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The first comprehensive guide to developing 3D graphic applications on mobile devices, from the leading authorities on OpenGL ES. Car keys have developed from the simple systems which were no more advanced than the front door key of a house to very advanced forms that use onboard computers for their operation. Modern vehicles also have push button remote locking/unlocking, it is rare these days to push your Car Key into the barrel to open it. Most cars now use Remote Control Keys to open. These improvements in the Car Keys Systems, has however made it difficult for genuine car owners to duplicate their Car keys or get a replacement when they lose them. The process requires specialize skills and knowhow for even a regular locksmith. This book has therefore been written to inform and guides anyone who wants to develop the skills required to duplicate or replace keys of modern cars. Building on what already is the most comprehensive introduction to competitive programming, this enhanced new textbook features new material on advanced topics, such as calculating Fourier transforms, finding minimum cost flows in graphs, and using automata in string problems. Critically, the text accessibly describes and shows how competitive programming is a proven method of implementing and testing algorithms, as well as developing computational thinking and improving both programming and debugging skills. Topics and features: introduces dynamic programming and other fundamental algorithm design techniques, and investigates a wide selection of graph algorithms; compatible with the IOI Syllabus, yet also covering more advanced topics, such as maximum flows, Nim theory, and suffix structures; surveys specialized algorithms for trees, and discusses the mathematical topics that are relevant in competitive programming; reviews the features of the C++ programming language, and describes how to create efficient algorithms that can quickly process large data sets; discusses sorting algorithms and binary search, and examines a selection of data structures of the C++ standard library; covers such advanced algorithm design topics as bit-parallelism and amortized analysis, and presents a focus on efficiently processing array range queries; describes a selection of more advanced topics, including square-root algorithms and dynamic programming optimization. Fully updated, expanded and easy to follow, this core textbook/guide is an ideal reference for all students needing to learn algorithms and to practice for programming contests. Knowledge of programming basics is assumed, but previous background in algorithm design or programming contests is not necessary. With its breadth of topics, examples and references, the book is eminently suitable for both beginners and more

experienced readers alike. A tutorial and reference to the object-oriented programming language for beginning to experienced programmers, updated for version 1.8, describes the language's structure, syntax, and operation, and explains how to build applications. Original. (Intermediate) Provides information on eXtreme programming, or XP, a software development methodology. Using WebGL®, you can create sophisticated interactive 3D graphics inside web browsers, without plug-ins. WebGL makes it possible to build a new generation of 3D web games, user interfaces, and information visualization solutions that will run on any standard web browser, and on PCs, smartphones, tablets, game consoles, or other devices. WebGL Programming Guide will help you get started quickly with interactive WebGL 3D programming, even if you have no prior knowledge of HTML5, JavaScript, 3D graphics, mathematics, or OpenGL. You'll learn step-by-step, through realistic examples, building your skills as you move from simple to complex solutions for building visually appealing web pages and 3D applications with WebGL. Media, 3D graphics, and WebGL pioneers Dr. Kouichi Matsuda and Dr. Rodger Lea offer easy-to-understand tutorials on key aspects of WebGL, plus 100 downloadable sample programs, each demonstrating a specific WebGL topic. You'll move from basic techniques such as rendering, animating, and texturing triangles, all the way to advanced techniques such as fogging, shadowing, shader switching, and displaying 3D models generated by Blender or other authoring tools. This book won't just teach you WebGL best practices, it will give you a library of code to jumpstart your own projects. Coverage includes:

- WebGL's origin, core concepts, features, advantages, and integration with other web standards
- How and basic WebGL functions work together to deliver 3D graphics
- Shader development with OpenGL ES Shading Language (GLSL ES)
- 3D scene drawing: representing user views, controlling space volume, clipping, object creation, and perspective
- Achieving greater realism through lighting and hierarchical objects
- Advanced techniques: object manipulation, heads-up displays, alpha blending, shader switching, and more
- Valuable reference appendixes covering key issues ranging from coordinate systems to matrices and shader loading to web browser settings

