Handbook Of Combinatorial Optimization Vol A Supplement 1st Edition

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Handbook of Combinatorial Optimization - Ding-Zhu Du 2006-08-18
This is a supplementary volume to the major three-volume Handbook of Combinatorial Optimization set. It can also be regarded as a stand-alone volume presenting chapters dealing with various aspects of the subject in a self-contained way.
Optimal Interconnection Trees in the Plane - Marcus Brazil 2015-04-13
This book explores fundamental aspects of geometric network optimisation with applications to a variety of real world problems. It presents, for the first time in the literature, a cohesive mathematical framework within which the properties of such optimal interconnection networks can be understood across a wide range of metrics and cost functions. The book makes use of this mathematical theory to develop efficient algorithms for constructing such networks, with an emphasis on exact solutions. Marcus Brazil and Martin Zachariasen focus principally on the geometric structure of optimal interconnection networks, also known as Steiner trees, in the plane. They show readers how an understanding of this structure can lead to practical exact algorithms for constructing such trees. The book also details numerous breakthroughs in this area over the past 20 years, features clearly written proofs, and is supported by 135 colour and 15 black and white figures. It will help graduate students, working mathematicians, engineers and computer scientists to understand the principles required for designing interconnection networks in the plane that are as cost efficient as possible.
Learning and Intelligent Optimization - Panos M. Pardalos 2014-07-31
This book constitutes the thoroughly refereed post-conference proceedings of the 8th International Conference on Learning and Optimization, LION 8, which was held in Gainesville, FL, USA, in February 2014. The

33 contributions presented were carefully reviewed and selected for inclusion in this book. A large variety of topics are covered, such as algorithm configuration; multiobjective optimization; metaheuristics; graphs and networks; logistics and transportation; and biomedical applications.

Handbook on Modelling for Discrete Optimization - Gautam M. Appa 2006-08-18

This book aims to demonstrate and detail the pervasive nature of Discrete Optimization. The handbook couples the difficult, critical-thinking aspects of mathematical modeling with the hot area of discrete optimization. It is done with an academic treatment outlining the state-of-the-art for researchers across the domains of the Computer Science, Math Programming, Applied Mathematics, Engineering, and Operations Research. The book utilizes the tools of mathematical modeling, optimization, and integer programming to solve a broad range of modern problems.

WALCOM: Algorithms and Computation - Sheung-Hung Poon 2017-02-18

This book constitutes the proceedings of the 11th International Workshop on Algorithms and Computation, WALCOM 2017, held in Hsinchu, Taiwan, in March 2017. The 35 full papers presented together with three invited talks were carefully reviewed and selected from 83 submissions. The papers are organized in topical sections on invited talks; computational geometry; combinatorial optimization; graph drawing; graph algorithms; space-efficient algorithms; computational complexity; approximation algorithms.

Learning and Intelligent Optimization - Vittorio Maniezzo 2008-12-17

This volume collects the accepted papers presented at the Learning and Intelligent OptimizatioN conference (LION 2007 II) held December 8–12, 2007, in Trento, Italy. The motivation for the meeting is related to the current explosion in the number and variety of heuristic algorithms for hard optimization problems, which raises - merous interesting and challenging issues. Practitioners are confronted with the b- den of selecting the most appropriate method, in many cases through an expensive algorithm configuration and parameter-tuning process, and subject to a steep learning curve. Scientists seek theoretical insights and demand a sound experimental meth- ology for evaluating algorithms and assessing strengths and weaknesses. A necessary prerequisite for this effort is a clear separation between the algorithm and the expe- menter, who, in too many cases, is "in the loop" as a crucial intelligent learning c- ponent. Both issues are related to designing and engineering ways of "learning" about the performance of different techniques, and ways of using memory about algorithm behavior in the past to improve performance in the future. Intelligent learning schemes for mining the knowledge obtained from different runs or during a single run can - prove the algorithm development and design process and simplify the applications of high-performance optimization methods. Combinations of algorithms can further improve the robustness and performance of the individual components provided that sufficient knowledge of the relationship between problem instance characteristics and algorithm performance is obtained.

