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Introduction to Automata Theory, Languages, and Computation **Fundamentals of Machine Learning for Predictive Data Analytics, second edition Automata and Computability** Operations and Supply Chain Management *Automata, Computability and Complexity* Numerical Methods **Randomized Algorithms** *Foundations of Data Science Introduction to Computer Theory* Randomized Algorithms **Algorithm Design** *An Introduction to Quantum Computing* Probability and Computing *Introduction to the Theory of Computation Python for Data Analysis* **Modeling, Mesh Generation, and Adaptive Numerical Methods for Partial Differential Equations** *Quantum Computation and Quantum Information Mining of Massive Datasets* Data-intensive Text Processing with MapReduce **Geometric Approximation Algorithms** *An Introduction to Formal Languages and Automata* **Introduction to Languages and the Theory of Computation Introduction to the Theory of Computation Kalman Filtering** *Design and Analysis of Algorithms* Languages And Machines: An Introduction To The Theory Of Computer Science, 3/E *Improve Your Chess Tactics* **Computational Complexity Convex Optimization Introduction To Algorithms Scheduling The Design of Approximation Algorithms** *Handbook of Cloud Computing* Concrete Semantics Schaum's Outline of Probability, Random Variables, and Random Processes, 3/E (Enhanced Ebook) **Introduction to Algorithms, Data Structures and Formal Languages Approximation**

Algorithms for NP-hard Problems Social Media Mining *Mathematics and Computation* An Introduction to Mechanics

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Modeling, Mesh Generation, and Adaptive Numerical Methods for Partial Differential Equations Jul 22 2021 With considerations such as complex-dimensional geometries and nonlinearity, the computational solution of partial differential systems has become so involved that it is important to automate

decisions that have been normally left to the individual. This book covers such decisions: 1) mesh generation with links to the software generating the domain geometry, 2) solution accuracy and reliability with mesh selection linked to solution generation. This book is suited for mathematicians, computer scientists and engineers and is intended to encourage interdisciplinary interaction between the diverse groups.

Handbook of Cloud Computing Feb 03 2020 Cloud computing has become a significant technology trend. Experts believe cloud computing is currently reshaping information technology and the IT marketplace. The advantages of using cloud computing include cost savings, speed to market, access to greater computing resources, high availability, and scalability. Handbook of Cloud Computing includes contributions from world experts in the field of cloud computing from academia, research laboratories and private industry. This book presents the systems, tools, and services of the leading providers of cloud computing; including Google, Yahoo, Amazon, IBM, and Microsoft. The basic concepts of cloud computing and cloud computing applications are also introduced. Current and future technologies applied in cloud computing are also discussed. Case studies, examples, and exercises are provided throughout. Handbook of Cloud Computing is intended for advanced-level students and researchers in computer science and electrical engineering as a reference book. This handbook is also beneficial to computer and system infrastructure designers, developers, business managers, entrepreneurs and investors within the cloud computing related industry.

Python for Data Analysis Aug 23 2021 Get complete instructions for manipulating, processing, cleaning, and crunching datasets in Python. Updated for Python 3.6, the second edition of this hands-on guide is packed with practical case studies that show you how to

solve a broad set of data analysis problems effectively. You'll learn the latest versions of pandas, NumPy, IPython, and Jupyter in the process. Written by Wes McKinney, the creator of the Python pandas project, this book is a practical, modern introduction to data science tools in Python. It's ideal for analysts new to Python and for Python programmers new to data science and scientific computing. Data files and related material are available on GitHub. Use the IPython shell and Jupyter notebook for exploratory computing Learn basic and advanced features in NumPy (Numerical Python) Get started with data analysis tools in the pandas library Use flexible tools to load, clean, transform, merge, and reshape data Create informative visualizations with matplotlib Apply the pandas groupby facility to slice, dice, and summarize datasets Analyze and manipulate regular and irregular time series data Learn how to solve real-world data analysis problems with thorough, detailed examples

