

quickly learn how to draw with code, and from there move to animating in 2D and 3D. These basics will then open up a whole world of graphics and computer entertainment. If you've been curious about coding, but the thought of it also makes you nervous, this book is for you; if you consider yourself a creative person, maybe worried programming is too non-creative, this book is also for you; if you want to learn about the latest Processing 2.0 language release and also start making beautiful code art, this book is also definitely for you. You will learn how to develop interactive simulations, create beautiful visualizations, and even code image-manipulation applications. All this is taught using hands-on creative coding projects. Processing 2.0 is the latest release of the open-source Processing language, and includes exciting new features, such as OpenGL 2 support for enhanced 3D graphics performance. Processing: Creative Coding and Generative Art in Processing 2 is designed for independent learning and also as a primary text for an introductory computing class. Based on research funded by the National Science Foundation, this book brings together some of the most engaging and successful approaches from the digital arts and computer science classrooms. Teaches you how to program using a fun and creative approach. Covers the latest release of the Processing 2.0 language. Presents a research based approach to learning computing.

Working Effectively with Legacy Code Michael Feathers 2004-09-22 Get more out of your legacy systems: more performance, functionality, reliability, and manageability Is your code easy to change? Can you get nearly instantaneous feedback when you do change it? Do you understand it? If the answer to any of these questions is no, you have legacy code, and it is draining time and money away from your development efforts. In this book, Michael Feathers offers start-to-finish strategies for working more effectively with large, untested legacy code bases. This book draws on material Michael created for his renowned Object Mentor seminars: techniques Michael has used in mentoring to help hundreds of developers, technical managers, and testers bring their legacy systems under control. The topics covered include Understanding the mechanics of software change: adding features, fixing bugs, improving design, optimizing performance Getting legacy code into a test harness Writing tests that protect you against introducing new problems Techniques that can be used with any language or platform—with examples in Java, C++, C, and C# Accurately identifying where code changes need to be made Coping with legacy systems that aren't object-oriented Handling applications that don't seem to have any structure This book also includes a catalog of twenty-four dependency-breaking techniques that help you work with program elements in isolation and make safer changes.

Grokking Algorithms Aditya Bhargava 2016-05-12 Summary Grokking Algorithms is a fully illustrated, friendly guide that teaches you how to apply common algorithms to the practical problems you face every day as a programmer. You'll start with sorting and searching and, as you build up your skills in thinking algorithmically, you'll tackle more complex concerns such as data compression and artificial intelligence. Each carefully presented example includes helpful diagrams and fully annotated code samples in Python. Learning about algorithms doesn't have to be boring! Get a sneak peek at the fun, illustrated, and friendly examples you'll find in Grokking Algorithms on Manning Publications' YouTube channel. Continue your journey into the world of algorithms with Algorithms in Motion, a practical, hands-on video course available exclusively at Manning.com (www.manning.com/livevideo/algorithms-in-motion). Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology An algorithm is nothing more than a step-by-step procedure for solving a problem. The algorithms you'll use most often as a programmer have already been discovered, tested, and proven. If you want to understand them but refuse to slog through dense multipage proofs, this is the book for you. This fully illustrated and engaging guide makes it easy to learn how to use the most important algorithms effectively in your own programs. About the Book Grokking Algorithms is a friendly take on this core computer science topic. In it, you'll learn how to apply common algorithms to the practical programming problems you face every day. You'll start with tasks like sorting and searching. As you build up your skills, you'll tackle more complex problems like data compression and artificial intelligence. Each carefully presented example includes helpful diagrams and fully annotated code samples in Python. By the end of this book, you will have mastered widely applicable algorithms as well as how and when to use them. What's Inside Covers search, sort, and graph algorithms Over 400 pictures with detailed walkthroughs Performance trade-offs between algorithms Python-based code samples About the Reader This easy-to-read, picture-heavy introduction is suitable for self-taught programmers, engineers, or anyone who wants to brush up on algorithms. About the Author Aditya Bhargava is a Software Engineer with a dual background in Computer Science and Fine Arts. He blogs on programming at adit.io. Table of Contents Introduction to algorithms Selection sort Recursion Quicksort Hash tables Breadth-first search Dijkstra's algorithm Greedy algorithms Dynamic programming K-nearest neighbors