Research in the Decision Sciences for Global Business - European Decision European Decision Sciences Institute 2015

The papers in Common Disciplines that Separate Us

consider classic problems in decision sciences through new lenses, reflecting the crucial role of local contexts in a globally connected and standardized world. Presented at the Fourth Annual Conference of the European Decision Sciences Institute (EDSI) in 2013, this important research embraces the duality of globally determined local contexts, offering new insights into decision-making in all venues and sectors of society. This new volume's papers focus on optimizing decision-making related to: Strengthening national economic competitiveness Reforming the public sector and higher education Deploying information technology more effectively throughout government Making healthcare policy that achieves better outcomes at lower cost Analyzing social networks Improving processes via data visualization, modeling, and simulation Gaining more value from enterprise business intelligence Offshoring, nearshoring, "right shoring, " and other key manufacturing decisions Improving supply chain performance And much more.--

Max-linear Systems: Theory and Algorithms - Peter Butkovič 2010-08-05

Recent years have seen a significant rise of interest in max-linear theory and techniques. Specialised international conferences and seminars or special sessions devoted to max-algebra have been organised. This book aims to provide a first detailed and self-contained account of linear-algebraic aspects of max-algebra for general (that is both irreducible and reducible) matrices. Among the main features of the book is the presentation of the fundamental max-algebraic theory (Chapters 1-4), often scattered in research articles, reports and theses, in one place in a comprehensive and unified form. This presentation is made with all proofs and in full generality (that is for both irreducible and reducible matrices). Another feature is the presence of advanced material (Chapters 5-10), most of which has not appeared in a book before and in many cases has not been published at all. Intended for a wide-ranging readership, this book will be useful for anyone with basic mathematical knowledge (including undergraduate students) who wish to learn fundamental max-algebraic ideas and techniques. It will also be useful for researchers working in tropical geometry or idempotent analysis.

Integrated Methods for Optimization - John N. Hooker 2011-11-13

The first edition of Integrated Methods for Optimization was published in January 2007. Because the book covers a rapidly developing field, the time is right for a second edition. The book provides a unified treatment of optimization methods. It brings ideas from mathematical programming (MP), constraint programming (CP), and global optimization (GO)into a single volume. There is no reason these must be learned as separate fields, as they normally are, and there are three reasons they should be studied together. (1) There is much in common among them intellectually, and to a large degree they can be understood as special cases of a single underlying solution technology. (2) A growing literature reports how they can be profitably integrated to formulate and solve a wide range of problems. (3) Several software packages now incorporate techniques from two or more of these fields. The book provides a unique resource for graduate students and practitioners who want a well-rounded background in optimization methods within a single course of study. Engineering students are a particularly large potential audience,

because engineering optimization problems often benefit from a combined approach—particularly where design, scheduling, or logistics are involved. The text is also of value to those studying operations research, because their educational programs rarely cover CP, and to those studying computer science and artificial intelligence (AI), because their curric ula typically omit MP and GO. The text is also useful for practitioners in any of these areas who want to learn about another, because it provides a more concise and accessible treatment than other texts. The book can cover so wide a range of material because it focuses on ideas that arerelevant to the methods used in general-purpose optimization and constraint solvers. The book focuses on ideas behind the methods that have proved useful in general-purpose optimization and constraint solvers, as well as integrated solvers of the present and foreseeable future. The second edition updates results in this area and includes several major new topics: Background material in linear, nonlinear, and dynamic programming. Network flow theory, due to its importance in filtering algorithms. A chapter on generalized duality theory that more explicitly develops a unifying primal-dual algorithmic structure for optimization methods. An extensive survey of search methods from both MP and AI, using the primal-dual framework as an organizing principle. Coverage of several additional global constraints used in CP solvers. The book continues to focus on exact as opposed to heuristic methods. It is possible to bring heuristic methods into the unifying scheme described in the book, and the new edition will retain the brief discussion of how this might be done.

