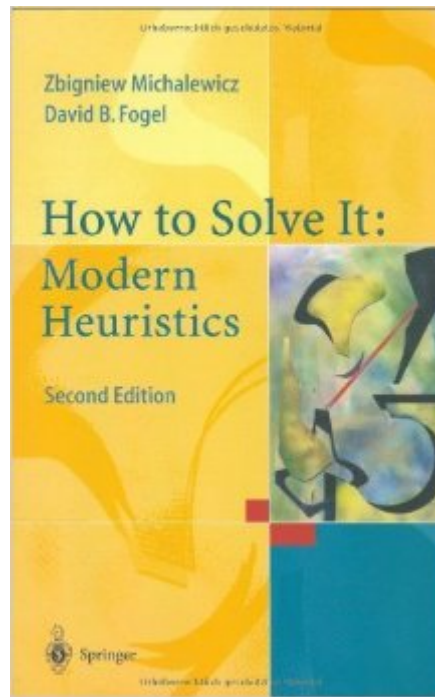


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# How To Solve It: Modern Heuristics



## Synopsis

"This book is the only source that provides comprehensive, current, and correct information on problem solving using modern heuristics. It covers classic methods of optimization, including dynamic programming, the simplex method, and gradient techniques, as well as recent innovations such as simulated annealing, tabu search, and evolutionary computation. Integrated into the discourse is a series of problems and puzzles to challenge the reader. The book is written in a lively, engaging style and is intended for students and practitioners alike. Anyone who reads and understands the material in the book will be armed with the most powerful problem solving tools currently known. This second edition contains two new chapters, one on coevolutionary systems and one on multicriterial decision-making. Also some new puzzles are added and various subchapters are revised."

## Book Information

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## Customer Reviews

I read this book while taking an advanced class in heuristics. I found the book to be extremely well written and very compelling to read. Although dealing with advanced topics, the authors' friendly and

clear writing style makes it accessible to anyone with a CS background. The first half of the book is on search heuristics, covering methods such as traditional searches (exhaustive search, greedy algorithms, divide and conquer, dynamic programming, A\*, etc), methods to escape local optima (simulated annealing, tabu search), and, perhaps most interesting of all, evolutionary algorithms. I later found out that these topics are typically taught in undergraduate artificial intelligence courses, an elective I never took. The second half of the book covers even more advanced areas, such as constraint-handling, neural networks, and fuzzy systems. The authors use three recurring example applications to demonstrate each search technique: the boolean satisfiability problem (SAT), travelling salesman (TSP), and a nonlinear programming problem (NLP). I really liked the consistent use of these three examples, as they give a sense of continuity throughout the book that helps the reader compare search techniques clearly. I had of course studied the TSP problem in my undergraduate algorithms class but never in the context of such interesting approximation algorithms. In my heuristics class we had assignments to implement the TSP search problem using the Lin-Kernighan method, dynamic programming, and an evolutionary algorithm. The written English in this book is simply outstanding and crystal-clear, which was something of a shock since I was unable to even pronounce the first author's name. The writing is in a very friendly tone with elements of humour dispersed throughout.

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