Embedded C Programming and the Atmel Avr (Book Only) Richard H. Barnett 2006-06 This text focuses on software development for embedded controllers using the C language. This book is built on Atmel® AVR architecture and implementation, and features the CodeVisionAVR compiler, as well as other powerful, yet inexpensive, development tools. This book is suitable as a handbook for those desiring to learn the AVR processors or as a text for college-level microcontroller courses. Included with the book is a CDROM containing samples all of the example programs from the book as well as an evaluation version of the CodeVisionAVR C Compiler and IDE.

Code Complete, 2nd Edition Steve McConnell Widely considered one of the best practical guides to programming, Steve McConnell's original CODE COMPLETE has been helping developers write better software for more than a decade. Now this classic book has been fully updated and revised with leading-edge practices-and hundreds of new code samples-illustrating the art and science of software construction. Capturing the body of knowledge available from research, academia, and everyday commercial practice, McConnell synthesizes the most effective techniques and must-know principles into clear, pragmatic guidance. No matter what your experience level, development environment, or project size, this book will inform and stimulate your thinking-and help you build the highest quality code.

The Algorithm Design Manual Steven S Skiena 2009-04-05 This newly expanded and updated second edition of the best-selling classic continues to take the "mystery" out of designing algorithms, and analyzing their efficacy and efficiency. Expanding on the first edition, the book now serves as the primary textbook of choice for algorithm design courses while maintaining its status as the premier practical reference guide to algorithms for programmers, researchers, and students. The reader-friendly Algorithm Design Manual provides straightforward access to combinatorial algorithms technology, stressing design over analysis. The first part, Techniques, provides accessible instruction on methods for designing and analyzing computer algorithms. The second part, Resources, is intended for browsing and reference, and comprises the catalog of algorithmic resources, implementations and an extensive bibliography. NEW to the second edition: • Doubles the tutorial material and exercises over the first edition • Provides full online support for lecturers, and a completely updated and improved website component with lecture slides, audio and video • Contains a unique catalog identifying the 75 algorithmic problems that arise most often in practice, leading the reader down the right path to solve them • Includes several NEW "war stories" relating experiences from real-world applications • Provides up-to-date links leading to the very best algorithm implementations available in C, C++, and Java

Intel Xeon Phi Processor High Performance Programming James Jeffers 2016-05-31 This book is an all-in-one source of information for programming the Second-Generation Intel Xeon Phi product family also called Knights Landing. The authors provide detailed and timely Knights Landing-specific details, programming advice, and real-world examples. The authors distill their years of Xeon Phi programming experience coupled with insights from many expert customers — Intel Field Engineers, Application Engineers, and Technical Consulting Engineers — to create this authoritative book on the essentials of programming for Intel Xeon Phi products. Intel® Xeon Phi™ Processor High-Performance Programming is useful even before you ever program a system with an Intel Xeon Phi processor. To help ensure that your applications run at maximum efficiency, the authors emphasize key techniques for programming any modern parallel computing system whether based on Intel Xeon processors, Intel Xeon Phi processors, or other high-performance microprocessors. Applying these techniques will generally increase your program performance on any system and prepare you better for Intel Xeon Phi processors. A practical guide to the essentials for programming Intel Xeon Phi processors Definitive coverage of the Knights Landing architecture Presents best practices for portable, high-performance computing and a familiar and proven threads and vectors programming model Includes real world code examples that highlight usages of the unique aspects of this new highly parallel and high-performance computational product Covers use of MCDRAM, AVX-512, Intel® Omni-Path fabric, many-cores (up to 72), and many threads (4 per core) Covers software developer tools, libraries and programming models Covers using Knights Landing as a processor and a coprocessor

Pearls of Functional Algorithm Design Richard Bird 2010-09-16 Richard Bird takes a radical approach to algorithm design, namely, design by calculation. These 30 short chapters each deal with a particular programming problem drawn from sources as diverse as games and puzzles, intriguing combinatorial tasks, and more familiar areas such as data compression and string matching. Each pearl starts with the statement of the problem expressed using the functional programming language Haskell, a powerful yet succinct language for capturing algorithmic ideas clearly and simply. The novel aspect of the book is that each solution is calculated from an initial formulation of the problem in Haskell by appealing to the laws of functional programming. Pearls of Functional Algorithm Design will appeal to the aspiring functional programmer, students and teachers interested in the principles of algorithm design, and anyone seeking to master the techniques of reasoning about programs in an equational style.