Handbook of Graph Theory - Jonathan L. Gross 2003-12-29

The Handbook of Graph Theory is the most comprehensive single-source guide to graph theory ever published. Best-selling authors Jonathan Gross and Jay Yellen assembled an outstanding team of experts to contribute overviews of more than 50 of the most significant topics in graph theory-including those related to algorithmic and optimization approach

Network Analysis - Ulrik Brandes 2005-02-02

‘Network’ is a heavily overloaded term, so that ‘network analysis’ means different things to different people. Specific forms of network analysis are used in the study of diverse structures such as the Internet, interlocking directorates, transportation systems, epidemic spreading, metabolic pathways, the Web graph, electrical circuits, project plans, and so on. There is, however, a broad methodological foundation which is quickly becoming a prerequisite for researchers and practitioners working with network models. From a computer science perspective, network analysis is applied graph theory. Unlike standard graph theory books, the content of this book is organized according to methods for specific levels of analysis (element, group, network) rather than abstract concepts like paths, matchings, or spanning subgraphs. Its topics therefore range from vertex centrality to graph clustering and the evolution of scale-free networks. In 15 coherent chapters, this monograph-like tutorial book introduces and surveys the concepts and methods that drive network analysis, and is thus the first book to do so from a methodological perspective independent of specific application areas.

Cell Formation in Industrial Engineering - Boris Goldengorin 2013-08-23

This book focuses on a development of optimal, flexible, and efficient models and algorithms for cell formation

in group technology. Its main aim is to provide a reliable tool that can be used by managers and engineers to design manufacturing cells based on their own preferences and constraints imposed by a particular manufacturing system. This tool could potentially lower production costs by minimizing other costs in a number of areas, thereby increasing profit in a manufacturing system. In the volume, the cell formation problem is considered in a systematic and formalized way, and several models are proposed, both heuristic and exact. The models are based on general clustering problems, and are flexible enough to allow for various objectives and constraints. The authors also provide results of numerical experiments involving both artificial data from academic papers in the field and real manufacturing data to certify the appropriateness of the models proposed. The book was intended to suit the broadest possible audience, and thus all algorithmic details are given in a detailed description with multiple numerical examples and informal explanations are provided for the theoretical results. In addition to managers and industrial engineers, this book is intended for academic researchers and students. It will also be attractive to many theoreticians, since it addresses many open problems in computer science and bioinformatics.

Handbook of Combinatorial Optimization - Ding-Zhu Du 2004-12-17

This is a supplementary volume to the major three-volume Handbook of Combinatorial Optimization set. It can also be regarded as a stand-alone volume presenting chapters dealing with various aspects of the subject in a self-contained way.

Models, Algorithms, and Technologies for Network Analysis - Boris I. Goldengorin 2013-09-21

This volume contains two types of papers—a selection of contributions from the “Second International Conference in Network Analysis” held in Nizhny Novgorod on May 7–9, 2012, and papers submitted to an "open call for papers" reflecting the activities of LATNA at the Higher School for Economics. This volume contains many new results in modeling and powerful algorithmic solutions applied to problems in • vehicle routing • single machine scheduling • modern financial markets • cell formation in group technology • brain activities of left- and right-handers • speeding up algorithms for the maximum clique problem • analysis and applications of different measures in clustering The broad range of applications that can be described and analyzed by means of a network brings together researchers, practitioners, and other scientific communities from numerous fields such as Operations Research, Computer Science, Transportation, Energy, Social Sciences, and more. The contributions not only come from different fields, but also cover a broad range of topics relevant to the theory and practice of network analysis. Researchers, students, and engineers from various disciplines will benefit from the state-of-the-art in models, algorithms, technologies, and techniques presented.

Combinatorial Optimization and Applications - Guohui Lin 2012-07-26

This book constitutes the refereed proceedings of the 6th International Conference, COCOA 2012, held in Banff, Alberta, Canada, in August 2012. The 33 revised papers including one invited talk and one keynote talk were carefully reviewed and selected from 57 submissions. The papers are focused to theoretical results and also on recent works on experimental and applied research of general algorithmic interest.