Introduction to Computer Theory Feb 26 2022 Designed for undergraduate courses in computer theory, this textbook covers three areas: formal languages, automata theory and Turing machines. The author substitutes graphic representation for symbolic proofs, making it accessible even to students with little mathematical background.
Social Media Mining Aug 30 2019 Integrates social media, social network analysis, and data mining to provide an understanding of the potentials of social media mining.
Introduction to Automata Theory, Languages, and Computation Nov 06 2022 This classic book on formal languages, automata theory, and computational complexity has been updated to present theoretical concepts in a concise and straightforward manner with the increase of hands-on, practical applications. This new edition comes with Gradiance, an online assessment tool developed for computer science. Please note, Gradiance is no longer available

with this book, as we no longer support this product.

Fundamentals of Machine Learning for Predictive Data Analytics, second edition Oct 05 2022 The second edition of a comprehensive introduction to machine learning approaches used in predictive data analytics, covering both theory and practice. Machine learning is often used to build predictive models by extracting patterns from large datasets. These models are used in predictive data analytics applications including price prediction, risk assessment, predicting customer behavior, and document classification. This introductory textbook offers a detailed and focused treatment of the most important machine learning approaches used in predictive data analytics, covering both theoretical concepts and practical applications. Technical and mathematical material is augmented with explanatory worked examples, and case studies illustrate the application of these models in the broader business context. This second edition covers recent developments in machine learning, especially in a new chapter on deep learning, and two new chapters that go beyond predictive analytics to cover unsupervised learning and reinforcement learning.

Automata, Computability and Complexity Jul 02 2022 For upper level courses on Automata. Combining classic theory with unique applications, this crisp narrative is supported by abundant examples and clarifies key concepts by introducing important uses of techniques in real systems. Broad-ranging coverage allows instructors to easily customise course material to fit their unique requirements.

Design and Analysis of Algorithms Oct 13 2020 The text covers important algorithm design techniques, such as greedy algorithms, dynamic programming, and divide-and-conquer, and gives applications to contemporary problems. Techniques including Fast Fourier transform, KMP algorithm for string matching, CYK

algorithm for context free parsing and gradient descent for convex function minimization are discussed in detail. The book's emphasis is on computational models and their effect on algorithm design. It gives insights into algorithm design techniques in parallel, streaming and memory hierarchy computational models. The book also emphasizes the role of randomization in algorithm design, and gives numerous applications ranging from data-structures such as skip-lists to dimensionality reduction methods.

Numerical Methods Jun 01 2022 A rigorous and comprehensive introduction to numerical analysis Numerical Methods provides a clear and concise exploration of standard numerical analysis topics, as well as nontraditional ones, including mathematical modeling, Monte Carlo methods, Markov chains, and fractals. Filled with appealing examples that will motivate students, the textbook considers modern application areas, such as information retrieval and animation, and classical topics from physics and engineering. Exercises use MATLAB and promote understanding of computational results. The book gives instructors the flexibility to emphasize different aspects—design, analysis, or computer implementation—of numerical algorithms, depending on the background and interests of students. Designed for upper-division undergraduates in mathematics or computer science classes, the textbook assumes that students have prior knowledge of linear algebra and calculus, although these topics are reviewed in the text. Short discussions of the history of numerical methods are interspersed throughout the chapters. The book also includes polynomial interpolation at Chebyshev points, use of the MATLAB package Chebfun, and a section on the fast Fourier transform. Supplementary materials are available online. Clear and concise exposition of standard numerical analysis topics Explores nontraditional topics, such as mathematical

modeling and Monte Carlo methods Covers modern applications, including information retrieval and animation, and classical applications from physics and engineering Promotes understanding of computational results through MATLAB exercises Provides flexibility so instructors can emphasize mathematical or applied/computational aspects of numerical methods or a combination Includes recent results on polynomial interpolation at Chebyshev points and use of the MATLAB package Chebfun Short discussions of the history of numerical methods interspersed throughout Supplementary materials available online