Learn to Program with C Noel Kalicharan 2015-12-16 This book teaches computer programming to the complete beginner using the native C language. As such, it assumes you have no knowledge whatsoever about programming.

The main goal of this book is to teach fundamental programming principles using C, one of the most widely used programming languages in the world today. We discuss only those features and statements in C that are necessary to achieve our goal. Once you learn the principles well, they can be applied to any language. If you are worried that you are not good at high-school mathematics, don't be. It is a myth that you must be good at mathematics to learn programming. C is considered a 'modern' language even though its roots date back to the 1970s. Originally, C was designed for writing 'systems' programs—things like operating systems, editors, compilers, assemblers and input/output utility programs. But, today, C is used for writing all kinds of applications programs as well—word processing programs, spreadsheet programs, database management programs, accounting programs, games, robots, embedded systems/electronics (i.e., Arduino), educational software—the list is endless. Note: Appendices A-D are available as part of the free source code download at the Apress website. What You Will Learn: How to get started with programming using the C language How to use the basics of C How to program with sequence, selection and repetition logic How to work with characters How to work with functions How to use arrays Who This Book Is For: This book is intended for anyone who is learning programming for the first time.

Programming Pearls Jon Louis Bentley 2000-09 Offering advice for programmers at entry level, each chapter in this work discusses problems the programmer might face on any day, and suggests methods to get around them.

Algorithms in a Nutshell George T. Heineman 2008-10-14 Creating robust software requires the use of efficient algorithms, but programmers seldom think about them until a problem occurs. Algorithms in a Nutshell describes a large number of existing algorithms for solving a variety of problems, and helps you select and implement the right algorithm for your needs -- with just enough math to let you understand and analyze algorithm performance. With its focus on application, rather than theory, this book provides efficient code solutions in several programming languages that you can easily adapt to a specific project. Each major algorithm is presented in the style of a design pattern that includes information to help you understand why and when the algorithm is appropriate. With this book, you will: Solve a particular coding problem or improve on the performance of an existing solution Quickly locate algorithms that relate to the problems you want to solve, and determine why a particular algorithm is the right one to use Get algorithmic solutions in C, C++, Java, and Ruby with implementation tips Learn the expected performance of an algorithm, and the conditions it needs to perform at its best Discover the impact that similar design decisions have on different algorithms Learn advanced data structures to improve the efficiency of algorithms With Algorithms in a Nutshell, you'll learn how to improve the performance of key algorithms essential for the success of your software applications.

TCP/IP Illustrated Kevin R. Fall 2011 TCP/IP Illustrated, Volume 1, Second Edition, is a detailed and visual guide to today's TCP/IP protocol suite. Fully updated for the newest innovations, it demonstrates each protocol in action through realistic examples from modern Linux, Windows, and Mac OS environments. There's no better way to discover why TCP/IP works as it does, how it reacts to common conditions, and how to apply it in your own applications and networks. Building on the late W. Richard Stevens' classic first edition, author Kevin R. Fall adds his cutting-edge experience as a leader in TCP/IP protocol research, updating the book to fully reflect the latest protocols and best practices.

Software Development Pearls Karl Wieggers 2021-10 Drawing on 20+ years helping software teams succeed in nearly 150 organizations, Karl Wieggers presents 60 concise lessons and practical recommendations students can apply to all kinds of projects, regardless of application domain, technology, development lifecycle, or platform infrastructure. Embodying both wisdom for deeper understanding and guidance for practical use, this book represent an invaluable complement to the technical nuts and bolts software developers usually study. Software Development Pearls covers multiple crucial domains of project success: requirements, design, project management, culture and teamwork, quality, and process improvement. Each chapter suggests several first steps and next steps to help you begin immediately applying the author's hard-won lessons--and writing code that is more successful in every way that matters.

