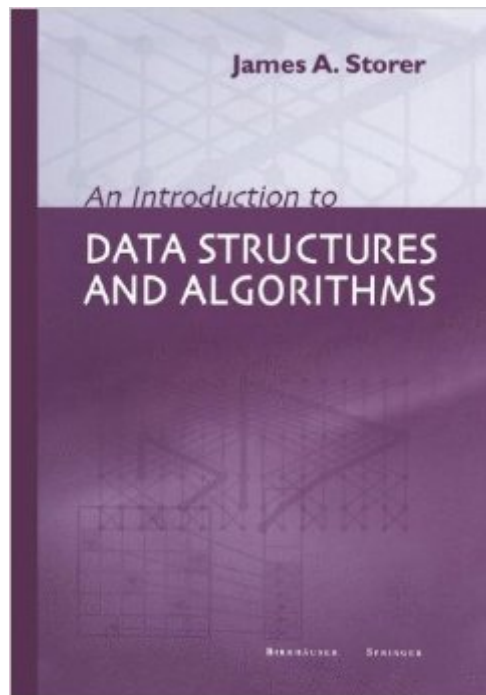


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# An Introduction To Data Structures And Algorithms (Progress In Theoretical Computer Science)



## Synopsis

Data structures and algorithms are presented at the college level in a highly accessible format that presents material with one-page displays in a way that will appeal to both teachers and students. The thirteen chapters cover: Models of Computation, Lists, Induction and Recursion, Trees, Algorithm Design, Hashing, Heaps, Balanced Trees, Sets Over a Small Universe, Graphs, Strings, Discrete Fourier Transform, Parallel Computation. Key features: Complicated concepts are expressed clearly in a single page with minimal notation and without the "clutter" of the syntax of a particular programming language; algorithms are presented with self-explanatory "pseudo-code." \* Chapters 1-4 focus on elementary concepts, the exposition unfolding at a slower pace. Sample exercises with solutions are provided. Sections that may be skipped for an introductory course are starred. Requires only some basic mathematics background and some computer programming experience. \* Chapters 5-13 progress at a faster pace. The material is suitable for undergraduates or first-year graduates who need only review Chapters 1 -4. \* This book may be used for a one-semester introductory course (based on Chapters 1-4 and portions of the chapters on algorithm design, hashing, and graph algorithms) and for a one-semester advanced course that starts at Chapter 5. A year-long course may be based on the entire book. \* Sorting, often perceived as rather technical, is not treated as a separate chapter, but is used in many examples (including bubble sort, merge sort, tree sort, heap sort, quick sort, and several parallel algorithms). Also, lower bounds on sorting by comparisons are included with the presentation of heaps in the context of lower bounds for comparison-based structures. \* Chapter 13 on parallel models of computation is something of a mini-book itself, and a good way to end a course. Although it is not clear what parallel

## Book Information

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## Customer Reviews

If you have cut your teeth on Donald Knuth's classic three volumes, "The Art of Computer Programming", and you want more detail, at a similar level of complexity, then consider Storer's book. It delves into lists, recursion, trees, graphs, heaps and sets. Like Knuth, Storer thoughtfully supplies an extensive list of questions at the end of each chapter that will greatly deepen your appreciation of the field if you tackle them. Ok, he doesn't give answers, but think of that as greater incentive on your part to solve them. There are almost 400 questions in the book. The teaching style is similar to Knuth, in that it has all the rigour needed by an algorithm designer like yourself, without drowning you in epsilon-delta ultra rigour like a pure maths text. Note that the only code fragments are in pseudocode. This should not be a problem for you. I am assuming you are experienced enough that what you need is understanding of an algorithm, and that manually converting it to code is straightforward and a purely secondary issue. The take home message is that this is excellent for anyone doing serious programming.

The product itself is in good condition and I have no issues with torn pages, binding or anything. The contents of this book though, is another story. I'm not sure who they are trying to cater to but definitely not a friendly read. The explanation is loose and limited examples gave me a hard time. This book is so bad that I found myself searching on Google and Wikipedia for examples and concept learning. If you have to get this book for assignments than do so. But if you just want it to expand your knowledge I would look elsewhere.

The book presents many different data structures and algorithms but it really is lacking in terms of depth and intuition. I feel that it does not make much sense to purchase a book that covers all these data structures/algorithms without intuition on how they were conceived and why they are useful.

I selected this book as the textbook for my course of data structure, and this book has given me a lot of troubles. Firstly, the pseudo code give by the book is sometimes wrong and the descriptions about the data structures are inconsistent. For example, if you have this book, turn to the page containing the merge sort pseudo code and give it a try. As another example, go to the tree section

and have a detailed look at descriptions of the delete-min operations of a binary search tree, you will find the defects by yourself. Secondly, the language the author used are not reader-friendly, especially not beginner friendly. To some extent, it scared away my students. They kept telling me that "this book is difficult to read". I should have selected another book on data structure.

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