# How To Solve It Modern Heuristics

NEW YORK TIMES BESTSELLER Shortlisted for the Financial Times/McKinsey Business Book of the Year Award The unbelievable story of a secretive mathematician who pioneered the era of the algorithm--and made $23 billion doing it. Jim Simons is the greatest money maker in modern financial history. No other investor--Warren Buffett, Peter Lynch, Ray Dalio, Steve Cohen, or George Soros--can touch his record. Since 1988, Renaissance's signature Medallion fund has generated average annual returns of 66 percent. The firm has earned profits of more than $100 billion; Simons is worth twenty-three billion dollars. Drawing on unprecedented access to Simons and dozens of current and former employees, Zuckerman, a veteran Wall Street Journal investigative reporter, tells the gripping story of how a world-class mathematician and former code breaker mastered the market. Simons pioneered a data-driven, algorithmic approach that's sweeping the world. As Renaissance became a market force, its executives began influencing the world beyond finance. Simons became a major figure in scientific research, education, and liberal politics. Senior executive Robert Mercer is more responsible than anyone else for the Trump presidency, placing Steve Bannon in the campaign and funding Trump's victorious 2016 effort. Mercer also impacted the campaign behind Brexit. The Man Who Solved the Market is a portrait of a modern-day Midas who remade markets in his own image, but failed to anticipate how his success would impact his firm and his country. It's also a story of what Simons's revolution means for the rest of us.

This comprehensive source of information about financial fraud delivers a mature approach to fraud detection and prevention. It brings together all important aspect of analytics used in investigating modern crime in financial markets and uses R for its statistical examples. It focuses on crime in financial markets as opposed to the financial industry, and it highlights technical aspects of crime detection and prevention as opposed to their qualitative aspects. For those with strong analytic skills, this book unleashes the usefulness of powerful predictive and prescriptive analytics in predicting and preventing modern crime in financial markets. Interviews and case studies provide context and depth to examples Case studies use R, the powerful statistical freeware tool Useful in classroom and professional contexts

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.

Most textbooks on modern heuristics provide the reader with detailed descriptions of the functionality of single examples like genetic algorithms, genetic programming, tabu search, simulated annealing, and others, but fail to teach the underlying concepts

behind these different approaches. The author takes a different approach in this textbook by focusing on the users' needs and answering three fundamental questions: First, he tells us which problems modern heuristics are expected to perform well on, and which should be left to traditional optimization methods. Second, he teaches us to systematically design the "right" modern heuristic for a particular problem by providing a coherent view on design elements and working principles. Third, he shows how we can make use of problem-specific knowledge for the design of efficient and effective modern heuristics that solve not only small toy problems but also perform well on large real-world problems. This book is written in an easy-to-read style and it is aimed at students and practitioners in computer science, operations research and information systems who want to understand modern heuristics and are interested in a guide to their systematic design and use. This book is written in an easy-to-read style and it is aimed at students and practitioners in computer science, operations research and information systems who want to understand modern heuristics and are interested in a guide to their systematic design and use. This book is written in an easy-to-read style and it is aimed at students and practitioners in computer science, operations research and information systems who want to understand modern heuristics and are interested in a guide to their systematic design and use.

Designed for use in a standard two-semester engineering thermodynamics course sequence. The first half of the text contains material suitable for a basic Thermodynamics course taken by engineers from all majors. The second half of the text is suitable for an Applied Thermodynamics course in mechanical engineering programs. The text has numerous features that are unique among engineering textbooks, including historical vignettes, critical thinking boxes, and case studies. All are designed to bring real engineering applications into a subject that can be somewhat abstract and mathematical. Over 200 worked examples and more than 1,300 end of chapter problems provide the use opportunities to practice solving problems related to concepts in the text. Provides the reader with clear presentations of the fundamental principles of basic and applied engineering thermodynamics. Helps students develop engineering problem solving skills through the use of structured problem-solving techniques. Introduces the Second Law of Thermodynamics through a basic entropy concept, providing students a more intuitive understanding of this key course topic. Covers Property Values before the First Law of Thermodynamics to ensure students have a firm understanding of property data before using them. Over 200 worked examples and more than 1,300 end of chapter problems offer students extensive opportunity to practice solving problems. Historical Vignettes, Critical Thinking boxes and Case Studies throughout the book help relate abstract concepts to actual engineering applications. For greater instructor flexibility at exam time, thermodynamic tables are provided in a separate accompanying booklet. Available online testing and assessment component helps students assess their knowledge of the topics. Email textbooks@elsevier.com for details.