This is the newest text in the OpenGL Technical Library, Addison-Wesley's definitive collection of programming guides and reference manuals for OpenGL and its related technologies. The Library enables programmers to gain a practical understanding of OpenGL and the other Khronos application-programming libraries including OpenGL ES and OpenCL. All of the technologies in the OpenGL Technical Library evolve under the auspices of the Khronos Group, the industry consortium guiding the evolution of modern, open-standards media APIs. Master Metal: The Next-Generation Graphics and GPU Programming Platform for Apple Developers Metal enables Apple developers to maximize performance in demanding tasks like 3D graphics, games, scientific programming, visualization, and GPU-accelerated machine learning. Metal(R) Programming Guide is the authoritative, practical guide to Metal for all iOS programmers who are interested in graphics programming but don't know where to start. Pioneering Apple developer Janie Clayton covers everything from basic draw calls to advanced parallel computing, combining easy-to-understand conceptual explanations with well-tested Swift 4/Xcode 9 sample code (available for download at GitHub). Clayton introduces the essential Metal, graphics, and math concepts every graphics programmer needs to know. She also discusses key graphics-specific libraries, concepts, and Metal Classes, presenting techniques and examples you'll find valuable for both graphics and data processing. Clayton also provides coverage of the Metal Compute Pipeline, demonstrating practical GPU programming applications ranging from image processing to neural networking. Quickly get a basic Metal project running Work with Metal resources and memory management Learn how shaders are compiled and accessed by the CPU Program both 2D and 3D graphics with Metal Import 3D models and assets from Blender, Maya, and other programs Apply imported textures to model objects Use multipass rendering to efficiently implement computationally expensive techniques Leverage tessellation to reduce mesh detail Use the GPU for a wide spectrum of general-purpose computing applications Get started with the Metal Performance Shaders Framework Register your product at informit.com/register for convenient access to downloads, updates, and/or corrections as they become available. Normal 0 false false false EN-US X-NONE X-NONE The Definitive Vulkan™ Developer's Guide and Reference: Master the Next-Generation Specification for Cross-Platform Graphics The next generation of the OpenGL specification, Vulkan, has been redesigned from the ground up, giving applications direct control over GPU acceleration for unprecedented performance and predictability. Vulkan™ Programming Guide is the essential, authoritative reference to this new standard for experienced graphics programmers in all Vulkan environments. Vulkan

API lead Graham Sellers (with contributions from language lead John Kessenich) presents example-rich introductions to the portable Vulkan API and the new SPIR-V shading language. The author introduces Vulkan, its goals, and the key concepts framing its API, and presents a complex rendering system that demonstrates both Vulkan's uniqueness and its exceptional power. You'll find authoritative coverage of topics ranging from drawing to memory, and threading to compute shaders. The author especially shows how to handle tasks such as synchronization, scheduling, and memory management that are now the developer's responsibility. Vulkan™ Programming Guide introduces powerful 3D development techniques for fields ranging from video games to medical imaging, and state-of-the-art approaches to solving challenging scientific compute problems. Whether you're upgrading from OpenGL or moving to open-standard graphics APIs for the first time, this guide will help you get the results and performance you're looking for. Coverage includes Extensively tested code examples to demonstrate Vulkan's capabilities and show how it differs from OpenGL Expert guidance on getting started and working with Vulkan's new memory system Thorough discussion of queues, commands, moving data, and presentation Full explanations of the SPIR-V binary shading language and compute/graphics pipelines Detailed discussions of drawing commands, geometry and fragment processing, synchronization primitives, and reading Vulkan data into applications A complete case study application: deferred rendering using complex multi-pass architecture and multiple processing queues Appendixes presenting Vulkan functions and SPIR-V opcodes, as well as a complete Vulkan glossary Example code can be found here: Example code can be found here: <https://github.com/vulkanprogrammingguide/examples> Learning Ruby has never been this fast and easy, or fun! Veteran Codemy.com programmer John Elder walks you step by step through the ins and outs of Ruby Programming. Written for the absolute beginner, you don't need any programming experience to dive in and get started with this book. Follow along as John teaches you to set up a development environment and write your first program. You'll learn about Variables, Math, IF/THEN Statements, Array, Hashes, Loops, Methods and much more. By the end, you'll be well on your way to becoming a professional Ruby coder! Build on your skills with practice exercises at the end of each chapter and build a math flashcard game using all the skills you've learned throughout the book. It really is this easy to learn Ruby! *AUTHOR UPDATE: C9, the development environment we used in the book, was purchased by Amazon and is no longer accepting new users unless you sign up through my education account at [Codemy.com/c9](https://www.codemy.com/c9) Includes Complete Coverage of the OpenGL® Shading Language! Today's OpenGL software interface enables programmers to produce extraordinarily high-quality computer-generated images and interactive applications using 2D and 3D objects, color images, and programmable shaders. OpenGL® Programming Guide: The Official Guide to Learning OpenGL®, Version 4.3, Eighth Edition, has been almost completely rewritten and provides definitive, comprehensive information on OpenGL and the OpenGL Shading Language. This edition of the best-selling "Red Book" describes the features through OpenGL version 4.3. It also includes updated information and techniques formerly covered in OpenGL® Shading Language (the "Orange Book"). For the first time, this guide completely integrates shader techniques, alongside classic, functioncentric techniques. Extensive new text and code are presented, demonstrating the latest in OpenGL programming techniques. OpenGL® Programming Guide, Eighth Edition, provides clear explanations of OpenGL functionality and techniques, including processing geometric objects with vertex, tessellation, and geometry shaders using geometric transformations and viewing matrices; working with pixels and texture maps through fragment shaders; and advanced data techniques using framebuffer objects and compute shaders. New OpenGL features covered in this edition include Best practices and sample code for taking full advantage of shaders and the entire shading pipeline (including geometry and tessellation shaders) Integration of general computation into the rendering pipeline via compute shaders Techniques for binding multiple shader programs at once during application execution Latest GLSL features for doing advanced shading techniques Additional new techniques for optimizing graphics program performance Multithreaded programming is a narrow, but very important topic in computer science today. All of the major UNIX Software vendors are implementing threads and multithreaded programming especially in multiprocessor computing. This manual provides a good basis for understanding the technology. The core of EPI is a collection of over 300 problems with detailed solutions, including 100 figures, 250 tested programs, and 150 variants. The problems are representative of questions asked at the leading software companies. The book begins with a summary of the nontechnical aspects of interviewing, such as common mistakes,