Smart Operation for Power Distribution Systems - Daniel Pinheiro Bernardon 2018-07-27

This book discusses the operation of electrical distribution systems, presenting contemporary concepts and applications with a focus on integration for smart operation and grids. The authors address the main concepts and techniques of active management of smart electrical distribution system operation, including state estimation, self healing, volt-var control, protection systems, operations planning, and commercial and emergency dispatch. From each topic, an overview of concepts are given together with examples related to the management of these systems, thus providing a valuable resource for the design, implementation and management of efficient and truly sustainable smart systems.

Modelling, Computation and Optimization in Information Systems and Management Sciences - Le Thi Hoai An 2008-10-25

Constitutes the refereed proceedings of the Second International Conference MCO 2008, Metz, France, September 2008. This title organizes the papers in topical sections on optimization and decision making; data mining theory, systems and applications; computer vision and image processing; and computer communications and networks.

Handbook of Combinatorial Optimization - Ding-Zhu Du 2013-03-14

Combinatorial (or discrete) optimization is one of the most active fields in the interface of operations research, computer science, and applied math ematics. Combinatorial optimization problems arise in various applications, including communications network design, VLSI design, machine vision, air line crew scheduling, corporate planning, computer-aided design and man ufacturing, database query design, cellular telephone frequency assignment, constraint directed reasoning, and computational biology. Furthermore, combinatorial optimization problems occur in many diverse areas such as linear and integer programming, graph theory, artificial intelligence, and number theory. All these problems, when formulated mathematically as the minimization or maximization of a certain function defined on some domain, have a commonality of discreteness. Historically, combinatorial optimization starts with linear programming. Linear programming has an entire range of important applications including production planning and distribution, personnel assignment, finance, alloca tion of economic resources, circuit simulation, and control systems. Leonid Kantorovich and Tjalling Koopmans received the Nobel Prize (1975) for their work on the optimal allocation of resources. Two important discover ies, the ellipsoid method (1979) and interior point approaches (1984) both provide polynomial time algorithms for linear programming. These algo rithms have had a profound effect in combinatorial optimization. Many polynomial-time solvable combinatorial optimization problems are special cases of linear programming (e.g. matching and maximum flow). In addi tion, linear programming relaxations are often the basis for many approxi mation algorithms for solving NP-hard problems (e.g. dual heuristics).

Algorithms - ESA 2002 - Rolf Möhring 2003-08-02

This volume contains the 74 contributed papers and abstracts of 4 of the 5 invited talks presented at the 10th Annual European Symposium on Algorithms (ESA 2002), held at the University of Rome “La Sapienza”, Rome, Italy, 17-21 September, 2002. For the ?rst time, ESA had

two tracks, with separate program committees, which dealt respectively with: – the design and mathematical analysis of algorithms (the “Design and An- ysis” track); – real-world applications, engineering and experimental analysis of algorithms (the “Engineering and Applications” track). Previous ESAs were held in Bad Honnef, Germany (1993); Utrecht, The Neth- lands (1994); Corfu, Greece (1995); Barcelona, Spain (1996); Graz, Austria (1997); Venice, Italy (1998); Prague, Czech Republic (1999); Saarbruc ¨ken, Ger- ? many (2000), and Arhus, Denmark (2001). The predecessor to the Engineering and Applications track of ESA was the Annual Workshop on Algorithm En- neering (WAE). Previous WAEs were held in Venice, Italy (1997), Saarbruc ¨ken, ? Germany (1998), London, UK (1999), Saarbru čken, Germany (2000), and Arhus, Denmark (2001). The proceedings of the previous ESAs were published as Springer LNCS volumes 726, 855, 979, 1284, 1461, 1643, 1879, and 2161. The proceedings of WAEs from 1999 onwards were published as Springer LNCS volumes 1668, 1982, and 2161.

