

Theory Of Computer Science

Right here, we have countless books **Theory Of Computer Science** and collections to check out. We additionally pay for variant types and afterward type of the books to browse. The agreeable book, fiction, history, novel, scientific research, as without difficulty as various additional sorts of books are readily open here.

As this Theory Of Computer Science, it ends going on bodily one of the favored books Theory Of Computer Science collections that we have. This is why you remain in the best website to see the unbelievable ebook to have.

<i>Theory Of Computer Science</i>	<i>2021-11-07</i>
SIERRA BRENDEN	
<i>Theory of Computation</i> Springer Science & Business Media The contents of this book are self-sufficient in the sense that no preliminary knowledge other than elementary set theory is needed and there are no complicated mathematical theorems in the book. A must for those entering the field.	computing for graduate students in computer science and also provides an introduction to some more advanced topics for those intending further study in the area. This innovative text focuses primarily on computational complexity theory: the classification of computational problems in terms of their inherent complexity. The book contains an invaluable collection of lectures for first-year graduates on the theory of computation. Topics and features include more than 40 lectures for first year graduate students, and a dozen homework sets and exercises.
Computer Science and Engineering—Theory and Applications Elsevier This book constitutes the refereed proceedings of the Second IFIP WG 1.8 International Conference on Topics in Theoretical Computer Science, TTCS 2017, held in Tehran, Iran, in September 2017. The 8 papers presented in this volume were carefully reviewed and selected from 20 submissions. They were organized in topical sections named: algorithms and complexity; and logic, semantics, and programming theory.	<i>Funding a Revolution</i> Springer Emphasizes the computer science aspects of the subject. Details applications in databases, complexity theory, and formal languages, as well as other branches of computer science.
Computer Arithmetic in Theory and Practice MIT Press This volume commemorates Shimon Even, one of founding fathers of Computer Science in Israel, who passed away on May 1, 2004. This Festschrift contains research contributions, surveys and educational essays in theoretical computer science, written by former students and close collaborators of Shimon. The essays address natural computational problems and are accessible to most researchers in theoretical computer science.	<i>Theoretical Computer Science</i> Springer This book provides a good introduction to the classical elementary number theory and the modern algorithmic number theory, and their applications in computing and information technology, including computer systems design, cryptography and network security. In this second edition proofs of many theorems have been provided, further additions and corrections were made.
<i>People & Ideas in Theoretical Computer Science</i> Academic Press This revised and extensively expanded edition of Computability and Complexity Theory comprises essential materials that are core knowledge in the theory of computation. The book is self-contained, with a preliminary chapter describing key mathematical concepts and notations. Subsequent chapters move from the qualitative aspects of classical computability theory to the quantitative aspects of complexity theory. Dedicated chapters on undecidability, NP-completeness, and relative computability focus on the limitations of computability and the distinctions between feasible and intractable. Substantial new content in this edition includes: a chapter on nonuniformity studying Boolean circuits, advice classes and the important result of Karp–Lipton. a chapter studying properties of the fundamental probabilistic complexity classes a study of the alternating Turing machine and uniform circuit classes. an introduction of counting classes, proving the famous results of Valiant and Vazirani and of Toda a thorough treatment of the proof that IP is identical to PSPACE With its accessibility and well-devised organization, this text/reference is an excellent resource and guide for those looking to develop a solid grounding in the theory of computing. Beginning graduates, advanced undergraduates, and professionals involved in theoretical computer science, complexity theory, and computability will find the book an essential and practical learning tool. Topics and features: Concise, focused materials cover the most fundamental concepts and results in the field of modern complexity theory, including the theory of NP-completeness, NP-hardness, the polynomial hierarchy, and complete problems for other complexity classes Contains information that otherwise exists only in research literature and presents it in a unified, simplified manner Provides key mathematical background information, including sections on logic and number theory and algebra Supported by numerous exercises and supplementary problems for reinforcement and self-study purposes	Algorithms and Complexity National Academies Press The author examines logic and methodology of design from the perspective of computer science. Computers provide the context for this examination both by discussion of the design process for hardware and software systems and by consideration of the role of computers in design in general. The central question posed by the author is whether or not we can construct a theory of design.
Mathematics and Computation Princeton University Press 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.	Theoretical Computer Science for the Working Category Theorist International Monographs on Company Theory and theoreticians have played a major role in computer science. Many insights into the nature of efficient computations were gained and theory was crucial for some of the most celebrated engineering triumphs of computer science (e.g., in compiler design, databases, multitask operating systems, to name just a few). Theoretical computer science (TCS) functions as a communication bridge between computer science and other subjects, notably, mathematics, linguistics, biology; it is a champion in developing unconventional models of computation (DNA, quantum). This book collects personal accounts and reflections of fourteen eminent scientists who have dedicated themselves to the craft of TCS. Contributions focus on authors specific interests, experiences, and reminiscences. The emerging picture, which is just one among other possible ones, should be a catalyst for further developments and continuations. Was most interested to learn about the project, which should be a worthwhile one." N. Chomsky, MIT. "The human story of creativity is inspiring and documents a very noble activity - the creation of knowledge in its most beautiful and useful form - the creation of a science. Supplying the technical and intellectual tools to probe some of the most fascinating questions about the nature of thought and intelligence, theoretical computer science is trying to grasp the limits of rational thought, the limits of knowable. This book will contribute to the understanding of the creation of a magnificent science." J. Hartmanis, NSF. "This is obviously an extremely worthwhile project." D. E. Knuth, Stanford University.
<i>Role Of Theory In Computer Science, The: Essays Dedicated To Janusz Brzozowski</i> Cambridge University Press This textbook is uniquely written with dual purpose. It cover cores material in the foundations of	<i>Theoretical Computer Science</i> Cambridge University Press Using basic category theory, this Element describes all the central concepts and proves the main theorems of theoretical computer science. Category theory, which works with functions, processes, and structures, is uniquely qualified to present the fundamental results of theoretical computer science. In this Element, readers will meet some of the deepest ideas and theorems of modern computers and mathematics, such as Turing machines, unsolvable problems, the P=NP question, Kurt Gödel's incompleteness theorem, intractable problems, cryptographic protocols, Alan Turing's Halting problem, and much more. The concepts come alive with many examples and exercises.