Can you solve all the word puzzles in this book? With plenty of practice and constant word exposure, you could! Inside this fun activity book is treasure trove of word secrets. You will be presented of bold pictures and scrambled letters. All you need to do is to identify the picture by unscrambling letters. Pretty easy huh? Not if you're in the first grade!

Over the course of the past two to three decades, new tools of presentation and mathematical treatment have emerged and the subject matter of quantum mechanics has gone through significant changes. A Textbook on Modern Quantum Mechanics presents the selected elementary, intermediate, and advance topics with rejuvenated approach to the subject matter. Newly merged topics from contemporary physics and chemistry are included in the text as well as solved examples. The book covers: (i) fundamental discoveries that are the foundation of modern quantum mechanics; (ii) solution of Schrödinger's wave equation for 1D problems and their importance; (iii) matrix and vector formulation of quantum mechanics; (iv) transformations, symmetries, and conservation laws; (v) angular and spin momenta; (vi) solution of Schrödinger equation for central potentials; (vii) time-independent perturbation theory, variational method and WKB approximation; (viii) quantum theory of scattering; (xi) many-particle systems and their quantum mechanical treatments; (x) time-dependent perturbations and the interaction of fields with matter; (xi) relativistic quantum mechanics; and (xii) quantization of fields and the second quantization. Key Features: It provides everything a student needs to know for succeeding at all levels of the undergraduate and graduate studies. It covers most of the topics that are taught under (a) elementary, (b) intermediate, and (c) advance courses of quantum mechanics at universities and colleges. It has detailed and elegant mathematical treatment with contemporary style of interpretation and presentation in simple English. Solved examples and unsolved exercises that are part of each chapter to consolidate the readers' understanding of fundamental concepts. The subject matter of the book is well tested on the students taught by the author over a period of 30 years. This is a valuable textbook for students pursuing Bachelor of Science, Master of Science, and Doctor of Philosophy (PhD) degrees in the subjects of Physics, Chemistry, and materials science in India, South Asian countries, the United States, and Europe.

New and classical results in computational complexity, including interactive proofs, PCP, derandomization, and quantum computation. Ideal for graduate students.

Shows how to make a variety of puzzles out of wood, string, and wire, and includes solutions

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.

NEW YORK TIMES BEST SELLER • From the world's leading forest ecologist who forever changed how people view trees and their connections to one another and to other living things in the forest—a moving, deeply personal journey of discovery Suzanne Simard is a pioneer on the frontier of plant communication and intelligence; she's been compared to Rachel Carson, hailed as a scientist who conveys complex, technical ideas in a way that is dazzling and profound. Her work has influenced filmmakers (the Tree of Souls of James Cameron's Avatar) and her TED talks have been viewed by more than 10 million people worldwide. Now, in her first book, Simard brings us into her world, the intimate world of the trees, in which she brilliantly illuminates the fascinating and vital truths--that trees are not simply the source of timber or pulp, but are a complicated, interdependent circle of life; that forests are social, cooperative creatures connected through underground networks by which trees communicate their vitality and vulnerabilities with communal lives not that different from our own. Simard writes--in inspiring, illuminating, and accessible ways—how trees, living side by side for hundreds of years, have evolved, how they perceive one another, learn and adapt their behaviors, recognize neighbors, and remember the past; how they have agency about the future; elicit warnings and mount defenses, compete and cooperate with one another with sophistication, characteristics ascribed to human intelligence, traits that are the essence of civil societies--and at the center of it all, the Mother Trees: the mysterious, powerful forces that connect and sustain the others that surround them. Simard writes of her own life, born and raised into a logging world in the rainforests of British Columbia, of her days as a child spent cataloging the trees from the forest and how she came to love and respect them—embarking on a journey of discovery, and struggle. And as she writes of her scientific quest, she writes of her own journey--of love and loss, of observation and change, of risk and reward, making us understand how deeply human scientific inquiry exists beyond data and