Exponential Time Algorithms - Serge Gaspers 2010-02

This book studies exponential time algorithms for NP-hard problems. In this modern area, the aim is to design algorithms for combinatorially hard problems that execute provably faster than a brute-force enumeration of all candidate solutions. After an introduction and survey of the field, the text focuses first on the design and especially the analysis of branching algorithms. The analysis of these algorithms heavily relies on measures of the instances, which aim at capturing the structure of the instances, not merely their size. This makes them more appropriate to quantify the progress an algorithm makes in the process of solving a problem. Expanding the methodology to design exponential time algorithms, new techniques are then presented. Two of them combine treewidth based algorithms with branching or enumeration algorithms. Another one is the iterative compression technique, prominent in the design of parameterized algorithms, and adapted here to the design of exponential time algorithms. This book assumes basic knowledge of algorithms and should serve anyone interested in exactly solving hard problems.

Idempotent Mathematics and Mathematical Physics - Grigoriĭ Lazarevich Litvinov 2005

Idempotent mathematics is a rapidly developing new branch of the mathematical sciences that is closely related to mathematical physics. The existing literature on the subject is vast and includes numerous books and journal papers. A workshop was organized at the Erwin Schrodinger Institute for Mathematical Physics (Vienna) to give a snapshot of modern idempotent mathematics. This volume contains articles stemming from that event. Also included is an introductory paper by G. Litvinov and additional invited contributions. The resulting volume presents a comprehensive overview of the state of the art. It is suitable for graduate students and researchers interested in idempotent mathematics and tropical mathematics.

Dynamics of Information Systems: Mathematical Foundations - Alexey Sorokin 2012-08-04

This book presents recent developments and results found by participants of the Third International Conference on the Dynamics of Information Systems, which took place at the University of Florida, Gainesville FL, USA on February 16-18, 2011. The purpose of this conference was to bring together scientists and engineers from industry, government, and universities to exchange

knowledge and results in a broad range of topics relevant to the theory and practice of the dynamics of information systems. Dynamics of Information plays an increasingly critical role in our society. The influence of information on social, biological, genetic, and military systems must be better understood to achieve large advances in the capability and understanding of these systems. Applications are widespread and include: research in evolutionary theory, optimization of information workflow, military applications, climate networks, collision work, and much more. Dynamics of Information plays an increasingly critical role in our society. The influence of information on social, biological, genetic, and military systems must be better understood to achieve large advances in the capability and understanding of these systems. Applications are widespread and include: research in evolutionary theory, optimization of information workflow, military applications, climate networks, collision work, and much more.

Combinatorial Optimization and Applications - Weifan Wang 2011-07-20

This book constitutes the refereed proceedings of the 5th International Conference on Combinatorial Optimization and Applications, COCOA 2011, held in Zhangjiajie, China, in August 2011. The 43 revised full papers were carefully reviewed and selected from 65 submissions. The papers cover a broad range of topics in combinatorial optimization and applications focussing on experimental and applied research of general algorithmic interest and research motivated by real-world problems.

FSTTCS 2006: Foundations of Software Technology and Theoretical Computer Science - S. Arun-Kumar 2006-11-30

This book constitutes the refereed proceedings of the 26th International Conference on the Foundations of Software Technology and Theoretical Computer Science, FSTTCS 2006, held in Kolkata, India, in December 2006. It contains 38 papers that cover a broad variety of current topics from the theory of computing, ranging from formal methods, discrete mathematics, complexity theory, and automata theory to theoretical computer science in general.

Computer Science – Theory and Applications - Alexander S. Kulikov 2016-06-02

This book constitutes the proceedings of the 11th International Computer Science Symposium in Russia, CSR 2016, held in St. Petersburg, Russia, in June 2016. The 28 full papers presented in this volume were carefully reviewed and selected from 71 submissions. In addition the book contains 4 invited lectures. The scope of the proposed topics is quite broad and covers a wide range of areas such as: include, but are not limited to: algorithms and data structures; combinatorial optimization; constraint solving; computational complexity; cryptography; combinatorics in computer science; formal languages and automata; computational models and concepts; algorithms for concurrent and distributed systems, networks; proof theory and applications of logic to computer science; model checking; automated reasoning; and deductive methods.