Code Complete Steve McConnell 2004-06-09 Widely considered one of the best practical guides to programming, Steve McConnell's original CODE COMPLETE has been helping developers write better software for more than a decade. Now this classic book has been fully updated and revised with leading-edge practices—and hundreds of new code samples—illustrating the art and science of software construction. Capturing the body of knowledge available from research, academia, and everyday commercial practice, McConnell synthesizes the most effective techniques and must-know principles into clear, pragmatic guidance. No matter what your experience level, development environment, or project size, this book will inform and stimulate your thinking—and help you build the highest quality code. Discover the timeless techniques and strategies that help you: Design for minimum complexity and maximum creativity Reap the benefits of collaborative development Apply defensive programming techniques to reduce and flush out errors Exploit opportunities to refactor—or evolve—code, and do it safely Use construction practices that are right-weight for your project Debug problems quickly and effectively Resolve critical construction issues early and correctly Build quality into the beginning, middle, and end of your project

The Medical Detectives Berton Roueche 1982-02-01 Mysteries of modern American medicine--involving strange allergies, food poisonings, environmental contaminations, and outbreaks of mass hysteria--are solved in engrossing and instructive narratives conducted by a renowned medical writer

More Programming Pearls Jon Louis Bentley 1988 Software -- Software Engineering.

Let Us C Yashavant P. Kanetkar 2004-11-01

40 Algorithms Every Programmer Should Know Imran Ahmad 2020-06-12 Learn algorithms for solving classic computer science problems with this concise guide covering everything from fundamental algorithms, such as sorting and searching, to modern algorithms used in machine learning and cryptography Key Features Learn the techniques you need to know to design algorithms for solving complex problems Become familiar with neural networks and deep learning techniques Explore different types of algorithms and choose the right data structures for their optimal implementation Book Description Algorithms have always played an important role in both the science and practice of computing. Beyond traditional computing, the ability to use algorithms to solve real-world problems is an important skill that any developer or programmer must have. This book will help you not only to develop the skills to select and use an algorithm to solve real-world problems but also to understand how it works. You'll start with an introduction to algorithms and discover various algorithm design techniques, before exploring how to implement different types of algorithms, such as searching and sorting, with the help of practical examples. As you advance to a more complex set of algorithms, you'll learn about linear programming, page ranking, and graphs, and even work with machine learning algorithms, understanding the math and logic behind them. Further on, case studies such as weather prediction, tweet clustering, and movie recommendation engines will show you how to apply these algorithms optimally. Finally, you'll become well versed in techniques that enable parallel processing, giving you the ability to use these algorithms for compute-intensive tasks. By the end of this book, you'll have become adept at solving real-world computational problems by using a wide range of algorithms. What you will learn Explore existing data structures and algorithms found in Python libraries Implement graph algorithms for fraud detection using network analysis Work with machine learning algorithms to cluster similar tweets and process Twitter data in real time Predict the weather using supervised learning algorithms Use neural networks for object detection Create a recommendation engine that suggests relevant movies to subscribers Implement foolproof security using symmetric and asymmetric encryption on Google Cloud Platform (GCP) Who this book is for This book is for programmers or developers who want to understand the use of algorithms for problem-solving and writing efficient code. Whether you are a beginner looking to learn the most commonly used algorithms in a clear and concise way or an experienced programmer looking to explore cutting-edge algorithms in data science, machine learning, and cryptography, you'll find this book useful. Although Python programming experience is a must, knowledge of data science will be helpful but not necessary.

