Matching Theory Plummer

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Combinatorial Optimization Springer
Mismatch or best match? This book demonstrates that best matching of individual entities to each other is essential to ensure smooth conduct and successful competitiveness in any distributed system, natural and artificial. Interactions must be optimized through best matching in planning and scheduling, enterprise network design, transportation and construction planning, recruitment, problem solving, selective assembly, team formation, sensor network design, and more. Fundamentals of best matching in distributed and collaborative systems are explained by providing: § Methodical analysis of various multidimensional best matching processes § Comprehensive taxonomy, comparing different best matching problems and processes § Systematic identification of systems' hierarchy, nature of interactions, and distribution of decision-making and control functions § Practical formulation of solutions based on a library of best matching algorithms and protocols, ready for direct applications and apps development. Designed for both academics and practitioners, oriented to systems engineers and applied operations researchers, diverse types of best matching processes are explained in production, manufacturing, business and service, based on a new reference model developed at Purdue University PRISM Center: "The PRISM Taxonomy of Best Matching". The book concludes with major challenges and guidelines for future basic and applied research in the area of best matching.
Handbook of Combinatorics Cambridge University Press
The fusion between graph theory and combinatorial optimization has led to theoretically profound and practically useful algorithms, yet there is no book that currently covers both areas together. Handbook of Graph Theory, Combinatorial Optimization, and Algorithms is the first to present a unified, comprehensive treatment of both graph theory and c
Handbook of Graph Theory Springer Science & Business Media
This graduate level text is distinguished both by the range of topics and the novelty of the material it treats--more than half of the material in it has previously only appeared in research papers. The first half of this book introduces the characteristic and matchings polynomials of a graph. It is instructive to consider these polynomials together because they have a number of properties in common. The matchings polynomial has links with a number of problems in combinatorial enumeration, particularly some of the current work on the combinatorics of orthogonal polynomials. This connection is discussed at some length, and is also in part the stimulus for the inclusion of chapters on orthogonal polynomials and formal power series. Many of the properties of orthogonal polynomials are derived from properties of characteristic polynomials. The second half of the book introduces the theory of polynomial spaces, which provide easy access to a number of important results in design theory, coding theory and the theory of association schemes. This book should be of interest to second year graduate text/reference in mathematics.
Building Bridges Springer Science & Business Media
Excellent authors, such as Lovasz, one of the five best combinatorialists in the world; Thematic linking that makes it a coherent collection; Will appeal to a variety of communities, such as mathematics, computer science and operations research
Graphs and Matrices Cambridge University Press
One of Springer's renowned Major Reference Works, this awesome achievement provides a comprehensive set of solutions to important algorithmic problems for students and researchers interested in quickly locating useful information. This first edition of the reference focuses on high-impact solutions from the most recent decade, while later editions will widen the scope of the work. All entries have been written by experts, while links to Internet sites that outline their research work are provided. The entries have all been peer-reviewed. This defining reference is published both in print and on line.
Graph-Theoretic Problems and Their New Applications American Mathematical Soc.
From the reviews: "About 30 years ago, when I was a student, the first book on combinatorial optimization came out referred to as "the Lawler" simply. I think that now, with this volume Springer has landed a coup: "The Schrijver". The box is offered for less than 90.- EURO, which to my opinion is one of the best deals after the introduction of this currency." OR-Spectrum
Encyclopedia of Algorithms Matching Theory
This 2004 book presents a fascinating collection of problems related to the Cauchy-Schwarz inequality and coaches readers through solutions.
7th Annual International Conference, COCOON 2001, Guilin, China, August 20-23, 2001, Proceedings Walter de Gruyter
This book chronicles the development of graph factors and factorizations. It pursues a comprehensive approach, addressing most of the important results from hundreds of findings over the last century. One of the main themes is the observation that many theorems can be proved using only a few standard proof techniques. This stands in marked contrast to the seemingly countless, complex proof techniques offered by the extant body of papers and books. In addition to covering the history and development of this area, the book offers conjectures and discusses open problems. It also includes numerous explanatory figures that enable readers to progressively and intuitively understand the most important notions and proofs in the area of factors and factorization.
33rd International Symposium, MFCS 2008, Torun, Poland, August 25-29, 2008, Proceedings Elsevier
Julius Petersen's paper, Die Theorie der regulären graphs in Acta Mathematica, volume 15 (1891), stands at the beginning of graph theory as we know it today. The Danish group of graph theorists decided in 1985 to mark the 150th birthday of Petersen in 1989, as well as the centennial of his paper. It was felt that the occasion called for a presentation of Petersen's famous paper in its historical context and, in a wider sense, of Petersen's life and work as a whole. However, the readily available information about Julius Petersen amounted to very little (not even a full bibliography existed) and virtually nothing was known about the circumstances that led him to write his famous paper. The study of Petersen's life and work has resulted in several papers, in particular a biography, a bibliography, an annotated edition of the letters surrounding Petersen's paper of 1891, an analysis of Petersen's paper and an annotated edition of parts of Petersen's correspondence with Sylow on Galois theory. The first four of these papers, together with a survey of matching theory, form the first part of this book. In addition to these five special papers, there are papers submitted in the celebration of the Petersen centennial.
A Survey Cambridge University Press
This is a highly self-contained book about algebraic graph theory which is written with a view to keep the lively and unconventional atmosphere of a spoken text to communicate the enthusiasm the author feels about this subject. The focus is on homomorphisms and endomorphisms, matrices and eigenvalues. Graph models are extremely useful for almost all applications and applicators as they play an important role as structuring tools. They allow to model net structures - like roads, computers, telephones - instances of abstract data structures - like lists, stacks, trees - and functional or object oriented programming.
Computing and Combinatorics Elsevier
Discrete mathematics and theoretical computer science are closely linked research areas with strong impacts on applications and various other scientific disciplines. Both fields deeply cross fertilize each other. One of the persons who particularly contributed to building bridges between these and many other areas is László Lovász, a scholar whose outstanding scientific work has defined and shaped many research directions in the last 40 years. A number of friends and colleagues, all top authorities in their fields of expertise and all invited plenary speakers at one of two conferences in August 2008 in Hungary, both celebrating Lovász's 60th birthday, have

