

Automata Computability And Complexity Theory And

Introduction to Automata Theory, Languages, and Computation
 Theory of Computation
 Automata, Computability and Complexity
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 Automata, Languages and Programming
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 A Second Course in Formal Languages and Automata Theory
 Introduction to Automata, Computability, Complexity, Algorithmics, Randomization, Communication, and Cryptography
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 14th International Colloquium, Karlsruhe, Federal Republic of Germany, July 13-17, 1987. Proceedings
 Formal Languages, Automata, and Complexity
 Fundamentals of Theoretical Computer Science
 Theories of Computability
 Computability, Complexity, Logic
 Theory and Applications by Elaine A. Rich, ISBN
 Automata, Computability and Complexity
 Introduction to the Theory of Computation
 Computational Complexity
 An Introduction to Formal Languages and Automata

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LIZETH MALLORY

Introduction to Automata Theory, Languages, and Computation CRC Press
 Automata, Computability and Complexity Theory and Applications Prentice Hall
Theory of Computation John Wiley & Sons
 "Shows how to recognize NP-complete problems and offers practical suggestions for dealing with them effectively. The book covers the basic theory of NP-completeness, provides an overview of alternative directions for further research, and contains an extensive list of NP-complete and NP-hard problems, with more than 300 main entries and several times as many results in total. [This book] is suitable as a supplement to courses in algorithm design, computational complexity, operations research, or combinatorial mathematics, and as a text for seminars on approximation algorithms or computational complexity. It provides not only a valuable source of information for students but also an essential reference work for professionals in computer science"--Back cover.
Automata, Computability and Complexity New Age International
 Juraj Hromkovic takes the reader on an elegant route through the theoretical fundamentals of computer science. The author shows that theoretical computer science is a fascinating discipline, full of spectacular contributions and miracles. The book also presents the development of the computer scientist's way of thinking as well as fundamental concepts such as approximation and randomization in algorithmics, and the basic ideas of cryptography and interconnection network design.
Models of Computation World Scientific
 Intended for use in an introductory graduate course in theoretical computer science, this text contains material that should be core knowledge in the theory of computation for all graduates in computer science. It is self-contained and is best suited for a one semester course. The text starts with classical computability theory which forms the basis for complexity theory. This has the pedagogical advantage that students learn a qualitative subject before advancing to a quantitative one. Since this is a graduate course, students should have some knowledge of such topics as automata theory, formal languages, computability theory, or complexity theory.
What Can Be Computed? Princeton University Press
 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.
Automata, Languages and Programming World Scientific
 An accessible and rigorous textbook for introducing undergraduates to computer science theory What Can Be Computed? is a uniquely accessible yet rigorous introduction to the most profound ideas at the heart of computer science. Crafted specifically for undergraduates who are studying the subject for the first time, and requiring minimal prerequisites, the book focuses on the essential fundamentals of computer science theory and features a practical approach that uses real computer programs (Python and Java) and encourages active experimentation. It is also ideal for self-study and reference. The book covers the standard topics in the theory of computation, including Turing machines and finite automata, universal computation, nondeterminism, Turing and Karp reductions,