strategies for a great interview, perspectives from the other side of the table, tips on negotiating the best offer, and a guide to the best ways to use EPI. The technical core of EPI is a sequence of chapters on basic and advanced data structures, searching, sorting, broad algorithmic principles, concurrency, and system design. Each chapter consists of a brief review, followed by a broad and thought-provoking series of problems. We include a summary of data structure, algorithm, and problem solving patterns. Complete Coverage of OpenGL® 4.5—the Latest Version (Includes 4.5, 4.4, SPIR-V, and Extensions) The latest version of today’s leading worldwide standard for computer graphics, OpenGL 4.5 delivers significant improvements in application efficiency, flexibility, and performance. OpenGL 4.5 is an exceptionally mature and robust platform for programming high-quality computer-generated images and interactive applications using 2D and 3D objects, color images, and shaders. OpenGL® Programming Guide, Ninth Edition, presents definitive, comprehensive information on OpenGL 4.5, 4.4, SPIR-V, OpenGL extensions, and the OpenGL Shading Language. It will serve you for as long as you write or maintain OpenGL code. This edition of the best-selling “Red Book” fully integrates shader techniques alongside classic, function-centric approaches, and contains extensive code examples that demonstrate modern techniques. Starting with the fundamentals, its wide-ranging coverage includes drawing, color, pixels, fragments, transformations, textures, framebuffers, light and shadow, and memory techniques for advanced rendering and nongraphical applications. It also offers discussions of all shader stages, including thorough explorations of tessellation, geometric, and compute shaders. New coverage in this edition includes Thorough coverage of OpenGL 4.5 Direct State Access (DSA), which overhauls the OpenGL programming model and how applications access objects Deeper discussions and more examples of shader functionality and GPU processing, reflecting industry trends to move functionality onto graphics processors Demonstrations and examples of key features based on community feedback and suggestions Updated appendixes covering the latest OpenGL libraries, related APIs, functions, variables, formats, and debugging and profiling techniques Learn to write test-driven microservices, REST APIs, and web service APIs with PHP using the Lumen micro-framework, from the now popular Laravel family. This book shows you how testing APIs can help you write bullet-proof web application services and microservices. In the Lumen Programming Guide you will learn how to use Lumen—a micro-framework by Laravel—to write bullet-proof APIs. Lumen helps you write productive, maintainable APIs using modern application design. You will learn how to write fully-tested APIs and understand essential Lumen concepts used to build a solid foundation for writing API projects. What You Will Learn Maintain your API’s database structure through built-in database migrations Write tests with factory data in a test database Respond with consistent data output in JSON Deal with PHP exceptions by using JSON responses Create, read, update, and delete REST resources Represent model associations in API responses Build a solid foundation for writing tests with PHPUnit and Mockery Validate data Who This Book Is For PHP developers with no Laravel experience. Only a basic understanding of HTTP and writing PHP applications is needed to get started. Learn basic Python programming to create functional and effective visualizations from earth observation satellite data sets Thousands of satellite datasets are freely available online, but scientists need the right tools to efficiently analyze data and share results. Python has easy-to-learn syntax and thousands of libraries to perform common Earth science programming tasks. Earth Observation Using Python: A Practical Programming Guide presents an example-driven collection of basic methods, applications, and visualizations to process satellite data sets for Earth science research. Gain Python fluency using real data and case studies Read and write common scientific data formats, like netCDF, HDF, and GRIB2 Create 3-dimensional maps of dust, fire, vegetation indices and more Learn to adjust satellite imagery resolution, apply quality control, and handle big files Develop useful workflows and learn to share code using version control Acquire skills using online interactive code available for all examples in the book The American Geophysical Union promotes discovery in Earth and space science for the benefit of humanity. Its publications disseminate scientific knowledge and provide resources for researchers, students, and professionals. Find out more about this book from this Q&A with the Author Electronic music instruments known as synthesizers have been around since the 1950s, but the past few decades have seen their capabilities expand exponentially and their forms shape-shift from room-filling grandeur to sophisticated applications that run on pocket-sized phones and MP3 players. This book reveals the history, basics, forms, and uses of this astonishing instrument. A gold mine of insights, techniques and technical data, this guide includes information on the similarities and differences