technology, that it is about understanding who we are and our place in the world, and, in writing of her own life, we come to see the true connectedness of the Mother Tree that nurtures the forest in the profound ways that families and human societies do, and how these inseparable bonds enable all our survival.
Complex problem solving is the core skill for 21st Century Teams Complex problem solving is at the very top of the list of essential skills for career progression in the modern world. But how problem solving is taught in our schools, universities, businesses and organizations comes up short. In Bulletproof Problem Solving: The One Skill That Changes Everything you'll learn the seven-step systematic approach to creative problem solving developed in top consulting firms that will work in any field or industry, turning you into a highly sought-after bulletproof problem solver who can tackle challenges that others balk at. The problem-solving technique outlined in this book is based on a highly visual, logic-tree method that can be applied to everything from everyday decisions to strategic issues in business to global social challenges. The authors, with decades of experience at McKinsey and Company, provide 30 detailed, real-world examples, so you can see exactly how the technique works in action. With this bulletproof approach to defining, unpacking, understanding, and ultimately solving problems, you'll have a personal superpower for developing compelling solutions in your workplace. Discover the time-tested 7-step technique to problem solving that top consulting professionals employ Learn how a simple visual system can help you break down and understand the component parts of even the most complex problems Build team brainstorming techniques that fight cognitive bias, streamline workplanning, and speed solutions Know when and how to employ modern analytic tools and techniques from machine learning to game theory Learn how to structure and communicate your findings to convince audiences and compel action The secrets revealed in Bulletproof Problem Solving will transform the way you approach problems and take you to the next level of business and personal success.
Based on Stanford University's well-known competitive exam, this excellent mathematics workbook offers students at both high school and college levels a complete set of problems, hints, and solutions. 1974 edition.
This book is a celebration of ideas: how they happen and their sometimes unintended results. Johnson shows how simple scientific breakthroughs have driven other discoveries through the network of ideas and innovations that made each finding possible. He traces important inventions through ancient and contemporary history, unlocking tales of unsung heroes and radical revolutions that changed the world and the way we live in it
Aimed at "the mathematically traumatized," this text offers nontechnical coverage of graph theory, with exercises. Discusses planar graphs, Euler's formula, Platonic graphs, coloring, the genus of a graph, Euler walks, Hamilton walks, more. 1976 edition.
This in-depth analysis goes behind the headlines to understand why crucial

negotiations fail. The author argues that diplomats often enter negotiations with flawed assumptions about human behavior, sovereignty, and power. Essentially, the international community is using a model of European diplomacy dating back to the 18th century to solve the complex problems of the 21st century. Through numerous examples, the author shows that the key failure in current diplomatic efforts is the entrenched belief that nations, through their representatives, will act rationally to further their individual political, economic, and strategic interests. However, the contemporary scientific understanding of how people act and see their world does not support this assumption. On the contrary, research from decision-making theory, behavioral economics, social neuropsychology, and current best practices in mediation indicate that emotional and irrational factors often have as much, if not more, to do with the success or failure of a mediated solution. Reviewing a wide range of conflicts and negotiations, Noll demonstrates that the best efforts of negotiators often failed because they did not take into account the deep-seated values and emotions of the disputing parties. In conclusion, Noll draws on his own long experience as a professional mediator to describe the process of building trust and creating a climate of empathy that is the key to successful negotiation and can go a long way toward resolving even seemingly intractable conflicts.

