for researchers and practitioners in advanced information technology management and networking, the book will also be of interest to those engaged in emerging fields such as data science and analytics, big data, internet of things, smart networked systems, artificial intelligence, expert systems and cloud computing.
The Traveling Salesman Problem - David L. Applegate 2006
Presents the findings on one of the most intensely investigated subjects in computational mathematics - the travelling salesman problem. This book describes the method and computer code used to solve a range of large-scale problems, and demonstrates the interplay of applied mathematics with increasingly powerful computing platforms.
Internet and Distributed Computing Systems - Wenfeng Li 2016-09-20
This book constitutes the proceedings of the 9th International Conference on Internet and Distributed Computing Systems, IDCS 2016, held in Wuhan, China, in September 2016. The 30 full papers and 18 short papers presented in this volume were carefully reviewed and selected from 78 submissions. They were organized in topical sections named: body sensor networks and wearable devices; cloud computing and networking; distributed computing and big data; distributed scheduling and optimization; internet of things and its application; smart networked transportation and logistics; and big data and social networks.
Advances in Computer Science and Information Engineering - David Jin 2012-05-16
CSIE2012 is an integrated conference concentrating its focus on Computer Science and Information Engineering . In the proceeding, you can learn much more knowledge about Computer Science and Information Engineering of researchers from all around the world. The main role of the proceeding is to be used as an exchange pillar for researchers who are working

in the mentioned fields. In order to meet the high quality of Springer, AISC series, the organization committee has made their efforts to do the following things. Firstly, poor quality paper has been refused after reviewing course by anonymous referee experts. Secondly, periodically review meetings have been held around the reviewers about five times for exchanging reviewing suggestions. Finally, the conference organizers had several preliminary sessions before the conference. Through efforts of different people and departments, the conference will be successful and fruitful.

In Pursuit of the Traveling Salesman - William J. Cook 2014-11-09

The story of one of the greatest unsolved problems in mathematics What is the shortest possible route for a traveling salesman seeking to visit each city on a list exactly once and return to his city of origin? It sounds simple enough, yet the traveling salesman problem is one of the most intensely studied puzzles in applied mathematics—and it has defied solution to this day. In this book, William Cook takes readers on a mathematical excursion, picking up the salesman's trail in the 1800s when Irish mathematician W. R. Hamilton first defined the problem, and venturing to the furthest limits of today’s state-of-the-art attempts to solve it. He also explores its many important applications, from genome sequencing and designing computer processors to arranging music and hunting for planets. In Pursuit of the Traveling Salesman travels to the very threshold of our understanding about the nature of complexity, and challenges you yourself to discover the solution to this captivating mathematical problem.

Data Mining and Big Data - Ying Tan 2016-07-04

The LNCS volume LNCS 9714 constitutes the refereed proceedings of the International Conference on Data Mining and Big Data, DMBD 2016, held in Bali, Indonesia, in June 2016. The 57 papers presented in this volume were carefully reviewed and selected from 115 submissions. The theme of DMBD 2016 is "Serving Life with Data Science". Data mining refers to the activity of going through big data sets to look for relevant or pertinent information.The papers are organized in 10 cohesive sections covering all major topics of the research and development of data mining and big data and one Workshop on Computational Aspects of Pattern Recognition and Computer Vision.

Fuzzy Systems and Data Mining IV - A.J. Tallón-Ballesteros 2018-11-06

Big Data Analytics is on the rise in the last years of the current decade. Data are overwhelming the computation capacity of high performance servers. Cloud, grid, edge and fog computing are a few examples of the current hype. Computational Intelligence offers two faces to deal with the development of models: on the one hand, the crisp approach, which considers for every variable an exact value and, on the other hand, the fuzzy focus, which copes with values between two boundaries. This book presents 114 papers from the 4th International Conference on Fuzzy Systems and Data Mining (FSDM 2018), held in Bangkok, Thailand, from 16 to 19 November 2018. All papers were carefully reviewed by program committee members, who took into consideration the breadth and depth of the research topics that fall within the scope of FSDM. The acceptance rate was 32.85% . Offering a state-of-the-art overview of fuzzy systems and data mining, the publication will be of interest to all those whose work involves data science.

Traveling Salesman Problem - Donald Davendra 2010-12-30

This book is a collection of current research in the application of evolutionary algorithms and other optimal algorithms to solving the TSP problem. It brings together researchers with applications in Artificial Immune Systems, Genetic Algorithms, Neural Networks and Differential Evolution Algorithm. Hybrid systems, like Fuzzy Maps, Chaotic Maps and Parallelized TSP are also presented. Most importantly, this book presents both theoretical as well as practical applications of TSP, which will be a vital tool for researchers and graduate entry students in the field of applied Mathematics, Computing Science and Engineering.