Schaum's Outline of Probability, Random Variables, and Random Processes, 3/E (Enhanced Ebook) Dec 03 2019 Tough Test Questions? Missed Lectures? Not Enough Time? Fortunately, there's Schaum's. This all-in-one-package includes more than 400 fully solved problems, examples, and practice exercises to sharpen your problem-solving skills. Plus, you will have access to 20 detailed videos featuring instructors who explain the most commonly tested problems--it's just like having your own virtual tutor! You'll find everything you need to build confidence, skills, and knowledge for the highest score possible. More than 40 million students have trusted Schaum's to help them succeed in the classroom and on exams. Schaum's is the key to faster learning and higher grades in every subject. Each Outline presents all the essential course information in an easy-to-follow, topic-by-topic format. You also get hundreds of examples, solved problems, and practice exercises to test your skills. This Schaum's Outline gives you 405 fully solved problems Clear, concise explanations of all probability, variables, and processes concepts Support for all the major textbooks in the subject areas Fully compatible with your classroom text, Schaum's highlights all the important facts you need to know. Use Schaum's

to shorten your study time--and get your best test scores! Schaum's Outlines--Problem Solved. **Introduction to Languages and the Theory of Computation** Jan 16 2021 Introduction to Languages and the Theory of Computation is an introduction to the theory of computation that emphasizes formal languages, automata and abstract models of computation, and computability; it also includes an introduction to computational complexity and NP-completeness. Through the study of these topics, students encounter profound computational questions and are introduced to topics that will have an ongoing impact in computer science. Once students have seen some of the many diverse technologies contributing to computer science, they can also begin to appreciate the field as a coherent discipline. A distinctive feature of this text is its gentle and gradual introduction of the necessary mathematical tools in the context in which they are used. Martin takes advantage of the clarity and precision of mathematical language but also provides discussion and examples that make the language intelligible to those just learning to read and speak it. The material is designed to be accessible to students who do not have a strong background in discrete mathematics, but it is also appropriate for students who have had some exposure to discrete math but whose skills in this area need to be consolidated and sharpened. **Introduction To Algorithms** May 08 2020 The first edition won the award for Best 1990 Professional and Scholarly Book in Computer Science and Data Processing by the Association of American Publishers. There are books on algorithms that are rigorous but incomplete and others that cover masses of material but lack rigor. Introduction to Algorithms combines rigor and comprehensiveness. The book covers a broad range of algorithms in depth, yet makes their design and analysis accessible to all levels of readers. Each chapter is relatively self-contained and can be used as a unit of study.

The algorithms are described in English and in a pseudocode designed to be readable by anyone who has done a little programming. The explanations have been kept elementary without sacrificing depth of coverage or mathematical rigor. The first edition became the standard reference for professionals and a widely used text in universities worldwide. The second edition features new chapters on the role of algorithms, probabilistic analysis and randomized algorithms, and linear programming, as well as extensive revisions to virtually every section of the book. In a subtle but important change, loop invariants are introduced early and used throughout the text to prove algorithm correctness. Without changing the mathematical and analytic focus, the authors have moved much of the mathematical foundations material from Part I to an appendix and have included additional motivational material at the beginning.

Probability and Computing Oct 25 2021 "This textbook is designed to accompany a one- or two-semester course for advanced undergraduates or beginning graduate students in computer science and applied mathematics. - It gives an excellent introduction to the probabilistic techniques and paradigms used in the development of probabilistic algorithms and analyses. - It assumes only an elementary background in discrete mathematics and gives a rigorous yet accessible treatment of the material, with numerous examples and applications."--Jacket.

Introduction to Algorithms, Data Structures and Formal Languages Nov 01 2019 INTRODUCTION TO ALGORITHMS, DATA STRUCTURES AND FORMAL LANGUAGES provides a concise, straightforward, yet rigorous introduction to the key ideas, techniques, and results in three areas essential to the education of every computer scientist. The textbook is closely based on the syllabus of the course COMPSCI220, which the authors and their

colleagues have taught at the University of Auckland for several years. The book could also be used for self-study. Many exercises are provided, a substantial proportion of them with detailed solutions. Numerous figures aid understanding. To benefit from the book, the reader should have had prior exposure to programming in a structured language such as Java or C++, at a level similar to a typical two semester first-year university computer science sequence. However, no knowledge of any particular such language is necessary. Mathematical prerequisites are modest. Several appendices can be used to fill minor gaps in background knowledge. After finishing this book, students should be well prepared for more advanced study of the three topics, either for their own sake or as they arise in a multitude of application areas.

