How To Solve It Modern Heuristics Zbigniew Michalewicz

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A Modern Approach CRC Press

First published in 1202, Fibonacci’s Liber Abaci was one of the most important books on mathematics in the Middle Ages, introducing Arabic numerals and methods throughout Europe. This is the first translation into a modern European language, of interest not only to historians of science but also to all mathematicians and mathematics teachers interested in the origins of their methods.

How Algorithms Solve All Our Problems . . . and Create More Cambridge University Press

An accessible treatment of the modeling and solution of integer programming problems, featuring modern applications and software In order to fully comprehend the algorithms associated with integer programming, it is important to understand not only how algorithms work, but also why they work. Applied Integer Programming features a unique emphasis on this point, focusing on problem modeling and solution using commercial software. Taking an application-oriented approach, this book addresses the art and science of mathematical modeling related to the mixed integer programming (MIP) framework and discusses the algorithms and associated practices that enable those models to be solved most efficiently. The book begins with coverage of successful applications, systematic modeling procedures, typical model types, transformation of non-MIP models, combinatorial optimization problem models, and automatic preprocessing to obtain a better formulation. Subsequent chapters present algebraic and geometric basic concepts of linear programming theory and network flows needed for understanding integer programming. Finally, the book concludes with classical and modern solution approaches as well as the key components for building an integrated software system capable of solving large-scale integer programming and combinatorial optimization problems. Throughout the book, the authors demonstrate essential concepts through numerous examples and figures. Each new concept or algorithm is accompanied by a numerical example, and, where applicable, graphics are used to draw together diverse problems or approaches into a unified whole. In addition, features of solution approaches found in today's commercial software are identified throughout the book. Thoroughly classroom-tested, Applied Integer Programming is an excellent book for integer programming courses at the upper-undergraduate and graduate levels. It also serves as a well-organized reference for professionals, software developers, and analysts who work in the fields of applied mathematics, computer science, operations research, management science, and engineering and use integer-programming techniques to model and solve real-world optimization problems.

Finite Difference Computing with PDEs Princeton University Press

The book provides highlights on the key concepts and trends of evolution in History of Science and Technology in China, as one of the series of books of “China Classified Histories”.

Modern Puzzles and How to Solve Them ... New Edition Simon and Schuster

Learning to Solve Problems is a much-needed book thatdescribes models for designing interactive learning environments tosupport how to learn and solve different kinds of problems. Using aresearch-based approach, author David H. Jonassen?a recognizedexpert in the field?shows how to design instruction to supportthree kinds of problems: story problems, troubleshooting, and caseand policy analysis problems. Filled with models and job aids, thisbook describes different approaches for representing problems tolearners and includes information about technology-based tools thatcan help learners mentally represent problems for themselves.Jonassen also explores methods for associating different solutionsto problems and discusses various processes for reflecting on theproblem solving process. Learning to Solve Problems alsoincludes three methods for assessing problem-solvingskills?performance assessment, component skills; and argumentation.

Solve common C++ problems with modern design patterns and build robust applications Springer Science & Business Media

This book is the only source that provides a systematic, integrated introduction to problem solving using modern heuristics, presenting the state-of-the-art in both numerical and analytic methods. 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. Written in a lively, engaging style, readers will learn how to use some of the most powerful problem solving tools currently available.

101 Classic and Modern Puzzles to Make and Solve Springer

Can you outrun a bullet? How do you build an electronic brain? Could you slow down time? How do you unleash chaos? From Plato's classification of regular polyhedra to making a million on the stock market, How to Solve the Da Vinci Code gives you everything you need to understand how numbers work, and the impact they have on our lives every day.

Modern puzzles and how to solve them Prometheus Books

A perennial bestseller by eminent mathematician G. Polya, How to Solve It will show anyone in any field how to think straight. In lucid and appealing prose, Polya reveals how the mathematical method of demonstrating a proof or finding an unknown can be of help in attacking any problem that can be "reasoned" out—from building a bridge to winning a game of anagrams. Generations of readers have relished Polya's deft—indeed, brilliant—instructions on stripping away irrelevancies and going straight to the heart of the problem.

How to Solve the Mismanagement Crisis Packt Publishing Ltd

This book is open access under a CC BY 4.0 license. This easy-to-read book introduces the basics of solving partial differential equations by means of finite difference methods. Unlike many of the traditional academic works on the topic, this book was written for practitioners. Accordingly, it especially addresses: the construction of finite difference schemes, formulation and implementation of algorithms, verification of implementations, analyses of physical behavior as implied by the numerical solutions, and how to apply the methods and software to solve problems in the fields of physics and biology.

The Four Noble Truths Courier Corporation

How to Solve It: Modern HeuristicsSpringer Science & Business Media

How to Solve the Da Vinci Code Quercus

Guiding readers in learning how to respond to difficult situations with a positive, peaceful mind, this resource educates on how to turn challenges into opportunities for mental and spiritual growth and development.