contributed their latest research papers to this volume. This collection of articles offers an excellent view on the state of combinatorics and related topics and will be of interest for experienced specialists as well as young researchers.

Graph Theory, Combinatorics, Algorithms, and Applications Springer Science & Business Media

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.

Graphs, Networks and Algorithms Springer Science & Business Media

This study of matching theory deals with bipartite matching, network flows, and presents fundamental results for the non-bipartite case. It goes on to study elementary bipartite graphs and elementary graphs in general. Further discussed are 2-matchings, general matching problems as linear programs, the Edmonds Matching Algorithm (and other algorithmic approaches), f-factors and vertex packing.

Combinatorial Optimization Springer Science & Business Media

This well-written textbook on combinatorial optimization puts special emphasis on theoretical results and algorithms with provably good performance, in contrast to heuristics. The book contains complete (but concise) proofs, as well as many deep results, some of which have not appeared in any previous books.

Handbook of Combinatorics Elsevier

This book constitutes the refereed proceedings of the 33rd International Symposium on Mathematical Foundations of Computer Science, MFCS 2008, held in Torun, Poland, in August 2008. The 45 revised full papers presented together with 5 invited lectures were carefully reviewed and selected from 119 submissions. All current aspects in theoretical computer science and its mathematical foundations are addressed, ranging from algorithmic game theory, algorithms and data structures, artificial intelligence, automata and formal languages, bioinformatics, complexity, concurrency and petrinets, cryptography and security, logic and formal specifications, models of computations, parallel and distributed computing, semantics and verification.

