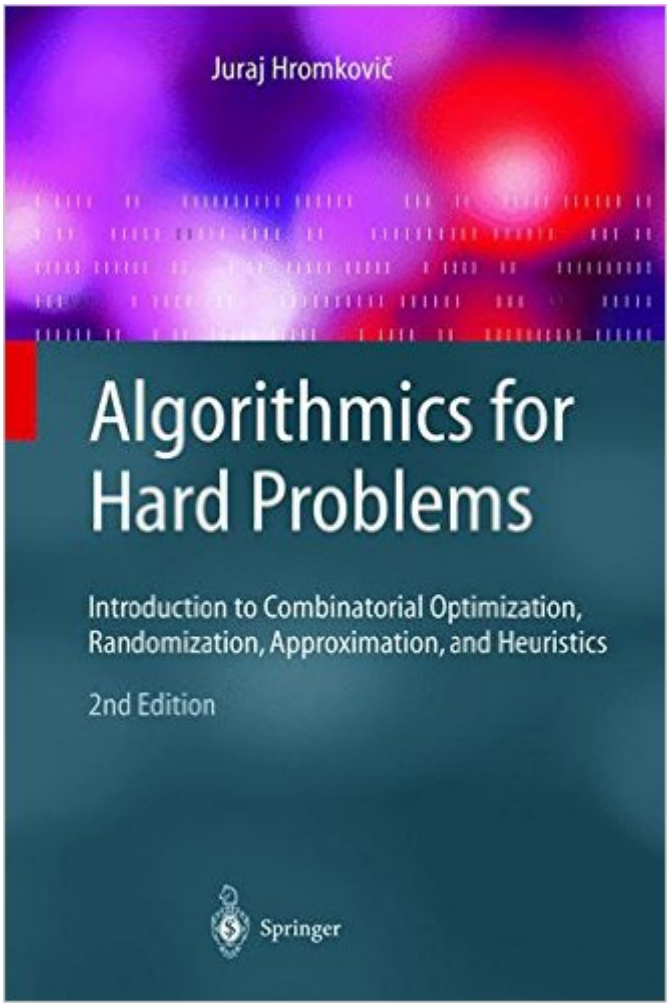
Algorithmics For Hard Problems: Introduction To Combinatorial Optimization, Randomization, Approximation, And Heuristics



Synopsis

Algorithmic design, especially for hard problems, is more essential for success in solving them than any standard improvement of current computer techÂ- nologies. Because of this, the design of algorithms for solving hard problems is the core of current algorithmic research from the theoretical point of view as well as from the practical point of view. There are many general text books on algorithmics, and several specialized books devoted to particular approaches such as local search, randomization, approximation algorithms, or heuristics. But there is no textbook that focuses on the design of algorithms for hard computing tasks, and that systematically explains, combines, and compares the main possibilities for attacking hard algorithmic problems. As this topic is fundamental for computer science, this book tries to close this gap. Another motivation, and probably the main reason for writing this book, is connected to education. The considered area has developed very dynamiÂ- cally in recent years and the research on this topic discovered several profound results, new concepts, and new methods. Some of the achieved contributions are so fundamental that one can speak about paradigms which should be inÂ- cluded in the education of every computer science student. Unfortunately, this is very far from reality. This is because these paradigms are not sufficiently known in the computer science community, and so they are insufficiently comÂ- municated to students and practitioners.

Book Information

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Customer Reviews

Algorithmics for Hard Problems addresses an important (if somewhat small) group of technical

people who work exclusively on intractable problems. It takes a great deal of creativity and a large set of intellectual tools to make even modest progress on these problems. Prof. Hromkovic's book presents and organizes a big package of ideas and tools for approaching these problems. Even the last section, entitled "A Guide to Solving Hard Problems" addresses some of the practical issues of working on problems for which a completely satisfactory answer may be out of reach.This book is especially helpful for software professionals solving difficult problems because it helps one to categorize and understand where the "pain points" can be found. In many software applications very hard problems are hidden within perfectly reasonable appearing and seemingly benign systems -- it's critical in these cases to correctly project the details of the problem onto a well defined set of basis tasks.

This book's presentation is difficult if not impossible to understand. The algorithmics are simply lost amid highly dense, nearly incomprehensible symbolism that obscures rather than illuminates ideas. As a result, the book requires tremendous effort to move from page to page. It will therefore be of limited or no use to practicing software professionals. Although the price is right, I cannot recommend this book.

"Of limited or no use" is really all that needs to be said about this book. My greatest joy all semester was filling this book with every sardonic comment my professor could come up with to describe the utility of this author's research.

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