Foundations of Data Science Mar 30 2022 This book provides an introduction to the mathematical and algorithmic foundations of data science, including machine learning, high-dimensional geometry, and analysis of large networks. Topics include the counterintuitive nature of data in high dimensions, important linear algebraic techniques such as singular value decomposition, the theory of random walks and Markov chains, the fundamentals of and important algorithms for machine learning, algorithms and analysis for clustering, probabilistic models for large networks, representation learning including topic modelling and non-negative matrix factorization, wavelets and compressed sensing. Important probabilistic techniques are developed including the law of large numbers, tail inequalities, analysis of random projections, generalization guarantees in machine learning, and moment methods for analysis of phase transitions in large random graphs. Additionally, important structural and complexity measures are discussed such as matrix norms and VC-dimension. This book is suitable for both

undergraduate and graduate courses in the design and analysis of algorithms for data. *Improve Your Chess Tactics* Aug 11 2020 The best advice for chess players who want to improve quickly is: get better at tactics! Simply because the vast majority of amateur games is decided through tactics you will immediately start beating more opponents when you improve your tactical skills. Experienced Russian Grandmaster Jakov Neishtadt has selected those examples from the games of masters that have the biggest instructional value for club players. In the first part of the book Neishstadt teaches a systematic course on the most important tactical themes. The second part consist of an exam with hundreds of tests from real-life chess, in random order so as not to give unwelcome hints on how to solve them. The solutions are not just lists of moves, but include instructive prose. *An Introduction to Formal Languages and Automata* Feb 14 2021 An Introduction to Formal Languages & Automata provides an excellent presentation of the material that is essential to an introductory theory of computation course. The text was designed to familiarize students with the foundations & principles of computer science & to strengthen the students' ability to carry out formal & rigorous mathematical argument. Employing a problem-solving approach, the text provides students insight into the course material by stressing intuitive motivation & illustration of ideas through straightforward explanations & solid mathematical proofs. By emphasizing learning through problem solving, students learn the material primarily through problem-type illustrative examples that show the motivation behind the concepts, as well as their connection to the theorems & definitions.
Randomized Algorithms Apr 30 2022 This book presents basic tools from probability theory used in algorithmic applications, with concrete examples.
Kalman Filtering Nov 13 2020 The definitive

textbook and professional reference on Kalman Filtering – fully updated, revised, and expanded This book contains the latest developments in the implementation and application of Kalman filtering. Authors Grewal and Andrews draw upon their decades of experience to offer an in-depth examination of the subtleties, common pitfalls, and limitations of estimation theory as it applies to real-world situations. They present many illustrative examples including adaptations for nonlinear filtering, global navigation satellite systems, the error modeling of gyros and accelerometers, inertial navigation systems, and freeway traffic control. Kalman Filtering: Theory and Practice Using MATLAB, Fourth Edition is an ideal textbook in advanced undergraduate and beginning graduate courses in stochastic processes and Kalman filtering. It is also appropriate for self-instruction or review by practicing engineers and scientists who want to learn more about this important topic.

Algorithm Design Dec 27 2021 Michael Goodrich and Roberto Tamassia, authors of the successful, Data Structures and Algorithms in Java, 2/e, have written Algorithm Engineering, a text designed to provide a comprehensive introduction to the design, implementation and analysis of computer algorithms and data structures from a modern perspective. This book offers theoretical analysis techniques as well as algorithmic design patterns and experimental methods for the engineering of algorithms. Market: Computer Scientists; Programmers.