Stochastic Local Search - Holger H. Hoos 2005

Stochastic local search (SLS) algorithms are among the most prominent and successful techniques for solving computationally difficult problems. Offering a systematic treatment of

SLS algorithms, this book examines the general concepts and specific instances of SLS algorithms and considers their development, analysis and application.

Genetic Algorithms and their Applications - John J. Grefenstette 2013-08-21

First Published in 1987. Routledge is an imprint of Taylor & Francis, an informa company.

Complex Systems and Dependability - Wojciech Zamojski 2012-07-11

Typical contemporary complex system is a multifaceted amalgamation of technical, information, organization, software and human (users, administrators and management) resources. Complexity of such a system comes not only from its involved technical and organizational structure but mainly from complexity of information processes that must be implemented in the operational environment (data processing, monitoring, management, etc.). In such case traditional methods of reliability analysis focused mainly on technical level are usually insufficient in performance evaluation and more innovative methods of dependability analysis must be applied which are based on multidisciplinary approach to theory, technology and maintenance of systems operating in real (and very often unfriendly) environments. This monograph presents selected new developments in such areas of dependability research as system modelling, tools and methodologies for system analysis, data security, secure system design and specific dependability aspects in specialized technical applications. Many practical cases illustrate the universal rule that complexity and multiplicity of system processes, their concurrency and their reliance on embedded intelligence (human and artificial) significantly impedes construction of strict mathematical models and calls for application of intelligent and soft computing methods.

Proceedings of the XIII International Symposium SymOrg 2012: Innovative Management and Business Performance - Maja Levi-Jakšić 2012-06-03

Intelligent Computing Theory - De-Shuang Huang 2014-07-03

This book – in conjunction with the volumes LNAI 8589 and LNBI 8590 – constitutes the refereed proceedings of the 10th International Conference on Intelligent Computing, ICIC 2014, held in Taiyuan, China, in August 2014. The 92 papers of this volume were carefully reviewed and selected from numerous submissions. The papers are organized in topical sections such as evolutionary computation and learning; swarm intelligence and optimization; machine learning; social and natural computing; neural networks; biometrics recognition; image processing; information security; virtual reality and human-computer interaction; knowledge discovery and data mining; signal processing; pattern recognition; biometric system and security for intelligent computing.

Nature-Inspired Computation and Swarm Intelligence - Xin-She Yang 2020-04-24

Nature-inspired computation and swarm intelligence have become popular and effective tools for solving problems in optimization, computational intelligence, soft computing and data science. Recently, the literature in the field has expanded rapidly, with new algorithms and applications emerging. Nature-Inspired Computation and Swarm Intelligence: Algorithms, Theory and Applications is a timely reference giving a comprehensive review of relevant state-of-the-art developments in algorithms, theory and applications of nature-inspired algorithms and swarm intelligence. It reviews and documents the new developments, focusing on nature-inspired algorithms and their theoretical analysis, as well as providing a guide to their implementation. The book includes case studies of diverse real-world applications, balancing explanation of the theory with practical implementation. Nature-Inspired Computation and Swarm Intelligence: Algorithms, Theory and Applications is suitable for researchers and graduate students in computer science, engineering, data science, and management science, who want a comprehensive review of algorithms, theory and implementation within the fields of nature inspired computation and swarm intelligence. Introduces nature-inspired algorithms and their fundamentals, including: particle swarm optimization, bat algorithm, cuckoo search, firefly algorithm, flower pollination algorithm, differential evolution and genetic algorithms as well as multi-objective optimization algorithms and others Provides a theoretical foundation and

analyses of algorithms, including: statistical theory and Markov chain theory on the convergence and stability of algorithms, dynamical system theory, benchmarking of optimization, no-free-lunch theorems, and a generalized mathematical framework Includes a diversity of case studies of real-world applications: feature selection, clustering and classification, tuning of restricted Boltzmann machines, travelling salesman problem, classification of white blood cells, music generation by artificial intelligence, swarm robots, neural networks, engineering designs and others

Proceedings of the 11th Joint International Computer Conference -

Computational Intelligence in Information Systems - Somnuk Phon-Amnuaisuk 2016-10-25

This book constitutes the Proceedings of the Computational Intelligence in Information Systems conference (CIIS 2016), held in Brunei, November 18–20, 2016. The CIIS conference provides a platform for researchers to exchange the latest ideas and to present new research advances in general areas related to computational intelligence and its applications. The 26 revised full papers presented in this book have been carefully selected from 62 submissions. They cover a wide range of topics and application areas in computational intelligence and informatics.