Networking for Big Data - Shui Yu 2015-07-28

Networking for Big Data supplies an unprecedented look at cutting-edge research on the networking and communication aspects of Big Data. Starting with a comprehensive introduction to Big Data and its networking issues, it offers deep technical coverage of both theory and applications. The book is divided into four sections: introduction to Big Data, networking

theory and design for Big Data, networking security for Big Data, and platforms and systems for Big Data applications. Focusing on key networking issues in Big Data, the book explains network design and implementation for Big Data. It examines how network topology impacts data collection and explores Big Data storage and resource management. Addresses the virtual machine placement problem Describes widespread network and information security technologies for Big Data Explores network configuration and flow scheduling for Big Data applications Presents a systematic set of techniques that optimize throughput and improve bandwidth for efficient Big Data transfer on the Internet Tackles the trade-off problem between energy efficiency and service resiliency The book covers distributed Big Data storage and retrieval as well as security, trust, and privacy protection for Big Data collection, storage, and search. It discusses the use of cloud infrastructures and highlights its benefits to overcome the identified issues and to provide new approaches for managing huge volumes of heterogeneous data. The text concludes by proposing an innovative user data profile-aware policy-based network management framework that can help you exploit and differentiate user data profiles to achieve better power efficiency and optimized resource management.

Parameterized and Exact Computation - Hans L. Bodlaender 2006-09-12

Here are the refereed proceedings of the Second International Workshop on Parameterized and Exact Computation, IWPEC 2006, held in the context of the combined conference ALGO 2006. The book presents 23 revised full papers together with 2 invited lectures. Coverage includes research in all aspects of parameterized and exact computation and complexity, including new techniques for the design and analysis of parameterized and exact algorithms, parameterized complexity theory, and more.

Assignment Problems, Revised Reprint - Rainer Burkard 2012-10-31

Assignment Problems is a useful tool for researchers, practitioners and graduate students. In 10 self-contained chapters, it provides a comprehensive treatment of assignment problems from their conceptual beginnings through present-day theoretical, algorithmic and practical developments. The topics covered include bipartite matching algorithms, linear assignment problems, quadratic assignment problems, multi-index assignment problems and many variations of these. Researchers will benefit from the detailed exposition of theory and algorithms related to assignment problems, including the basic linear sum assignment problem and its variations. Practitioners will learn about practical applications of the methods, the performance of exact and heuristic algorithms, and software options. This book also can serve as a text for advanced courses in areas related to discrete mathematics and combinatorial optimisation. The revised reprint provides details on a recent discovery related to one of Jacobi's results, new material on inverse assignment problems and quadratic assignment problems, and an updated bibliography.

Structural Information and Communication Complexity - Andrzej Pelc 2005-05-17

SIROCCO 2005 was the twelfth in this series, held in Mont Saint-Michel, France, May 24 26, 2005.

Computing and Combinatorics - Kyung-Yong Chwa 2004-11-02

Thepapersinthisvolumewereselectedforpresentationatthe10thInternational Computing and Combinatorics Conference

(COCOON 2004), held on August 17–20, 2004 in Jeju Island, Korea. Previous meetings were held in Xi'an (1995), HongKong(1996),Shanghai(1997),Taipei(1998),Tokyo(1999),Sydney(2000), Guilin (2001), Singapore (2002), and Big Sky (2003). In response to the call for papers, 109 extended abstracts were submitted from 23 countries, of which 46 were accepted. The submitted papers were from Belgium (1), Canada (5), China (6), France (1), Germany (6), Hong Kong (8), India (6), Iran (1), Ireland (1), Israel (4), Italy (2), Japan (17), Korea (23), Mexico (3), New Zealand (1), Poland(1), Russia (1), Singapore (5), Sweden (2), Switzerland (3), Taiwan (2), the UK (1), and the USA (9). Each paper was evaluated by at least three program committee members, with the assistance of referees, as indicated by the referee list found in these proceedings. There were many more acceptable papers than there was space available in the conference schedule, and the program committee's task was extremely di?cult. In addition to selected papers, the conference also included threeinvitedpresentationsbyLarsArge,JeongHanKim,andKokichiSugihara. We thank all program committee members and their referees for their - cellent work, especially given the demanding time constraints; they gave the conference its distinctive character. We thank all who submitted papers for c- sideration: they all contributed to the high quality of the conference. Finally,wethankallthepeoplewhoworkedhardtoputinplacethelogistical arrangements of the conference – our colleagues and our graduate students. It is their hard work that made the conference possible and enjoyable.

