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[Data Structures and Algorithms in Java](#) Jones & Bartlett Publishers

Mathematics of Computing -- Parallelism.

Typographic Milestones Springer Science & Business Media

Machine learning has become an integral part of many commercial applications and research projects, but this field is not exclusive to large companies with extensive research teams. If you use Python, even as a beginner, this book will teach you practical ways to build your own machine learning solutions. With all the data available today, machine learning applications are limited only by your imagination. You'll learn the steps necessary to create a successful machine-learning application with Python and the scikit-learn library. Authors Andreas Müller and Sarah Guido focus on the practical aspects of using machine learning

algorithms, rather than the math behind them. Familiarity with the NumPy and matplotlib libraries will help you get even more from this book. With this book, you'll learn: Fundamental concepts and applications of machine learning Advantages and shortcomings of widely used machine learning algorithms How to represent data processed by machine learning, including which data aspects to focus on Advanced methods for model evaluation and parameter tuning The concept of pipelines for chaining models and encapsulating your workflow Methods for working with text data, including text-specific processing techniques Suggestions for improving your machine learning and data science skills

Introduction to Algorithms, fourth edition MIT Press

Foundations of Algorithms, Fifth Edition offers a well-balanced presentation of algorithm design, complexity analysis of algorithms, and computational complexity. Ideal for any computer science students with a background in college algebra and discrete structures, the text presents mathematical concepts using standard English and simple notation to maximize accessibility and user-friendliness. Concrete examples, appendices reviewing essential mathematical concepts, and a student-focused approach reinforce theoretical

explanations and promote learning and retention. C++ and Java pseudocode help students better understand complex algorithms. A chapter on numerical algorithms includes a review of basic number theory, Euclid's Algorithm for finding the greatest common divisor, a review of modular arithmetic, an algorithm for solving modular linear equations, an algorithm for computing modular powers, and the new polynomial-time algorithm for determining whether a number is prime. The revised and updated Fifth Edition features an all-new chapter on genetic algorithms and genetic programming, including approximate solutions to the traveling salesperson problem, an algorithm for an artificial ant that navigates along a trail of food, and an application to financial trading. With fully updated exercises and examples throughout and improved instructor resources including complete solutions, an Instructor's Manual and PowerPoint lecture outlines, *Foundations of Algorithms* is an essential text for undergraduate and graduate courses in the design and analysis of algorithms. Key features include: The only text of its kind with a chapter on genetic algorithms Use of C++ and Java pseudocode to help students better understand complex algorithms No calculus background required Numerous clear and student-friendly examples throughout the text Fully updated exercises and examples throughout Improved instructor resources, including complete solutions, an Instructor's Manual, and PowerPoint lecture outlines"

Randomized Algorithms and Probabilistic Analysis "O'Reilly Media, Inc."

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.

A Practical Introduction to Data Structures and Algorithm Analysis Morgan Kaufmann Pub

Python Algorithms, Second Edition explains the Python approach to algorithm analysis and design. Written by Magnus Lie Hetland, author of *Beginning Python*, this book is sharply focused on classical algorithms, but it also gives a solid understanding of fundamental algorithmic problem-solving techniques. The book deals with some of the most important and challenging areas of programming and computer science in a highly readable manner. It covers both algorithmic theory

and programming practice, demonstrating how theory is reflected in real Python programs. Well-known algorithms and data structures that are built into the Python language are explained, and the user is shown how to implement and evaluate others.

A Common-Sense Guide to Data Structures and Algorithms Pearson Higher Ed

This textbook teaches introductory data structures.

Open Data Structures OUP USA

For anyone who has ever wondered how computers solve problems, an engagingly written guide for nonexperts to the basics of computer algorithms. Have you ever wondered how your GPS can find the fastest way to your destination, selecting one route from seemingly countless possibilities in mere seconds? How your credit card account number is protected when you make a purchase over the Internet? The answer is algorithms. And how do these mathematical formulations translate themselves into your GPS, your laptop, or your smart phone? This book offers an engagingly written guide to the basics of computer algorithms. In *Algorithms Unlocked*, Thomas Cormen—coauthor of the leading college textbook on the subject—provides a general explanation, with limited mathematics, of how algorithms enable computers to solve problems. Readers will learn what computer algorithms are, how to describe them, and how to evaluate them. They will discover simple ways to search for information in a computer; methods for rearranging information in a computer into a prescribed order (“sorting”); how to solve basic problems that can be modeled in a computer

with a mathematical structure called a “graph” (useful for modeling road networks, dependencies among tasks, and financial relationships); how to solve problems that ask questions about strings of characters such as DNA structures; the basic principles behind cryptography; fundamentals of data compression; and even that there are some problems that no one has figured out how to solve on a computer in a reasonable amount of time.