undecidability, time-complexity classes such as P and NP, and NP-completeness, including the Cook-Levin Theorem. But the book also provides a broader view of computer science and its historical development, with discussions of Turing's original 1936 computing machines, the connections between undecidability and Gödel's incompleteness theorem, and Karp's famous set of twenty-one NP-complete problems. Throughout, the book recasts traditional computer science concepts by considering how computer programs are used to solve real problems. Standard theorems are stated and proven with full mathematical rigor, but motivation and understanding are enhanced by considering concrete implementations. The book's examples and other content allow readers to view demonstrations of—and to experiment with—a wide selection of the topics it covers. The result is an ideal text for an introduction to the theory of computation. An accessible and rigorous introduction to the essential fundamentals of computer science theory, written specifically for undergraduates taking introduction to the theory of computation Features a practical, interactive approach using real computer programs (Python in the text, with forthcoming Java alternatives online) to enhance motivation and understanding Gives equal emphasis to computability and complexity Includes special topics that demonstrate the profound nature of key ideas in the theory of computation Lecture slides and Python programs are available at whatcanbecomputed.com
Quantum Computing Since Democritus Thomson/Course Technology
 This introductory text covers the key areas of computer science, including recursive function theory, formal languages, and automata. Additions to the second edition include: extended exercise sets, which vary in difficulty; expanded section on recursion theory; new chapters on program verification and logic programming; updated references and examples throughout.
Theory and Applications Academic Press
 This book provides a concise and modern introduction to Formal Languages and Machine Computation, a group of disparate topics in the theory of computation, which includes formal languages, automata theory, turing machines, computability, complexity, number-theoretic computation, public-key cryptography, and some new models of computation, such as quantum and biological computation. As the theory of computation is a subject based on mathematics, a thorough introduction to a number of relevant mathematical topics, including mathematical logic, set theory, graph theory, modern abstract algebra, and particularly number theory, is given in the first chapter of the book. The book can be used either as a textbook for an undergraduate course, for a first-year graduate course, or as a basic reference in the field.
A Second Course in Formal Languages and Automata Theory Springer Science & Business Media
 Computability, Complexity, and Languages is an introductory text that covers the key areas of computer science, including recursive function theory, formal languages, and automata. It assumes a minimal background in formal mathematics. The book is divided into five parts: Computability, Grammars and Automata, Logic, Complexity, and Unsolvability. Computability theory is introduced in a manner that makes maximum use of previous programming experience, including a "universal" program that takes up less than a page. The number of exercises included has more than tripled. Automata theory, computational logic, and complexity theory are presented in a flexible manner, and can be covered in a variety of different arrangements.
Introduction to Automata, Computability, Complexity, Algorithmics, Randomization, Communication, and Cryptography Elsevier
 Theory of computation is seen as a branch of both theoretical computer science and modern mathematics (however, it also contains some concepts from pure mathematics). Theory of computation shows how one can effectively solve a problem using a computational model. A number of computational models are described in theory of computation. Algorithm is most common format of computational model. Algorithm is a logical, systematic presentation of the process of problem solution. It theoretically represents the procedure of solving a particular problem. Flowchart is

another form of such model of computation. Simply, flowchart is a graphical representation of any algorithm, using various symbols. Each symbol of flowchart represents a particular action. Algorithms and flowcharts possess a strong relation among each other. Yet, theory of computation talks more deeply and descriptively about algorithms and less about flowcharts.

Theory of Computation Springer Science & Business Media

Automata and Computability is a class-tested textbook which provides a comprehensive and accessible introduction to the theory of automata and computation. The author uses illustrations, engaging examples, and historical remarks to make the material interesting and relevant for students. It incorporates modern/handy ideas, such as derivative-based parsing and a Lambda reducer showing the universality of Lambda calculus. The book also shows how to sculpt automata by making the regular language conversion pipeline available through a simple command interface. A Jupyter notebook will accompany the book to feature code, YouTube videos, and other supplements to assist instructors and students. Features Uses illustrations, engaging examples, and historical remarks to make the material accessible Incorporates modern/handy ideas, such as derivative-based parsing and a Lambda reducer showing the universality of Lambda calculus Shows how to "sculpt" automata by making the regular language conversion pipeline available through simple command interface Uses a mini functional programming (FP) notation consisting of lambdas, maps, filters, and set comprehension (supported in Python) to convey math through PL constructs that are succinct and resemble math Provides all concepts are encoded in a compact Functional Programming code that will tessellate with Latex markup and Jupyter widgets in a document that will accompany the books. Students can run code effortlessly.

From a Programming Perspective Springer Science & Business Media

This Third Edition, in response to the enthusiastic reception given by academia and students to the previous edition, offers a cohesive presentation of all aspects of theoretical computer science, namely automata, formal languages, computability, and complexity. Besides, it includes coverage of mathematical preliminaries. NEW TO THIS EDITION • Expanded sections on pigeonhole principle and the principle of induction (both in Chapter 2) • A rigorous proof of Kleene's theorem (Chapter 5) • Major changes in the chapter on Turing machines (TMs) – A new section on high-level description of TMs – Techniques for the construction of TMs – Multitape TM and nondeterministic TM • A new chapter (Chapter 10) on decidability and recursively enumerable languages • A new chapter (Chapter 12) on complexity theory and NP-complete problems • A section on quantum computation in Chapter 12. • KEY FEATURES • Objective-type questions in each chapter—with answers provided at the end of the book. • Eighty-three additional solved examples—added as Supplementary Examples in each chapter. • Detailed solutions at the end of the book to chapter-end exercises. The book is designed to meet the needs of the undergraduate and postgraduate students of computer science and engineering as well as those of the students offering courses in computer applications.