Constraint Programming and Large Scale Discrete Optimization - Eugene C. Freuder 2001-01-01

Constraint programming has become an important general approach for solving hard combinatorial problems that occur in a number of application domains, such as scheduling and configuration. This volume contains selected papers from the workshop on Constraint Programming and Large Scale Discrete Optimization held at DIMACS. It gives a sense of state-of-the-art research in this field, touching on many of the important issues that are emerging and giving an idea of the major current trends. Topics include new strategies for local search, multithreaded constraint programming, specialized constraints that enhance consistency processing, fuzzy representations, hybrid approaches involving both constraint programming and integer programming, and applications to scheduling problems in domains such as sports scheduling and satellite scheduling.

LATIN 2012: Theoretical Informatics - David Fernández-Baca 2012-03-30

This book constitutes the proceedings of the 10th Latin American Symposium on Theoretical Informatics, LATIN 2012, held in Arequipa, Peru, in April 2012. The 55 papers presented in this volume were carefully reviewed and selected from 153 submissions. The papers address a variety of topics in theoretical computer science with a certain focus on algorithms, automata theory and formal languages, coding theory and data compression, algorithmic graph theory and combinatorics, complexity theory, computational algebra, computational biology, computational geometry, computational number theory, cryptography, theoretical aspects of databases and information retrieval, data structures, networks, logic in computer science, machine learning, mathematical programming, parallel and distributed computing, pattern

matching, quantum computing and random structures.

Guide to Information Sources in Mathematics and Statistics - Martha A. Tucker 2004

Publisher description: This book is a reference for librarians, mathematicians, and statisticians involved in college and research level mathematics and statistics in the 21st century. Part I is a historical survey of the past 15 years tracking this huge transition in scholarly communications in mathematics. Part II of the book is the bibliography of resources recommended to support the disciplines of mathematics and statistics. These resources are grouped by material type. Publication dates range from the 1800's onwards. Hundreds of electronic resources-some online, both dynamic and static, some in fixed media, are listed among the paper resources. A majority of listed electronic resources are free.

Algorithmics of Large and Complex Networks - Jürgen Lerner 2009-07-02

A state-of-the-art survey that reports on the progress made in selected areas of this important and growing field, aiding the analysis of existing networks and the design of new and more efficient algorithms for solving various problems on these networks.

Stochastic Programming - Horand Gassmann 2013

This book shows the breadth and depth of stochastic programming applications. All the papers presented here involve optimization over the scenarios that represent possible future outcomes of the uncertainty problems. The applications, which were presented at the 12th International Conference on Stochastic Programming held in Halifax, Nova Scotia in August 2010, span the rich field of uses of these models. The finance papers discuss such diverse problems as longevity risk management of individual investors, personal financial planning, intertemporal surplus management, asset management with benchmarks, dynamic portfolio management, fixed income immunization and racetrack betting. The production and logistics papers discuss natural gas infrastructure design, farming Atlantic salmon, prevention of nuclear smuggling and sawmill planning. The energy papers involve electricity production planning, hydroelectric reservoir operations and power generation planning for liquid natural gas plants. Finally, two telecommunication papers discuss mobile network design and frequency assignment problems.