Operationalizing Multi-Cloud Environments - Rajganesh Nagarajan 2021-10-19

This book discusses various aspects of the multi-cloud paradigm. The initial portion of the book focuses on the motivations for the industry to embrace a multi-cloud option and the distinct business, technology, and user cases of multi-cloud implementations. The middle part of the book explains the challenges of setting up and sustaining multi-cloud environments. The latter portion focuses on the next-generation technologies and tools along with multi-cloud platforms, processes, patterns, and practices. The final segment of the book is dedicated for cloud brokerage systems. The various traits and tenets of cloud brokerage services especially for accomplishing cloud intermediation, integration, orchestration, governance, security, management, configuration, etc. are explained in detail. The book also clearly articulates how to have intelligent brokers.

Data-Centric Business and Applications - Tamara Radivilova 2020-06-20

This book addresses the challenges and opportunities of information/data processing and management. It also covers a range of methods, techniques and strategies for making it more efficient, approaches to increasing its usage, and ways to minimize information/data loss while improving customer satisfaction. Information and Communication Technologies (ICTs) and the Service Systems associated with them have had an enormous impact on businesses and our day-to-day lives over the past three decades, and continue to do so. This development has led to the emergence of new application areas and relevant disciplines, which in turn present new challenges and opportunities for service system usage. The book provides practical insights into various aspects of ICT technologies for service systems: Techniques for information/data processing and modeling in service systems Strategies for the provision of information/data processing and management Methods for collecting and analyzing information/data Applications, benefits, and challenges of service system implementation Solutions to increase the performance of various service systems using the latest ICT technologies

Ant Colony Optimization - Marco Dorigo 2004-06-04

An overview of the rapidly growing field of ant colony optimization that describes theoretical findings, the major algorithms, and current applications. The complex social behaviors of ants have been much studied by science, and computer scientists are now finding that these behavior patterns can provide models for solving difficult combinatorial optimization problems. The attempt to develop algorithms inspired by one aspect of ant behavior, the ability to find what computer scientists would call shortest paths, has become the field of ant colony optimization (ACO), the most successful and widely recognized algorithmic technique based on ant behavior. This book presents an overview of this rapidly growing field, from its theoretical inception to practical applications, including descriptions of many available ACO algorithms and their uses. The book first describes the

translation of observed ant behavior into working optimization algorithms. The ant colony metaheuristic is then introduced and viewed in the general context of combinatorial optimization. This is followed by a detailed description and guide to all major ACO algorithms and a report on current theoretical findings. The book surveys ACO applications now in use, including routing, assignment, scheduling, subset, machine learning, and bioinformatics problems. AntNet, an ACO algorithm designed for the network routing problem, is described in detail. The authors conclude by summarizing the progress in the field and outlining future research directions. Each chapter ends with bibliographic material, bullet points setting out important ideas covered in the chapter, and exercises. Ant Colony Optimization will be of interest to academic and industry researchers, graduate students, and practitioners who wish to learn how to implement ACO algorithms.

International Joint Conference SOCO'14-CISIS'14-ICEUTE'14 - José Gaviria de la Puerta 2014-06-07

This volume of Advances in Intelligent and Soft Computing contains accepted papers presented at SOCO 2014, CISIS 2014 and ICEUTE 2014, all conferences held in the beautiful and historic city of Bilbao (Spain), in June 2014. Soft computing represents a collection or set of computational techniques in machine learning, computer science and some engineering disciplines, which investigate, simulate, and analyze very complex issues and phenomena. After a through peer-review process, the 9th SOCO 2014 International Program Committee selected 31 papers which are published in these conference proceedings. In this relevant edition a special emphasis was put on the organization of special sessions. One special session was organized related to relevant topics as: Soft Computing Methods in Manufacturing and Management Systems. The aim of the 7th CISIS 2014 conference is to offer a meeting opportunity for academic and industry-related researchers belonging to the various, vast communities of Computational Intelligence, Information Security, and Data Mining. The need for intelligent, flexible behaviour by large, complex systems, especially in mission-critical domains, is intended to be the catalyst and the aggregation stimulus for the overall event. After a through peer-review process, the CISIS 2014 International Program Committee selected 23 papers and the 5th ICEUTE 2014 International Program Committee selected 2 papers which are published in these conference proceedings as well.

International Advanced Researches & Engineering Congress 2017 Proceeding Book - Recep HALICIOGLU 2017-12-29

INTERNATIONAL WORKSHOPS (at IAREC'17) (This book inclueds English (main) and Turkish languages) International Workshop on Mechanical Engineering International Workshop on Mechatronics Engineering International Workshop on Energy Systems Engineering International Workshop on Automotive Engineering and Aerospace Engineering International Workshop on Material Engineering International Workshop on Manufacturing Engineering International Workshop on Physics Engineering International Workshop on Electrical and Electronics Engineering International Workshop on Computer Engineering and Software Engineering International Workshop on Chemical Engineering International Workshop on Textile Engineering International Workshop on Architecture International Workshop on Civil Engineering International Workshop on Geomatics Engineering International Workshop on Industrial Engineering International Workshop on Food Engineering International Workshop on Aquaculture Engineering International Workshop on Agriculture Engineering International Workshop on Mathematics Engineering International Workshop on Bioengineering Engineering International Workshop on Biomedical Engineering International Workshop on Genetic Engineering International Workshop on Environmental Engineering International Workshop on Other Engineering Science