Theory of Computation Springer

New and classical results in computational complexity, including interactive proofs, PCP, derandomization, and quantum computation. Ideal for graduate students.

Concise Guide to Computation Theory Cambridge University Press

Models of Computation and Formal Languages presents a comprehensive and rigorous treatment of the theory of computability. The text takes a novel approach focusing on computational models and is the first book of its kind to feature companion software. Deus Ex Machina, developed by Nicolae Savoiu, comprises software simulations of the various computational models considered and incorporates numerous examples in a user-friendly format. Part I of the text introduces several universal models including Turing machines, Markov algorithms, and register machines. Complexity theory is integrated gradually, starting in Chapter 1. The vector machine model of parallel computation is covered thoroughly both in text and software. Part II develops the Chomsky hierarchy of formal languages and provides both a grammar-theoretic and an automata-theoretic characterization of each language family. Applications to programming languages round out an in-depth theoretical discussion, making this an ideal text for students approaching this subject for the first time. Ancillary sections of several chapters relate classical computability theory to the philosophy of mind, cognitive science, and theoretical linguistics. Ideal for Theory of Computability and Theory of Algorithms courses at the advanced undergraduate or beginning graduate level, Models of Computation and Formal Languages is one of the only texts that... - - Features accompanying software available on the World Wide Web at <http://home.manhattan.edu/gregory.taylor/thcomp/> Adopts an integrated approach to complexity theory - Offers a solutions manual containing full solutions to several hundred exercises. Most of these solutions are available

to students on the World Wide Web at <http://home.manhattan.edu/gregory.taylor/thcomp> - Features examples relating the theory of computation to the probable programming experience of an undergraduate computer science major

Theory and Applications Prentice Hall

Never HIGHLIGHT a Book Again! Virtually all of the testable terms, concepts, persons, places, and events from the textbook are included. Cram101 Just the FACTS101 studyguides give all of the outlines, highlights, notes, and quizzes for your textbook with optional online comprehensive practice tests. Only Cram101 is Textbook Specific. Accompanys: 9780132288064 .

A Practical Guide to the Theory of Computation OUP Oxford

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.

Theoretical Computer Science Jones & Bartlett Publishers

Written for graduate students and advanced undergraduates in computer science, A Second Course in Formal Languages and Automata Theory treats topics in the theory of computation not usually covered in a first course. After a review of basic concepts, the book covers combinatorics on words, regular languages, context-free languages, parsing and recognition, Turing machines, and other language classes. Many topics often absent from other textbooks, such as repetitions in words, state complexity, the interchange lemma, 2DPDAs, and the incompressibility method, are covered here. The author places particular emphasis on the resources needed to represent certain languages. The book also includes a diverse collection of more than 200 exercises, suggestions for term projects, and research problems that remain open.

Automata, Computability and Complexity John Wiley & Sons

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.

Computers and Intractability Springer Science & Business Media

This textbook discusses the most fundamental and puzzling questions about the foundations of computing. In 23 lecture-sized chapters it provides an exciting tour through the most important results in the field of computability and time complexity, including the Halting Problem, Rice's Theorem, Kleene's Recursion Theorem, the Church-Turing Thesis, Hierarchy Theorems, and Cook-Levin's Theorem. Each chapter contains classroom-tested material, including examples and exercises. Links between adjacent chapters provide a coherent narrative. Fundamental results are explained lucidly by means of programs written in a simple, high-level imperative programming language, which only requires basic mathematical knowledge. Throughout the book, the impact of the presented results on the entire field of computer science is emphasised. Examples range from program analysis to networking, from database programming to popular games and puzzles. Numerous biographical footnotes about the famous scientists who developed the subject are also included. "Limits of Computation" offers a thorough, yet accessible, introduction to computability and complexity for the computer science student of the 21st century.

A Modern Approach Cambridge University Press

A mathematically sophisticated introduction to Turing's theory, Boolean functions, automata, and formal languages.

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