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.

Delve into the development of modern mathematics and match wits with Euclid, Newton, Descartes, and others. Each chapter explores an individual type of challenge, with commentary and practice problems. Solutions.

Entrepreneur and bestselling author of The Lean Startup, Eric Ries reveals how entrepreneurial principles can be used by businesses of all kinds, ranging from established companies to early-stage startups, to grow revenues, drive innovation, and transform themselves into truly modern organizations, poised to take advantage of the enormous opportunities of the twenty-first century. In The Lean Startup, Eric Ries laid out the practices of successful startups – building a minimal viable product, customer-focused and scientific testing based on a build-measure-learn method of continuous innovation, and deciding whether to persevere or pivot. In The Startup Way, he turns his attention to an entirely new group of organizations: established enterprises like iconic multinationals GE and Toyota, tech titans like Amazon and Facebook, and the next generation of Silicon Valley upstarts like Airbnb and Twilio. Drawing on his experiences over the past five years working with these organizations, as well as nonprofits, NGOs, and governments, Ries lays out a system of entrepreneurial management that leads organizations of all sizes and from every industry to sustainable growth and long-term impact. Filled with in-the-field stories, insights, and tools, The Startup Way is an essential road map for any organization navigating the uncertain waters of the century ahead.

How to solve problems using the Constitution. Is a book promotes US citizens to run for public office while explaining to the readers how to solve the major problems that are facing the US population. The book goes through almost every issue that is facing the United States from

Global Warming to the Student Debt Crises. Issues like the 2nd amendment, gay marriage, bailouts and the collapse of the economy. How to solve problems using the constitution takes the reader through different issues, while explaining history of the United States where there might have been similar problems then. How did Washington solve the debt crisis from the revolutionary war? We have a debt crisis today. How can we use history to solve our problems today? What does it mean to be an American vs a British Subject? How did the United States become the power house that it is today? Why is it so hard to live in the United States? What is constitutional and what is not constitutional? This book is designed to educate the reader on running for office and solving our problems like the constitution was designed for. Solving our problems diplomatically, using our laws to raise the stand of living for the common man. Only you can run for office and work within our government to change things for the good. Our politicians are invested in themselves. Our politicians are going to do what they are told by the people who finance their campaigns. That is why you need to run for political office and that is why I wrote this book. Hopefully I might have enough money to run for office one day. I hope that this book motivates you, the reader to be self-confident embracing your democratic republican responsibilities and run for office. I hope that I create an army of responsible democratic republican civilians that take their government back from the Special interests, lobbyists and the foreign governments that are controlling the United States of America today.

How to Solve It: Modern HeuristicsSpringer Science & Business Media

The field of evolutionary computation is expanding dramatically, fueled by the vast investment that reflects the value of applying its techniques. Culling material from the Handbook of Evolutionary Computation, Evolutionary Computation 1: Basic Algorithms and Operators contains up-to-date information on algorithms and operators used in evolutionary computing. This volume discusses the basic ideas that underlie the main paradigms of evolutionary algorithms, evolution strategies, evolutionary programming, and genetic programming. It is intended to be used by individual researchers, teachers, and students working and studying in this expanding field.

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

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.

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.

Artificial Intelligence: A Modern Approach offers the most comprehensive, up-to-date introduction to the theory and practice of artificial intelligence. Number one in its field, this textbook is ideal for one or two-semester, undergraduate or graduate-level courses in Artificial Intelligence.

Are you smarter than a Singaporean ten-year-old? Can you beat Sherlock Holmes? If you think the answer is yes - I challenge you to solve my problems. Here are 125 of the world's best brainteasers from the last two millennia, taking us from ancient China to medieval Europe, Victorian England to modern-day

Japan, with stories of espionage, mathematical breakthroughs and puzzling rivalries along the way. Pit your wits against logic puzzles and kinship riddles, pangrams and river-crossing conundrums. Some solutions rely on a touch of cunning, others call for creativity, others need mercilessly logical thought. Some can only be solved be 2 per cent of the population. All are guaranteed to sharpen your mind. Let's get puzzling!