among IBM's five personal computers, plus tips for programming in assembly language, BASIC, C and Pascal. An Ingram computer book bestseller for over a year. The official book on the Rust programming language, written by the Rust development team at the Mozilla Foundation, fully updated for Rust 2018. The Rust Programming Language is the official book on Rust: an open source systems programming language that helps you write faster, more reliable software. Rust offers control over low-level details (such as memory usage) in combination with high-level ergonomics, eliminating the hassle traditionally associated with low-level languages. The authors of The Rust Programming Language, members of the Rust Core Team, share their knowledge and experience to show you how to take full advantage of Rust's features—from installation to creating robust and scalable programs. You'll begin with basics like creating functions, choosing data types, and binding variables and then move on to more advanced concepts, such as:

- Ownership and borrowing, lifetimes, and traits
- Using Rust's memory safety guarantees to build fast, safe programs
- Testing, error handling, and effective refactoring
- Generics, smart pointers, multithreading, trait objects, and advanced pattern matching
- Using Cargo, Rust's built-in package manager, to build, test, and document your code and manage dependencies
- How best to use Rust's advanced compiler with compiler-led programming techniques

You'll find plenty of code examples throughout the book, as well as three chapters dedicated to building complete projects to test your learning: a number guessing game, a Rust implementation of a command line tool, and a multithreaded server. New to this edition: An extended section on Rust macros, an expanded chapter on modules, and appendixes on Rust development tools and editions. Advanced Guide to Python 3 Programming delves deeply into a host of subjects that you need to understand if you are to develop sophisticated real-world programs. Each topic is preceded by an introduction followed by more advanced topics, along with numerous examples, that take you to an advanced level. There are nine different sections within the book covering Computer Graphics (including GUIs), Games, Testing, File Input and Output, Databases Access, Logging, Concurrency and Parallelism, Reactive programming, and Networking. Each section is self-contained and can either be read on its own or as part of the book as a whole. This book is aimed at the those who have learnt the basics of the Python 3 language but want to delve deeper into Python's eco system of additional libraries and modules, to explore concurrency and parallelism, to create impressive looking graphical interfaces, to work with databases and files and to provide professional logging facilities. The Linux Programming Interface (TLPI) is the definitive guide to the Linux and UNIX programming interface—the interface employed by nearly every application that runs on a Linux or UNIX system. In this authoritative work, Linux programming expert Michael Kerrisk provides detailed descriptions of the system calls and library functions that you need in order to master the craft of system programming, and accompanies his explanations with clear, complete example programs. You'll find descriptions of over 500 system calls and library functions, and more than 200 example programs, 88 tables, and 115 diagrams. You'll learn how to:

- Read and write files efficiently
- Use signals, clocks, and timers
- Create processes and execute programs
- Write secure programs
- Write multithreaded programs using POSIX threads
- Build and use shared libraries
- Perform interprocess communication using pipes, message queues, shared memory, and semaphores
- Write network applications with the sockets API