manifest; less widely recognized is the major role the federal government played in launching the computing revolution and sustaining its momentum. Funding a Revolution examines the history of computing since World War II to elucidate the federal government's role in funding computing research, supporting the education of computer scientists and engineers, and equipping university research labs. It reviews the economic rationale for government support of research, characterizes federal support for computing research, and summarizes key historical advances in which government-sponsored research played an important role. Funding a Revolution contains a series of case studies in relational databases, the Internet, theoretical computer science, artificial intelligence, and virtual reality that demonstrate the complex interactions among government, universities, and industry that have driven the field. It offers a series of lessons that identify factors contributing to the success of the nation's computing enterprise and the government's role within it.

A Basis for Theoretical Computer Science Cambridge University Press

This volume brings together the work of several prominent researchers who have collaborated with Janusz Brzozowski, or worked in topics he developed, in the areas of regular languages, syntactic semigroups of formal languages, the dot-depth hierarchy, and formal modeling of circuit testing and software specification using automata theory.

Elements of Finite Model Theory CRC Press

This book presents the revised final versions of eight lectures given by leading researchers at the First Summer School on Theoretical Aspects of Computer Science in Tehran, Iran, in July 2000. The lectures presented are devoted to quantum computation, approximation algorithms, self-testing/correction, algebraic modeling of data, the regularity lemma, multiple access communication and combinatorial designs, graph-theoretical methods in computer vision, and low-density parity-check codes.

Physics and Theoretical Computer Science John Wiley & Sons

This innovative textbook presents the key foundational concepts that can be covered in a one semester undergraduate course in the theory of computation. It offers the most accessible and motivational course material available for undergraduate computer theory classes and is directed at the typical undergraduate who may have difficulty understanding the relevance of the course to their future careers. The text helps make students more comfortable with techniques required for the deeper study of computer science. This text is a bridge between theory and practice. It shows how theory is motivated by practical problems, and in turn how theory influences the practice of computing. Simple tools like string matchers, complex tools like compilers, and general notions like cryptographic security all lie at the interface between principles and practice. * Contains coverage of contemporary topics: languages and problems, machine models, grammars, reductions, resource consumption, syntax vs. semantics, sequential vs. parallel computation, feasible vs. intractable problems * Motivates students by clarifying complex theory with many examples, exercises, and detailed proofs * Offers an integrated review of discrete math concepts, defining each concept where it is first used * Unifies notation for describing machine models * Emphasizes computational complexity

Computability and Complexity Theory Springer Science & Business Media

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.

A Recursive Introduction to the Theory of Computation Springer Science & Business Media

Here, the author, develops a type theory, studies its properties, and explains its uses in applications to computer science. In particular, type theory is shown to offer a powerful and

uniform language for programming, program specification and development, and logical reasoning. [Number Theory for Computing](#) Cengage Learning

There are several theories of programming. The first usable theory, often called "Hoare's Logic", is still probably the most widely known. In it, a specification is a pair of predicates: a precondition and postcondition (these and all technical terms will be defined in due course). Another popular and closely related theory by Dijkstra uses the weakest precondition predicate transformer, which is a function from programs and postconditions to preconditions. Jones's Vienna Development Method has been used to advantage in some industries; in it, a specification is a pair of predicates (as in Hoare's Logic), but the second predicate is a relation. Temporal Logic is yet another formalism that introduces some special operators and quantifiers to describe some aspects of computation. The theory in this book is simpler than any of those just mentioned. In it, a

specification is just a boolean expression. Refinement is just ordinary implication. This theory is also more general than those just mentioned, applying to both terminating and nonterminating computation, to both sequential and parallel computation, to both stand-alone and interactive computation. And it includes time bounds, both for algorithm classification and for tightly constrained real-time applications.

Mathematical Logic and Theoretical Computer Science Springer Science & Business Media
Games provide mathematical models for interaction. Numerous tasks in computer science can be formulated in game-theoretic terms. This fresh and intuitive way of thinking through complex issues reveals underlying algorithmic questions and clarifies the relationships between different domains. This collection of lectures, by specialists in the field, provides an excellent introduction to various aspects of game theory relevant for applications in computer science that concern program design, synthesis, verification, testing and design of multi-agent or distributed systems.

Originally devised for a Spring School organised by the GAMES Networking Programme in 2009, these lectures have since been revised and expanded, and range from tutorials concerning fundamental notions and methods to more advanced presentations of current research topics. This volume is a valuable guide to current research on game-based methods in computer science for undergraduate and graduate students. It will also interest researchers working in mathematical logic, computer science and game theory.

Fundamentals of the Theory of Computation Springer Science & Business Media

The second part of this Handbook presents a choice of material on the theory of automata and rewriting systems, the foundations of modern programming languages, logics for program specification and verification, and some chapters on the theoretic modelling of advanced information processing.