Shows a variety of antique and modern puzzles, including puzzle locks and rings, and folding, impossible object, vanish, dexterity, sequential movement, disentanglement, interlocking, and take-apart puzzles

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 New Localism provides a roadmap for change that starts in the communities where most people live and work. In their new book, The New Localism, urban experts Bruce Katz and Jeremy Nowak reveal where the real power to create change lies and how it can be used to address our most serious social, economic, and environmental challenges. Power is shifting in the world: downward from national governments and states to cities and metropolitan communities; horizontally from the public sector to networks of public, private and civic actors; and globally along circuits of capital, trade, and innovation. This new locus of power—this new localism—is emerging by necessity to solve the grand

challenges characteristic of modern societies: economic competitiveness, social inclusion and opportunity; a renewed public life; the challenge of diversity; and the imperative of environmental sustainability. Where rising populism on the right and the left exploits the grievances of those left behind in the global economy, new localism has developed as a mechanism to address them head on. New localism is not a replacement for the vital roles federal governments play; it is the ideal complement to an effective federal government, and, currently, an urgently needed remedy for national dysfunction. In The New Localism, Katz and Nowak tell the stories of the cities that are on the vanguard of problem solving. Pittsburgh is catalyzing inclusive growth by inventing and deploying new industries and technologies. Indianapolis is governing its city and metropolis through a network of public, private and civic leaders. Copenhagen is using publicly owned assets like their waterfront to spur large scale redevelopment and finance infrastructure from land sales. Out of these stories emerge new norms of growth, governance, and finance and a path toward a more prosperous, sustainable, and inclusive society. Katz and Nowak imagine a world in which urban institutions finance the future through smart investments in innovation, infrastructure and children and urban intermediaries take solutions created in one city and adapt and tailor them to other cities with speed and precision. As Katz and Nowak show us in The New Localism, “Power now belongs to the problem solvers.”

How much further should the affluent world push its material consumption? Does relative dematerialization lead to absolute decline in demand for materials? These and many other questions are discussed and answered in Making the Modern World: Materials and Dematerialization. Over the course of time, the modern world has become dependent on unprecedented flows of materials. Now even the most efficient production processes and the highest practical rates of recycling may not be enough to result in dematerialization rates that would be high enough to negate the rising demand for materials generated by continuing population growth and rising standards of living. This book explores the costs of this dependence and the potential for substantial dematerialization of modern economies. Making the Modern World: Materials and Dematerialization considers the principal materials used throughout history, from wood and stone, through to metals, alloys, plastics and silicon, describing their extraction and production.

Modern Physical Metallurgy, Fourth Edition discusses the fundamentals and applications of physical metallurgy. The book is comprised of 15 chapters that cover the experimental background of a metallurgical phenomenon. The text first talks about the structure of atoms and crystals, and then proceeds to dealing with the physical examination of metals and alloys. The third chapter tackles the phase diagrams and solidifications, while the fourth chapter covers the thermodynamics of crystals. Next, the book discusses the structure of alloys. The next four chapters deal with the deformations and defects of crystals, metals, and alloys. Chapter 10 discusses work hardening and annealing, while Chapters 11

and 12 cover phase transformations. The succeeding two chapters talk about creep, fatigue, and fracture, while the last chapter covers oxidation and corrosion. The text will be of great use to undergraduate students of materials engineering and other degrees that deal with metallurgical properties.

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.