The Art of Readable Code Dustin Boswell 2011-11-03 As programmers, we've all seen source code that's so ugly and buggy it makes our brain ache. Over the past five years, authors Dustin Boswell and Trevor Foucher have analyzed hundreds of examples of "bad code" (much of it their own) to determine why they're bad and how they could be improved. Their conclusion? You need to write code that minimizes the time it would take someone else to understand it—even if that someone else is you. This book focuses on basic principles and practical techniques you can apply every time you write code. Using easy-to-digest code examples from different languages, each chapter dives into a different aspect of coding, and demonstrates how you can make your code easy to understand. Simplify naming, commenting, and formatting with tips that apply to every line of code Refine your program's loops, logic, and variables to reduce complexity and confusion Attack problems at the function level, such as reorganizing blocks of code to do one task at a time Write effective test code that is thorough and concise—as well as readable "Being aware of how the code you create affects those who look at it later is an important part of developing software. The authors did a great job in taking you through the different aspects of this challenge, explaining the details with instructive examples." —Michael Hunger, passionate Software Developer

Programming Pearls Jon Louis Bentley 2016-04-21 When programmers list their favorite books, Jon Bentley's collection of programming pearls is commonly included among the classics. Just as natural pearls grow from grains of sand that irritate oysters, programming pearls have grown from real problems that have irritated real programmers. With origins beyond solid engineering, in the realm of insight and creativity, Bentley's pearls offer unique and clever solutions to

those nagging problems. Illustrated by programs designed as much for fun as for instruction, the book is filled with lucid and witty descriptions of practical programming techniques and fundamental design principles. It is not at all surprising that Programming Pearls has been so highly valued by programmers at every level of experience. In this revision, the first in 14 years, Bentley has substantially updated his essays to reflect current programming methods and environments. In addition, there are three new essays on testing, debugging, and timing set representations string problems All the original programs have been rewritten, and an equal amount of new code has been generated. Implementations of all the programs, in C or C++, are now available on the Web. What remains the same in this new edition is Bentley's focus on the hard core of programming problems and his delivery of workable solutions to those problems. Whether you are new to Bentley's classic or are revisiting his work for some fresh insight, the book is sure to make your own list of favorites.

Elements of Programming Alexander Stepanov

Writing Efficient Programs Jon Louis Bentley 1982 Classic on practical methods of optimizing programs: This book gives practical advice on improving the efficiency (optimizing) programs and the limits there of. While showing how to trade off speed for space or vice-versa, the author points out the limits that can be expected to gain. His list of techniques is a collection of practical approaches rather than theoretical possibilities. At 158 pages (not counting index) this book is eminently readable, accessible and useful. Clearly written and well organized this is a book to keep on your shelf for when a program needs improving. It is also a book to read before a program as a reminder not to make things complicated with optimization that aren't needed

Code Reading Diomidis Spinellis 2003 CD-ROM contains cross-referenced code.

Test-driven Development Kent Beck 2003 Write clean code that works with the help of this groundbreaking software method. Example-driven teaching is the basis of Beck's step-by-step instruction that will have readers using TDD to further their projects.

Learn Programming Antti Salonen 2018-08-17 This book is aimed at readers who are interested in software development but have very little to no prior experience. The book focuses on teaching the core principles around software development. It uses several technologies to this goal (e.g. C, Python, JavaScript, HTML, etc.) but is not a book about the technologies themselves. The reader will learn the basics (or in some cases more) of various technologies along the way, but the focus is on building a foundation for software development. The book is your guided tour through the programming jungle, aiming to provide some clarity and build the foundation for software development skills. The book web site is <https://progbook.org/>

Programming in Haskell Graham Hutton 2007-01-15 Haskell is one of the leading languages for teaching functional programming, enabling students to write simpler and cleaner code, and to learn how to structure and reason about programs. This introduction is ideal for beginners: it requires no previous programming experience and all concepts are explained from first principles via carefully chosen examples. Each chapter includes exercises that range from the straightforward to extended projects, plus suggestions for further reading on more advanced topics. The author is a leading Haskell researcher and instructor, well-known for his teaching skills. The presentation is clear and simple, and benefits from having been refined and class-tested over several years. The result is a text that can be used with courses, or for self-learning. Features include freely accessible Powerpoint slides for each chapter, solutions to exercises and examination questions (with solutions) available to instructors, and a downloadable code that's fully compliant with the latest Haskell release.