Particle Swarm Optimization with Applications - Pakize Erdogmus 2018-05-30

This book is intended to gather recent studies on particle swarm optimization (PSO). In this book, readers can find the recent theoretical developments and applications on PSO algorithm. From the theoretical aspect, PSO has

preserved its popularity because of the fast convergence rate, and a lot of hybrid algorithms have recently been developed in order to increase the performance of the algorithm. At the same time, PSO has also been used to solve different kinds of engineering optimization problems. In this book, a reader can find engineering applications of PSO, such as environmental economic dispatch and grid computing.

Application of Intelligent Systems in Multi-modal Information Analytics - Vijayan Sugumaran 2021-04-16

This book provides comprehensive coverage of the latest advances and trends in information technology, science and engineering. Specifically, it addresses a number of broad themes, including multi-modal informatics, data mining, agent-based and multi-agent systems for health and education informatics, which inspire the development of intelligent information technologies. The contributions cover a wide range of topics such as AI applications and innovations in health and education informatics; data and knowledge management; multi-modal application management; and web/social media mining for multi-modal informatics. Outlining promising future research directions, the book is a valuable resource for students, researchers and professionals, and a useful reference guide for newcomers to the field. This book is a compilation of the papers presented in the 2021 International Conference on Multi-modal Information Analytics, held in Huhehaote, China, on April 23–24, 2021.

Advances in Swarm Intelligence - Ying Tan 2014-09-03

This book and its companion volume, LNCS vol. 8794 and 8795 constitute the proceedings of the 5th International Conference on Swarm Intelligence, ICSI 2014, held in Hefei, China in October 2014. The 107 revised full papers presented were carefully reviewed and selected from 198 submissions. The papers are organized in 18 cohesive sections, 3 special sessions and one competitive session covering all major topics of swarm intelligence research and development such as novel swarm-based search methods; novel optimization algorithm; particle swarm optimization; ant colony optimization for travelling salesman problem; artificial bee colony algorithms; artificial immune system; evolutionary algorithms; neural networks and fuzzy methods; hybrid methods; multi-objective optimization; multi-agent systems; evolutionary clustering algorithms; classification methods; GPU-based methods; scheduling and path planning; wireless sensor networks; power system optimization; swarm intelligence in image and video processing; applications of swarm intelligence to management problems; swarm intelligence for real-world application.

Hybrid Intelligent Systems - Ajith Abraham 2015-12-08

This book is devoted to the hybridization of intelligent systems which is a promising research field of modern computational intelligence concerned with the development of the next generation of intelligent systems. This Volume contains the papers presented in the Fifteenth International conference on Hybrid Intelligent Systems (HIS 2015) held in Seoul, South Korea during November 16-18, 2015. The 26 papers presented in this Volume were carefully reviewed and selected from 90 paper submissions. The Volume will be a valuable reference to researchers, students and practitioners in the computational intelligence field.

Artificial Intelligence and Evolutionary Algorithms in Engineering Systems - L. Padma Suresh 2014-11-01

The book is a collection of high-quality peer-reviewed research papers presented in Proceedings of International Conference on Artificial Intelligence and Evolutionary Algorithms in Engineering Systems (ICAEES 2014) held at Noorul Islam Centre for Higher Education, Kumaracoil, India. These research papers provide the latest developments in the broad area of use of artificial intelligence and evolutionary algorithms in engineering systems. The book discusses wide variety of industrial, engineering and scientific applications of the emerging techniques. It presents invited papers from the inventors/originators of new applications and advanced technologies.

Cognitive Big Data Intelligence with a Metaheuristic Approach - Sushruta Mishra 2021-11-09

Cognitive Big Data Intelligence with a Metaheuristic Approach presents an exact and

compact organization of content relating to the latest metaheuristics methodologies based on new challenging big data application domains and cognitive computing. The combined model of cognitive big data intelligence with metaheuristics methods can be used to analyze emerging patterns, spot business opportunities, and take care of critical process-centric issues in real-time. Various real-time case studies and implemented works are discussed in this book for better understanding and additional clarity. This book presents an essential platform for the use of cognitive technology in the field of Data Science. It covers metaheuristic methodologies that can be successful in a wide variety of problem settings in big data frameworks. Provides a unique opportunity to present the work on the state-of-the-art of metaheuristics approach in the area of big data processing developing automated and intelligent models Explains different, feasible applications and case studies where cognitive computing can be successfully implemented in big data analytics using metaheuristics algorithms Provides a snapshot of the latest advances in the contribution of metaheuristics frameworks in cognitive big data applications to solve optimization problems