How to Solve Problems and Prevent Trouble, tells you how to greatly reduce the dilemma and difficulties of life. Problems and trouble will cease to be a compelling force in your life. The information has been tested and is in daily use by successful business leaders and private citizens. The knowledge reveals a dynamic lifestyle based on a natural law of behavior identified by the late Richard W. Wetherill. Introduction: Pressures and tensions of modern life can be reduced enormously, and the information presented in this book tells how. The information has been and is being tested in daily use by persons from various walks of life. They all say the information is correct and that it is important. They tell startling stories of what it is doing for them. They say the information is new, and many of them say they resisted some portions of it at first. The evidence is that no great progress is made except by changing from the old to the new, and the pioneering work of changing is ordinarily resisted at first. The person who

resists is behaving naturally. If he persists through the initial resistance, however, he makes remarkable discoveries. He becomes aware that problems he thought were necessary are not necessary at all, and he learns how various objectionable conditions in his life can be changed. Soon he finds that his original resistance is replaced by an eagerness to learn more.

A practical approach to using regression and computation to solve real-world problems of estimation, prediction, and causal inference.

A modern and unified treatment of the mechanics, planning, and control of robots, suitable for a first course in robotics.

A gripping novel set during Mussolini's 1935 invasion of Ethiopia, The Shadow King takes us back to the first real conflict of World War II, casting light on the women soldiers who were left out of the historical record. With the threat of Mussolini's army looming, recently orphaned Hirut struggles to adapt to her new life as a maid in Kidane and his wife Aster's household. Kidane, an officer in Emperor Haile Selassie's army, rushes to mobilize his strongest men before the Italians invade. His initial kindness to Hirut shifts into a flinty cruelty when she resists his advances, and Hirut finds herself tumbling into a new world of thefts and violations, of betrayals and overwhelming rage. Meanwhile, Mussolini's technologically advanced army prepares for an easy victory. Hundreds of thousands of Italians—Jewish photographer Ettore among them—march on Ethiopia seeking adventure. As the war begins in earnest, Hirut, Aster, and the other women long to do more than care for the wounded and bury the dead. When Emperor Haile Selassie goes into exile and Ethiopia quickly loses hope, it is Hirut who offers a plan to maintain morale. She helps disguise a gentle peasant as the emperor and soon becomes his guard, inspiring other women to take up arms against the Italians. But how could she have predicted her own personal war as a prisoner of one of Italy's most vicious officers, who will force her to pose before Ettore's camera? What follows is a gorgeously crafted and unputdownable exploration of female power, with Hirut as the fierce, original, and brilliant voice at its heart. In incandescent, lyrical prose, Maaza Mengiste breathes life into complicated characters on both sides of the battle line, shaping a heartrending, indelible exploration of what it means to be a woman at war.

This book presents the history of modern human creativity/innovation through examples of solutions to basic human needs that have been developed over time. The title – Homo problematis solvendis – is a play on the scientific classifications of humans (e.g. Homo habilus, Homo erectus, Homo sapiens), and is intended to suggest that a defining characteristic of modern humans is our fundamental ability to solve problems (i.e. problem- solving human = Homo problematis solvendis). The book not only offers new perspectives on the history of technology, but also helps readers connect the popular interest in creativity and innovation (in schools, in businesses) with their psychological underpinnings. It discusses why creativity and innovation are vital to societies, and how these key abilities have made it possible for societies to develop into what they are today.

An imaginary, extended dialogue with Plato, Socrates, Spinoza and William James presents philosophical ideas that have never been more relevant for Western civilization. Neal K. Grossman discusses how a post-materialist social order can solve the challenges of modern life, and insure our survival.

No pleasure lasts long unless there is variety in it. Publilius Syrus, Moral Sayings We've

been very fortunate to receive fantastic feedback from our readers during the last four years, since the first edition of How to Solve It: Modern Heuristics was published in 1999. It's heartening to know that so many people appreciated the book and, even more importantly, were using the book to help them solve their problems. One professor, who published a review of the book, said that his students had given the best course reviews he'd seen in 15 years when using our text. There can be hardly any better praise, except to add that one of the book reviews published in a SIAM journal received the best review award as well. We greatly appreciate your kind words and personal comments that you sent, including the few cases where you found some typographical or other errors. Thank you all for this wonderful support.