Processing Ira Greenberg 2007-12-31 First Processing book on the market Processing is a nascent technology rapidly increasing in popularity Links with the creators of Processing will help sell the book

Programming Interviews Exposed John Mongan 2011-08-10 The pressure is on during the interview process but with the right preparation, you can walk away with your dream job. This classic book uncovers what interviews are really like at America's top software and computer companies and provides you with the tools to succeed in any situation. The authors take you step-by-step through new problems and complex brainteasers they were asked during recent technical interviews. 50 interview scenarios are presented along with in-depth analysis of the possible solutions. The problem-solving process is clearly illustrated so you'll be able to easily apply what you've learned during crunch time. You'll also find expert tips on what questions to ask, how to approach a problem, and how to recover if you become stuck. All of this will help you ace the interview and get the job you want. What you will learn from this book Tips for effectively completing the job application Ways to prepare for the entire programming interview process How to find the kind of programming job that fits you best Strategies for choosing a solution and what your approach says about you How to improve your interviewing skills so that you can respond to any question or situation Techniques for solving knowledge-based problems, logic puzzles, and programming problems Who this book is for This book is for programmers and developers applying for jobs in the software industry or in IT departments of major corporations. Wrox Beginning guides are crafted to make learning programming languages and technologies easier than you think, providing a structured, tutorial format that will guide you through all the techniques involved.

Programming Interviews Exposed John Mongan 2018-03-28 Ace technical interviews with smart preparation Programming Interviews Exposed is the programmer's ideal first choice for technical interview preparation. Updated to reflect changing techniques and trends, this new fourth edition provides insider guidance on the unique interview process that today's programmers face. Online coding contests are being used to screen candidate pools of thousands, take-home projects have become commonplace, and employers are even evaluating a candidate's public code repositories at GitHub—and with competition becoming increasingly fierce, programmers need to shape themselves into the ideal candidate well in advance of the interview. This book doesn't just give you a collection of questions and answers, it walks you through the process of coming up with the solution so you learn the skills and techniques to shine on whatever problems you're given. This edition combines a thoroughly revised basis in classic questions involving fundamental data structures and algorithms with problems and step-by-step procedures for new topics including probability, data science, statistics, and machine learning which will help you fully prepare for whatever comes your way. Learn what the interviewer needs to hear to move you forward in the process Adopt an effective approach to phone screens with non-technical recruiters Examine common interview problems and tests with expert explanations Be ready to demonstrate your skills verbally, in contests, on GitHub, and more Technical jobs require the skillset, but you won't get hired unless you are able to effectively and efficiently demonstrate that skillset under pressure, in competition with hundreds of others with the same background. Programming Interviews Exposed teaches you the interview skills you need to stand out as the best applicant to help you get the job you want.

Michael Abrash's Graphics Programming Black Book Michael Abrash 1997 No one has done more to conquer the performance limitations of the PC than Michael Abrash, a software engineer for Microsoft. His complete works are contained in this massive volume, including everything he has written about performance coding and real-time graphics. The CD-ROM contains the entire text in Adobe Acrobat 3.0 format, allowing fast searches for specific facts.

Objective-C Programming Aaron Hillegass 2013-11-20 Want to write iOS apps or desktop Mac applications? This introduction to programming and the Objective-C language is your first step on the journey from someone who uses apps to someone who writes them. Based on Big Nerd Ranch's popular Objective-C Bootcamp, Objective-C Programming: The Big Nerd Ranch Guide covers C, Objective-C, and the common programming idioms that enable developers to make the most of Apple technologies. Compatible with Xcode 5, iOS 7, and OS X Mavericks (10.9), this guide features short chapters and an engaging style to keep you motivated and moving forward. At the same time, it encourages you to think critically as a programmer. Here are some of the topics covered: Using Xcode, Apple's documentation, and other tools Programming basics: variables, loops, functions, etc. Objects, classes, methods, and messages Pointers, addresses, and memory management with ARC Properties and Key-Value Coding (KVC) Class extensions Categories Classes from the Foundation framework Blocks Delegation, target-action, and notification design patterns Key-Value Observing (KVO) Runtime basics