The Design of Approximation Algorithms Mar 06 2020 Discrete optimization problems are everywhere, from traditional operations research planning (scheduling, facility location and network design); to computer science databases; to advertising issues in viral marketing. Yet most such problems are NP-hard; unless P = NP, there are no efficient algorithms to find optimal solutions. This book shows how to design approximation algorithms: efficient algorithms that find provably near-optimal

solutions. The book is organized around central algorithmic techniques for designing approximation algorithms, including greedy and local search algorithms, dynamic programming, linear and semidefinite programming, and randomization. Each chapter in the first section is devoted to a single algorithmic technique applied to several different problems, with more sophisticated treatment in the second section. The book also covers methods for proving that optimization problems are hard to approximate. Designed as a textbook for graduate-level algorithm courses, it will also serve as a reference for researchers interested in the heuristic solution of discrete optimization problems.

Mining of Massive Datasets May 20 2021 Now in its second edition, this book focuses on practical algorithms for mining data from even the largest datasets.

An Introduction to Mechanics Jun 28 2019 A classic textbook on the principles of Newtonian mechanics for undergraduate students, accompanied by numerous worked examples and problems.

Randomized Algorithms Jan 28 2022 For many applications a randomized algorithm is either the simplest algorithm available, or the fastest, or both. This tutorial presents the basic concepts in the design and analysis of randomized algorithms. The first part of the book presents tools from probability theory and probabilistic analysis that are recurrent in algorithmic applications. Algorithmic examples are given to illustrate the use of each tool in a concrete setting. In the second part of the book, each of the seven chapters focuses on one important area of application of randomized algorithms: data structures; geometric algorithms; graph algorithms; number theory; enumeration; parallel algorithms; and on-line algorithms. A comprehensive and representative selection of the algorithms in these areas is also given. This book should prove invaluable as a reference for

researchers and professional programmers, as well as for students.

An Introduction to Quantum Computing Nov 25 2021 The authors provide an introduction to quantum computing. Aimed at advanced undergraduate and beginning graduate students in these disciplines, this text is illustrated with diagrams and exercises.

Introduction to the Theory of Computation Sep 23 2021 "Intended as an upper-level undergraduate or introductory graduate text in computer science theory," this book lucidly covers the key concepts and theorems of the theory of computation. The presentation is remarkably clear; for example, the "proof idea," which offers the reader an intuitive feel for how the proof was constructed, accompanies many of the theorems and a proof. Introduction to the Theory of Computation covers the usual topics for this type of text plus it features a solid section on complexity theory--including an entire chapter on space complexity. The final chapter

introduces more advanced topics, such as the discussion of complexity classes associated with probabilistic algorithms.

Convex Optimization Jun 08 2020 A comprehensive introduction to the tools, techniques and applications of convex optimization.

Geometric Approximation Algorithms Mar 18 2021 Exact algorithms for dealing with geometric objects are complicated, hard to implement in practice, and slow. Over the last 20 years a theory of geometric approximation algorithms has emerged. These algorithms tend to be simple, fast, and more robust than their exact counterparts. This book is the first to cover geometric approximation algorithms in detail. In addition, more traditional computational geometry techniques that are widely used in developing such algorithms, like sampling, linear programming, etc., are also surveyed. Other topics covered include approximate nearest-neighbor search, shape

approximation, coresets, dimension reduction, and embeddings. The topics covered are relatively independent and are supplemented by exercises. Close to 200 color figures are included in the text to illustrate proofs and ideas.

Automata and Computability Sep 04 2022 These are my lecture notes from CS381/481: Automata and Computability Theory, a one-semester senior-level course I have taught at Cornell Uni versity for many years. I took this course myself in thc fall of 1974 as a first-year Ph.D. student at Cornell from Juris Hartmanis and have been in love with the subject ever sin,:e. The course is required for computer science majors at Cornell. It exists in two forms: CS481, an honors version; and CS381, a somewhat gentler paced version. The syllabus is roughly the same, but CS481 go es deeper into thc subject, covers more material, and is taught at a more abstract level. Students are encouraged to start off in one or the other, then switch within the first few weeks if they find the other version more suitaLle to their level of mathematical skill. The purpose of t.hc course is twofold: to introduce computer science students to the rieh heritage of models and abstractions that have arisen over the years; and to dew!c'p the capacity to form abstractions of their own and reason in terms of them.