History of Science and Technology in China Apress

A comprehensive guide with extensive coverage on concepts such as OOP, functional programming, generic programming, and STL along with the latest features of C++ Key Features Delve into the core patterns and components of C++ in order to master application design Learn tricks, techniques, and best practices to solve common design and architectural challenges Understand the limitation imposed by C++ and how to solve them using design patterns Book Description C++ is a general-purpose programming language designed with the goals of efficiency, performance, and flexibility in mind. Design patterns are commonly accepted solutions to well-recognized design problems. In essence, they are a library of reusable components, only for software architecture, and not for a concrete implementation. The focus of this book is on the design patterns that naturally lend themselves to the needs of a C++ programmer, and on the patterns that uniquely benefit from the features of C++, in particular, the generic programming. Armed with the knowledge of these patterns, you will spend less time searching for a solution to a common problem and be familiar with the solutions developed from experience, as well as their advantages and drawbacks. The other use of design patterns is as a concise and an efficient way to communicate. A pattern is a familiar and instantly recognizable solution to specific problem; through its use, sometimes with a single line of code, we can convey a considerable amount of information. The code conveys: "This is the problem we are facing, these are additional considerations that are most important in our case; hence, the following well-known solution was chosen." By the end of this book, you will have gained a comprehensive understanding of design patterns to create robust, reusable, and maintainable code. What you will learn Recognize the most common design patterns used in C++ Understand how to use C++ generic programming to solve common design problems Explore the most powerful C++ idioms, their strengths, and drawbacks Rediscover how to use popular C++ idioms with generic programming Understand the impact of design patterns on the program ’ s performance Who this book is for This book is for experienced C++ developers and programmers who wish to learn about software design patterns and principles and apply them to create robust, reusable, and easily maintainable apps.

Mastering cryptic crosswords made easy Springer Science & Business Media

Now available in a one-volume paperback, this book traces the development of the most important mathematical concepts, giving special attention to the lives and thoughts of such mathematical innovators as Pythagoras, Newton, Poincare, and Godel. Beginning with a Sumerian short story--ultimately linked to modern digital computers--the author clearly introduces concepts of binary operations; point-set topology; the nature of post-relativity geometries; optimization and decision processes; ergodic theorems; epsilon-delta arithmetization; integral equations; the beautiful "ideals" of Dedekind and Emmy Noether; and the importance of "purifying" mathematics. Organizing her material in a conceptual rather than a chronological manner, she integrates the traditional with the modern, enlivening her discussions with historical and biographical detail.

Using Modern Forensics to Solve a 3,300-year-old Mystery W.H. Freeman

Examples help explain the seven basic mathematical problem-solving methods, including inference, classification of action sequences, working backward, and contradiction

A New Aspect of Mathematical Method Prometheus Books

Have you always wondered how to do a cryptic crossword? Solving one maybe easier than you think thanks to this book. The Telegraph's Puzzle Editor, Chris Lancaster, shows how to crack cryptic crosswords in an easy-to-follow way. This simple-to-use guide will help you solve any cryptic crossword, whether you're a complete beginner or a puzzler seeking to expand your knowledge. This book features: - Explanations of the common clue devices, including double definitions, hidden clues, charades, subtractions, homophones and container-and-contents clues - Work-throughs of practice crosswords - Tips for spotting each variety of clue - The top 10 solving tips you need to know - Advice on reference materials and taking your puzzling to the next level - Chris's top-12 solving tips - Appendices of useful lists including single-letter abbreviations and a glossary of common 'crosswordese' Whether you're a novice or an inveterate puzzle lover, this is the perfect crossword solving guide for all.

Statistics and Random Processes Tharpa Publications US

Foreword by Egyptologist JoAnn FletcherPreface by Harold Bursztajn, M.D.With New Data on the Egyptian CT ScanWritten in the style of

a fictional whodunit, this fascinating piece of historical detection will appeal to history buffs, mystery lovers, and true-crime fans. - BooklistThe greatest archaeological find of the 20th century, and perhaps of all time, was the discovery in 1922 of the tomb of the Egyptian Pharaoh Tutankhamen. Untouched for 3,300 years, the ancient tomb, filled with spectacular treasures, raised many questions about the legendary reign of this boy king. Recently Tut has been in the news again. Not only has a traveling museum exhibit of his tomb's fascinating artifacts drawn the public's attention, but also a CT scan of his body, which provides new evidence concerning the king's fate, has received a good deal of media attention. Based on this new investigation, an Egyptian team of scientists and scholars has now publicly ruled out the possibility that Tut was murdered.In this thorough and intriguing review of all of the evidence, two law enforcement specialists in forensics and the psychology of criminal behavior dispute the conclusions reached by the Egyptian team. Applying sophisticated crime-solving techniques used in the investigation of contemporary murders, Detectives King and Cooper make a compelling case that the cause of King Tut's death was most likely murder.The detectives' investigation concentrates on Tut's inner circle of close confidants. One by one, the suspects are eliminated, due to evidence or probable cause, until in the end the detectives focus on the most likely suspect.For readers who enjoy mysteries, true crime, and history, Who Killed King Tut? is both an educational read and a real page-turner.Michael R. King is a senior investigative analyst for Motorola. He is a former State Attorney General Chief of Staff and intelligence supervisor for the Utah Criminal Intelligence Center and Homeland Security.Gregory M. Cooper is a manager and analyst for Motorola. He is a former Assistant Federal Security Director for Law Enforcement, U.S. Department of Homeland Security, and a federal air marshal for the Transportation Security Administration.Don DeNevi is the author, coauthor, or editor of thirty-five books, including Profilers: Leading Investigators Take You Inside the Criminal Mind and Into the Minds of Madmen: How the FBI's Behavioral Science Unit Revolutionized Crime Investigation (both with John H. Campbell).