Discrete Mathematics and Theoretical Computer Science - Cristian S. Calude 2007-03-05

The refereed proceedings of the 4th International Conference on Discrete Mathematics and Theoretical Computer Science, DMTCS 2003, held in Dijon, France, in July 2003. The 18 revised full papers presented together with 5 invited papers were carefully reviewed and selected from 35 submissions. A broad variety of topics in discrete mathematics and the theory of computing is addressed including information theory, coding, algorithms, complexity, automata, computational mathematics, combinatorial computations, graph computations, algorithmic geometry, relational methods, game-theoretic methods, combinatorial optimization, and finite state systems.

Statistics and Causality - Wolfgang Wiedermann 2016-05-12

A one-of-a-kind guide to identifying and dealing with modern statistical developments in causality Written by a group of well-known experts, Statistics and Causality: Methods for Applied Empirical Research focuses on the most up-to-date developments in statistical methods in

respect to causality. Illustrating the properties of statistical methods to theories of causality, the book features a summary of the latest developments in methods for statistical analysis of causality hypotheses. The book is divided into five accessible and independent parts. The first part introduces the foundations of causal structures and discusses issues associated with standard mechanistic and difference-making theories of causality. The second part features novel generalizations of methods designed to make statements concerning the direction of effects. The third part illustrates advances in Granger-causality testing and related issues. The fourth part focuses on counterfactual approaches and propensity score analysis. Finally, the fifth part presents designs for causal inference with an overview of the research designs commonly used in epidemiology. Statistics and Causality: Methods for Applied Empirical Research also includes: New statistical methodologies and approaches to causal analysis in the context of the continuing development of philosophical theories End-of-chapter bibliographies that provide references for further discussions and additional research topics Discussions on the use and applicability of software when appropriate Statistics and Causality: Methods for Applied Empirical Research is an ideal reference for practicing statisticians, applied mathematicians, psychologists, sociologists, logicians, medical professionals, epidemiologists, and educators who want to learn more about new methodologies in causal analysis. The book is also an excellent textbook for graduate-level courses in causality and qualitative logic.

The Sharpest Cut - Martin Groetschel 2004-01-01

This collection presents recent results in the areas of theoretical and computational sides of integer programming and combinatorial optimization.

Intelligent Computing Theories and Methodologies - De-Shuang Huang 2015-08-10

This two-volume set LNCS 9225 and LNCS 9226 constitutes - in conjunction with the volume LNAI 9227 - the refereed proceedings of the 11th International Conference on Intelligent Computing, ICIC 2015, held in Fuzhou, China, in August 2015. The total of 191 full and 42 short papers presented in the three ICIC 2015 volumes was carefully reviewed and selected from 671 submissions. The papers are organized in topical sections such as evolutionary computation and learning; compressed sensing, sparse coding and social computing; neural networks, nature inspired computing and optimization; pattern recognition and signal processing; image processing; biomedical informatics theory and methods; differential evolution, particle swarm optimization and niche technology; intelligent computing and knowledge discovery and data mining; soft computing and machine learning; computational biology, protein structure and function prediction; genetic algorithms; artificial bee colony algorithms; swarm intelligence and optimization; social computing; information security; virtual reality and human-computer interaction; healthcare informatics theory and methods; unsupervised learning; collective intelligence; intelligent computing in robotics; intelligent computing in communication networks; intelligent control and automation; intelligent data analysis and prediction; gene expression array analysis; gene regulation modeling and analysis; protein-protein interaction prediction; biology inspired computing and optimization; analysis and visualization of large biological data sets; motif

detection; biomarker discovery; modeling; simulation; and optimization of biological systems; biomedical data modeling and mining; intelligent computing in biomedical signal/image analysis; intelligent computing in brain imaging; neuroinformatics; cheminformatics; intelligent computing in computational biology; computational genomics; special session on biomedical data integration and mining in the era of big data; special session on big data analytics; special session on artificial intelligence for ambient assisted living; and special session on swarm intelligence with discrete dynamics.

Tropical and Idempotent Mathematics - Grigoriĭ Lazarevich Litvinov 2009

A collection of papers from the International Conference on Tropical and Idempotent Mathematics, held in Moscow, Russia in August 2007. It contains important surveys and research papers on tropical linear algebra and tropical convex geometry.