Concrete Semantics Jan 04 2020 Part I of this book is a practical introduction to working with the Isabelle proof assistant. It teaches you how to write functional programs and inductive definitions and how to prove properties about them in Isabelle's structured proof language. Part II is an introduction to the semantics of imperative languages with an emphasis on applications like compilers and program analysers. The distinguishing feature is that all the mathematics has been formalised in Isabelle and much of it is executable. Part I focusses on the details of proofs in Isabelle; Part II can be read even without familiarity with Isabelle's

proof language, all proofs are described in detail but informally. The book teaches the reader the art of precise logical reasoning and the practical use of a proof assistant as a surgical tool for formal proofs about computer science artefacts. In this sense it represents a formal approach to computer science, not just semantics. The Isabelle formalisation, including the proofs and accompanying slides, are freely available online, and the book is suitable for graduate students, advanced undergraduate students, and researchers in theoretical computer science and logic.

Scheduling Apr 06 2020 This new edition of the well established text Scheduling - Theory, Algorithms, and Systems provides an up-to-date coverage of important theoretical models in the scheduling literature as well as significant scheduling problems that occur in the real world. It again includes supplementary material in the form of slide-shows from industry and movies that show implementations of scheduling systems. The main structure of the book as per previous edition consists of three parts. The first part focuses on deterministic scheduling and the related combinatorial problems. The second part covers probabilistic scheduling models; in this part it is assumed that processing times and other problem data are random and not known in advance. The third part deals with scheduling in practice; it covers heuristics that are popular with practitioners and discusses system design and implementation issues. All three parts of this new edition have been revamped and streamlined. The references have been made completely up-to-date. Theoreticians and practitioners alike will find this book of interest. Graduate students in operations management, operations research, industrial engineering, and computer science will find the book an accessible and invaluable resource. Scheduling - Theory, Algorithms, and Systems will serve as an essential reference for professionals working on scheduling problems in manufacturing, services,

and other environments. Reviews of third edition: This well-established text covers both the theory and practice of scheduling. The book begins with motivating examples and the penultimate chapter discusses some commercial scheduling systems and examples of their implementations." (Mathematical Reviews, 2009) *Mathematics and Computation* Jul 30 2019 An introduction to computational complexity theory, its connections and interactions with mathematics, and its central role in the natural and social sciences, technology, and philosophy Mathematics and Computation provides a broad, conceptual overview of computational complexity theory—the mathematical study of efficient computation. With important practical applications to computer science and industry, computational complexity theory has evolved into a highly interdisciplinary field, with strong links to most mathematical areas and to a growing number of scientific endeavors. Avi Wigderson takes a sweeping survey of complexity theory, emphasizing the field's insights and challenges. He explains the ideas and motivations leading to key models, notions, and results. In particular, he looks at algorithms and complexity, computations and proofs, randomness and interaction, quantum and arithmetic computation, and cryptography and learning, all as parts of a cohesive whole with numerous cross-influences. Wigderson illustrates the immense breadth of the field, its beauty and richness, and its diverse and growing interactions with other areas of mathematics. He ends with a comprehensive look at the theory of computation, its methodology and aspirations, and the unique and fundamental ways in which it has shaped and will further shape science, technology, and society. For further reading, an extensive bibliography is provided for all topics covered. Mathematics and Computation is useful for undergraduate and graduate students in mathematics, computer science, and related fields, as well as researchers and teachers in

these fields. Many parts require little background, and serve as an invitation to newcomers seeking an introduction to the theory of computation. Comprehensive coverage of computational complexity theory, and beyond High-level, intuitive exposition, which brings conceptual clarity to this central and dynamic scientific discipline Historical accounts of the evolution and motivations of central concepts and models A broad view of the theory of computation's influence on science, technology, and society Extensive bibliography Operations and Supply Chain Management Aug 03 2022 Russell and Taylor's Operations and Supply Chain Management, 10th Edition is designed to teach students understand how to create value and competitive advantage along the supply chain in a rapidly changing global environment. Beyond providing a solid foundation, this course covers increasingly important OM topics of sustainability, corporate social responsibility, global trade policies, securing the supply chain, and risk and resilience. Most importantly, Operations Management, Tenth Edition makes the quantitative topics easy for students to understand and the mathematical applications less intimidating. Appropriate for all business students, this course takes a balanced approach to the foundational understanding of both qualitative and quantitative operations management processes.