New Book of Puzzles John Wiley & Sons

The book covers basic concepts such as random experiments, probability axioms, conditional probability, and counting methods, single and multiple random variables (discrete, continuous, and mixed), as well as moment-generating functions, characteristic functions, random vectors, and inequalities; limit theorems and convergence; introduction to Bayesian and classical statistics; random processes including processing of random signals, Poisson processes, discrete-time and continuous-time Markov chains, and Brownian motion; simulation using MATLAB and R.

Computational Thinking for the Modern Problem Solver W H Freeman & Company

Learn advanced C# concepts and techniques such as building caches, cryptography, and parallel programming by solving interesting programming challenges Key Features Gain useful insights on advanced C# programming topics and APIs Use locking and cached values to solve parallel problems Take advantage of .NET's cryptographic tools to encrypt and decrypt strings Book Description C# is a multi-paradigm programming language. The Modern C# Challenge covers with aspects of the .NET Framework such as the Task Parallel Library (TPL) and CryptoAPI. It also encourages you to explore important programming trade-offs such as time versus space or simplicity. There may be many ways to solve a problem and there is often no single right way, but some solutions are definitely better than others. This book has combined these solutions to help you solve real-world problems with C#. In addition to describing programming trade-offs, The Modern C# Challenge will help you build a useful toolkit of techniques such as value caching, statistical analysis, and geometric algorithms. By the end of this book, you will have walked through challenges in C# and explored the .NET Framework in order to develop program logic for real-world applications. What you will learn Perform statistical calculations such as finding the standard deviation Find combinations and permutations Search directories for files matching patterns using LINQ and PLINQ Find areas of polygons using geometric operations Randomize arrays and lists with extension methods Explore the filesystem to find duplicate files Simulate complex systems and implement equality in a class Use cryptographic techniques to encrypt and decrypt strings and files Who this book is for The Modern C# Challenge is for all C# developers of different abilities wanting to solve real-world problems. There are problems for everyone at any level of expertise in C#

The Telegraph: How To Solve a Cryptic Crossword Springer

Seven problem-solving techniques include inference, classification of action sequences, subgoals, contradiction, working backward, relations between problems, and mathematical representation. Also, problems from mathematics, science, and engineering with complete solutions.

A Modern Software Approach DeepLogic

Many books have been written on the theory of functional equations, but very few help readers solve functional equations in mathematics competitions and mathematical problem solving. This book fills that gap. Each chapter includes a list of problems associated with the covered material. These vary in difficulty, with the easiest being accessible to any high school student who has read the chapter carefully. The most difficult will challenge students studying for the International Mathematical Olympiad or the Putnam Competition. An appendix provides a springboard for further investigation of the concepts of limits, infinite series and continuity.

Who Killed King Tut? Cambridge University Press

Conquer complex and interesting programming challenges by building robust and concurrent applications with caches, cryptography, and parallel programming. Key Features Understand how to use .NET frameworks like the Task Parallel Library (TPL)and CryptoAPI Develop a containerized application based on microservices architecture Gain insights into memory management techniques in .NET Core Book Description This Learning Path shows you how to create high performing applications and solve programming challenges using a wide range of C# features. You ' ll begin by learning how to identify the bottlenecks in writing programs, highlight common performance pitfalls, and apply strategies to detect and resolve these issues early. You'll also study the importance of micro-services architecture for building fast applications and implementing resiliency and security in .NET Core. Then, you'll study the importance of defining and testing boundaries, abstracting away third-party code, and working with different types of test double, such as spies, mocks, and fakes. In addition to describing programming trade-offs, this Learning Path will also help you build a useful toolkit of techniques, including value caching, statistical analysis, and geometric algorithms. This Learning Path includes content from the following Packt products: C# 7 and .NET Core 2.0 High Performance by Ovais Mehboob Ahmed Khan Practical Test-Driven Development using C# 7 by John Callaway, Clayton Hunt The Modern C# Challenge by Rod Stephens What you will learn Measure application performance using BenchmarkDotNet Leverage the Task Parallel Library (TPL) and Parallel Language Integrated Query (PLINQ)library to perform asynchronous operations Modify a legacy application to make it testable Use LINQ and PLINQ to search directories for files matching patterns Find areas of polygons using geometric operations Randomize arrays and lists with extension methods Use cryptographic techniques to encrypt and decrypt strings and files Who this book is for If you want to improve the speed of your code and optimize the performance of your applications, or are simply looking for a practical resource on test driven development, this is the ideal Learning Path for you. Some familiarity with C# and .NET will be beneficial.