Theory and Algorithms Universitätsverlag der TU Berlin

This book constitutes the refereed proceedings of the 7th Annual International Conference on Computing and Combinatorics, COCOON 2001, held in Guilin, China, in August 2001.The 50 revised full papers and 16 short papers presented were carefully reviewed and selected from 97 submissions. The papers are organized in topical sections on complexity theory, computational biology, computational geometry, data structures and algorithms, games and combinatorics, graph algorithms and complexity, graph drawing, graph theory, online algorithms, randomized and average-case algorithms, Steiner trees, systems algorithms and modeling, and computability.

Inspiring Mathematics: Lessons from the Navajo Nation Math Circles Springer Science & Business Media

This new edition illustrates the power of linear algebra in the study of graphs. The emphasis on matrix techniques is greater than in other texts on algebraic graph theory. Important matrices associated with graphs (for example, incidence, adjacency and Laplacian matrices) are treated in detail. Presenting a useful overview of selected topics in algebraic graph theory, early chapters of the text focus on regular graphs, algebraic connectivity, the distance matrix of a tree, and its generalized version for arbitrary graphs, known as the resistance matrix. Coverage of later topics include Laplacian eigenvalues of threshold graphs, the positive definite completion problem and matrix games based on a graph. Such an extensive coverage of the subject area provides a welcome prompt for further exploration. The inclusion of exercises enables practical learning throughout the book. In the new edition, a new chapter is added on the line graph of a tree, while some results in Chapter 6 on Perron-Frobenius theory are reorganized. Whilst this book will be invaluable to students and researchers in graph theory and combinatorial matrix theory, it will also benefit readers in the sciences and engineering.

Combinatorics: The Rota Way Springer Science & Business Media

This well-organized reference is a definitive encyclopedia for the literature on graph classes. It contains a survey of more than 200 classes of graphs, organized by types of properties used to define and characterize the classes, citing key theorems and literature references for each. The authors state results without proof, providing readers with easy access to far more key theorems than are commonly found in other mathematical texts. Interconnections between graph classes are also provided to make the book useful to a variety of readers.

Handbook of Graph Theory, Combinatorial Optimization, and Algorithms Oxford University Press

This text contains expository contributions by respected researchers on the connections between algebraic geometry, topology, commutative algebra, representation theory, and convex geometry.

Proof Techniques in Factor Theory CRC Press

In this thesis we adapt fundamental parts of the Graph Minors series of Robertson and Seymour for the study of matching minors and investigate a connection to the study of directed graphs. We develope matching theoretic to established results of graph minor theory: We characterise the existence of a cross over a conformal cycle by means of a topological property. Furthermore, we develope a theory for perfect matching width, a width parameter for graphs with perfect matchings introduced by Norin. here we show that the disjoint alternating paths problem can be solved in polynomial time on graphs of bounded width. Moreover, we show that every bipartite graph with high perfect matching width must contain a large grid as a matching minor. Finally, we prove an analogue of the we known Flat Wall theorem and provide a qualitative description of all bipartite graphs which exclude a fixed matching minor. In der vorliegenden Arbeit werden fundamentale Teile des Graphminorenprojekts von Robertson und Seymour für das Studium von Matching Minoren adaptiert und Verbindungen zur Strukturtheorie gerichteter Graphen aufgezeigt. Wir entwickeln matchingtheoretische Analogien zu etablierten Resultaten des Graphminorenprojekts: Wir charakterisieren die Existenz eines Kreuzes über einem konformen Kreis mittels topologischer Eigenschaften. Weiter entwickeln wir eine Theorie zu perfekter Matchingweite, einem Weiteparameter für Graphen mit perfekten Matchings, der von Norin eingeführt wurde. Hier zeigen wir, dass das Disjunkte Alternierende Pfade Problem auf bipartiten Graphen mit beschränkter Weite in Polynomialzeit lösbar ist. Weiter zeigen wir, dass jeder bipartite Graph mit hoher perfekter Matchingweite ein großes Gitter als Matchingminor enthalten muss. Schließlich zeigen wir ein Analogon des bekannten Flat Wall Theorem und geben eine qualitative Beschreibung aller bipartiter Graphen an, die einen festen Matching Minor ausschließen.