Computational Complexity Jul 10 2020 New and classical results in computational complexity, including interactive proofs, PCP, derandomization, and quantum computation. Ideal for graduate students. Languages And Machines: An Introduction To The Theory Of Computer Science, 3/E Sep 11 2020 *Quantum Computation and Quantum Information* Jun 20 2021 First-ever comprehensive introduction to the major new subject of quantum computing and quantum

information.

Approximation Algorithms for NP-hard Problems Oct 01 2019 This is the first book to fully address the study of approximation algorithms as a tool for coping with intractable problems. With chapters contributed by leading researchers in the field, this book introduces unifying techniques in the analysis of approximation algorithms. APPROXIMATION ALGORITHMS FOR NP-HARD PROBLEMS is intended for computer scientists and operations researchers interested in specific algorithm implementations, as well as design tools for algorithms. Among the techniques discussed: the use of linear programming, primal-dual techniques in worst-case analysis, semidefinite programming, computational geometry techniques, randomized algorithms, average-case analysis, probabilistically checkable proofs and inapproximability, and the Markov Chain Monte Carlo method. The text includes a variety of pedagogical features: definitions, exercises, open problems, glossary of problems, index, and notes on how best to use the book.

Introduction to the Theory of Computation Dec 15 2020 Now you can clearly present even the most complex computational theory topics to your students with Sipser's distinct, market-leading INTRODUCTION TO THE THEORY OF COMPUTATION, 3E. The number one choice for today's computational theory course, this highly anticipated revision retains the unmatched clarity and thorough coverage that make it a leading text for upper-level undergraduate and introductory graduate students. This edition continues author Michael Sipser's well-known, approachable style with timely revisions, additional exercises, and more memorable examples in key areas. A new first-of-its-kind theoretical treatment of deterministic context-free languages is ideal for a better understanding of parsing and LR(k) grammars. This edition's refined presentation ensures a trusted accuracy and clarity that make the

challenging study of computational theory accessible and intuitive to students while maintaining the subject's rigor and formalism. Readers gain a solid understanding of the fundamental mathematical properties of computer hardware, software, and applications with a blend of practical and philosophical coverage and mathematical treatments, including advanced theorems and proofs. INTRODUCTION TO THE THEORY OF COMPUTATION, 3E's comprehensive coverage makes this an ideal ongoing reference tool for those studying theoretical computing. Important Notice: Media content referenced within the product description or the product text may not be available in the ebook version.

Data-intensive Text Processing with MapReduce Apr 18 2021 Our world is being revolutionized by data-driven methods: access to large amounts of data has generated new insights and opened exciting new opportunities in commerce, science, and computing applications. Processing the enormous quantities of data necessary for these advances requires large clusters, making distributed computing paradigms more crucial than ever. MapReduce is a programming model for expressing distributed computations on massive datasets and an execution framework for large-scale data processing on clusters of commodity servers. The programming model provides an easy-to-understand abstraction for designing scalable algorithms, while the execution framework transparently handles many system-level details, ranging from scheduling to synchronization to fault tolerance. This book focuses on MapReduce algorithm design, with an emphasis on text processing algorithms common in natural language processing, information retrieval, and machine learning. We introduce the notion of MapReduce design patterns, which represent general reusable solutions to commonly occurring problems across a variety of problem domains. This book not only intends to help the reader

"think in MapReduce", but also discusses limitations of the programming model as well. This volume is a printed version of a work that appears in the Synthesis Digital Library of Engineering and Computer Science. Synthesis Lectures provide concise, original presentations of important research and development topics, published quickly, in digital and print formats. For more information visit www.morganclaypool.com