Mastering Basic Algorithms in the Python Language Addison Wesley

" Algorithms and data structures are much more than abstract concepts. Mastering them enables you to write code that runs faster and more efficiently, which is particularly important for today’s web and mobile apps. This book takes a practical approach to data structures and algorithms, with techniques and real-world scenarios that you can use in your daily production code. Graphics and examples make these computer science concepts understandable and relevant. You can use these techniques with any language; examples in the book are in JavaScript, Python, and Ruby. Use Big O notation, the primary tool for evaluating algorithms, to measure and articulate the efficiency of your code, and modify your algorithm to make it faster. Find out how your choice of arrays, linked lists, and hash tables can dramatically affect the code you write. Use recursion to solve tricky problems and create algorithms that run exponentially faster than the alternatives. Dig into advanced data structures such as binary trees and graphs to help scale specialized applications such as social networks and mapping software. You’ll even encounter a single keyword that can give your code a turbo boost. Jay

Wengrow brings to this book the key teaching practices he developed as a web development bootcamp founder and educator. Use these techniques today to make your code faster and more scalable. "

Theory and Practice Introduction To Algorithms THIS TEXTBOOK is about computer science. It is also about Python. However, there is much more. The study of algorithms and data structures is central to understanding what computer science is all about. Learning computer science is not unlike learning any other type of difficult subject matter. The only way to be successful is through deliberate and incremental exposure to the fundamental ideas. A beginning computer scientist needs practice so that there is a thorough understanding before continuing on to the more complex parts of the curriculum. In addition, a beginner needs to be given the opportunity to be successful and gain confidence. This textbook is designed to serve as a text for a first course on data structures and algorithms, typically taught as the second course in the computer science curriculum. Even though the second course is considered more advanced than the first course, this book assumes you are beginners at this level. You may still be struggling with some of the basic ideas and skills from a first computer science course and yet be ready to further explore the discipline and continue to practice problem solving. We cover abstract data types and data structures, writing algorithms, and solving problems. We look at a number of data structures and solve classic problems that arise. The tools and techniques that you learn here will be applied over and over as you continue your study of computer science.

Algorithms Addison-Wesley Professional
Focuses on the interplay between algorithm design and the underlying computational models.

Introduction To Algorithms Cambridge University Press

Introduction to abstract algebra. Fast algorithms for short convolutions. Fast algorithms for the discrete Fourier transform. Number theory and algebraic

field theory. Computation in surrogate fields. Fast algorithms and multidimensional convolutions. Fast algorithms and multidimensional transforms. Architecture of filters and transforms. Fast algorithms based on doubling strategies. Fast algorithms for solving Toeplitz systems. Fast algorithms for Trellis and tree search. A collection of cyclic convolution algorithms. A collection of Winograd small FFT algorithms.

An Interdisciplinary Approach MIT Press
Finally, after a wait of more than thirty-five years, the first part of Volume 4 is at last ready for publication. Check out the boxed set that brings together Volumes 1 - 4A in one elegant case, and offers the purchaser a \$50 discount off the price of buying the four volumes individually. The Art of Computer Programming, Volumes 1-4A Boxed Set, 3/e ISBN: 0321751043

Synthesis of Parallel Algorithms Pearson Education India

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.

The Design of Approximation Algorithms Wiley
Global Education

"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.

Problems on Algorithms John Wiley & Sons
Introduction To Algorithms MIT Press

The Design and Analysis of Algorithms
Cambridge University Press

Based on the authors' market leading data structures books in Java and C++, this textbook offers a comprehensive, definitive introduction to data structures in Python by authoritative authors. Data Structures and Algorithms in Python is the first authoritative object-oriented book available for the Python data structures course.

Designed to provide a comprehensive introduction to data structures and algorithms, including their design, analysis, and implementation, the text will maintain the same general structure as Data Structures and Algorithms in Java and Data Structures and Algorithms in C++.

Introduction to Algorithms, third edition

Englewood Cliffs, N.J. : Prentice Hall
With approximately 600 problems and 35 worked examples, this supplement provides a collection of practical problems on the design, analysis and verification of algorithms. The book focuses on the important areas of algorithm design and analysis: background material; algorithm design techniques; advanced data structures and NP-completeness; and miscellaneous problems. Algorithms are expressed in Pascal-like pseudocode supported

by figures, diagrams, hints, solutions, and comments.

Python Algorithms Pragmatic Bookshelf

This textbook, for second- or third-year students of computer science, presents insights, notations, and analogies to help them describe and think about algorithms like an expert, without grinding through lots of formal proof. Solutions to many problems are provided to let students check their progress, while class-tested PowerPoint slides are on the web for anyone running the course. By looking at both the big picture and easy step-by-step methods for developing algorithms, the author guides students around the common pitfalls. He stresses paradigms such as loop invariants and recursion to unify a huge range of algorithms into a few meta-algorithms. The book fosters a deeper understanding of how and why each algorithm works. These insights are presented in a careful and clear way, helping students to think abstractly and preparing them for creating their own innovative ways to solve problems.

Algorithms Addison-Wesley

Nine revolutionary algorithms that power our computers and smartphones Every day, we use our computers to perform remarkable feats. A simple web search picks out a handful of relevant needles from the world's biggest haystack. Uploading a photo to Facebook transmits millions of pieces of information over numerous error-prone network links, yet somehow a perfect copy of the photo arrives intact. Without even knowing it, we use public-key cryptography to transmit secret information like credit card numbers, and we use digital signatures to verify the identity of the websites we visit. How do our computers perform these tasks with such ease? John MacCormick answers this question in language anyone can understand, using vivid examples to explain the fundamental tricks behind nine computer algorithms that power our PCs, tablets, and smartphones.

Data Structures and Problem Solving Using Java

CreateSpace

This practical text contains fairly "traditional" coverage of data structures with a clear and complete use of algorithm analysis, and some emphasis on file processing techniques as relevant to modern programmers. It fully integrates OO programming with these topics, as part of the detailed presentation of OO programming itself. Chapter topics include lists, stacks, and queues; binary and general trees; graphs; file processing and external sorting; searching; indexing; and limits to computation. For programmers who need a good reference on data structures.