While The Linux Programming Interface covers a wealth of Linux-specific features, including epoll, inotify, and the /proc file system, its emphasis on UNIX standards (POSIX.1-2001/SUSv3 and POSIX.1-2008/SUSv4) makes it equally valuable to programmers working on other UNIX platforms. The Linux Programming Interface is the most comprehensive single-volume work on the Linux and UNIX programming interface, and a book that's destined to become a new classic. This guide was written for readers interested in learning the C++ programming language from scratch, and for both novice and advanced C++ programmers wishing to enhance their knowledge of C++. The text is organized to guide the reader from elementary language concepts to professional software development, with in depth coverage of all the C++ language elements en route. This book integrates shader techniques alongside classic, function-centric approaches, and contains extensive code examples that demonstrate modern techniques. Starting with the fundamentals, its wide-ranging coverage includes drawing, color, pixels, fragments, transformations, textures, framebuffers, light and shadow, and memory techniques for advanced rendering and nongraphical applications. It also offers discussions of all shader stages, including thorough explorations of tessellation, geometric, and compute shaders. Here is a thorough and authoritative guide to the latest version of the S language and its programming environment. Programming With Data describes a new and

greatly extended version of S, written by the chief designer of the language itself. It is a guide to the complete programming process, starting from simple, interactive use, and continuing through ambitious software projects. The focus is on the needs of the programmer/user, with the aim of turning ideas into software, quickly and faithfully. The new version of S provides a powerful class/method structure, new techniques to deal with large objects, extended interfaces to other languages and files, object-based documentation compatible with HTML, and powerful new interactive programming techniques. This version of S underlies the S-Plus system, versions 5.0 and higher. IBM® Rational® Application Developer for WebSphere® Software V8 is the full-function Eclipse 3.6 technology-based development platform for developing Java™ Platform, Standard Edition Version 6 (Java SE 6) and Java Platform, Enterprise Edition Version 6 (Java EE 6) applications. Beyond this function, Rational Application Developer provides development tools for technologies, such as OSGi, Service Component Architecture (SCA), Web 2.0, and XML. It has a focus on applications to be deployed to IBM WebSphere Application Server and IBM WebSphere Portal. Rational Application Developer provides integrated development tools for all development roles, including web developers, Java developers, business analysts, architects, and enterprise programmers. This IBM Redbooks® publication is a programming guide that highlights the features and tooling included with Rational Application Developer V8.0.1. Many of the chapters provide working examples that demonstrate how to use the tooling to develop applications and achieve the benefits of visual and rapid application development. This publication is an update of Rational Application Developer V7.5 Programming Guide, SG24-7672. 'The CUDA Handbook' begins where 'CUDA by Example' leaves off, discussing both CUDA hardware and software in detail that will engage any CUDA developer, from the casual to the most hardcore. Newer CUDA developers will see how the hardware processes commands and the driver checks progress; hardcore CUDA developers will appreciate topics such as the driver API, context migration, and how best to structure CPU/GPU data interchange and synchronization. The book is partly a reference resource and partly a cookbook. Introduces basic concepts of computer programming, including program flow and branching, Boolean operators and expressions, logic errors, detecting and debugging errors, and object-oriented programming techniques. Genetic programming (GP) is a systematic, domain-independent method for getting computers to solve problems automatically starting from a high-level statement of what needs to be done. Using ideas from natural evolution, GP starts from an ooze of random computer programs, and progressively refines them through processes of mutation and sexual recombination, until high-fitness solutions emerge. All this without the user having to know or specify the form or structure of solutions in advance. GP has generated a plethora of human-competitive results and applications, including novel scientific discoveries and patentable inventions. This unique overview of this exciting technique is written by three of the most active scientists in GP. See www.gp-field-guide.org.uk for more information on the book. The definitive reference and programming guide for OpenCL, the new parallel programming standard for high performance and cloud environments. • • Will catch a growing wave of interest in OpenCL, following its implementations by Apple, NVIDIA, and ATI. • Designed specifically for developers: shows how to write parallel OpenCL software that takes advantage of all available processors (CPUs, GPUs, accelerators, and more) • OpenCL insiders present its API, programming language, development best practices, and many practical examples. The new OpenCL (Open Computing Language) standard and framework will make it possible to write applications that access all the programming resources available to them, including CPUs, GPUs, accelerators such as IBM's CELL, and even external processors. Already implemented by Apple (in Snow Leopard), ATI, and NVIDIA, OpenCL will be a solution for personal computers, servers, handheld/embedded devices, High Performance Computing applications, and even cloud systems. However, until now, developers who want to learn OpenCL have been required to read a specification designed for hardware and software implementers, not programmers. OpenCL Programming Guide is the first comprehensive, authoritative guide to OpenCL specifically designed for working developers. Written by leaders in the OpenCL community, this book thoroughly explains how each element of OpenCL 1.1 works, and offers complete reference material on the OpenCL API and programming language. The authors review key use cases, demonstrate how to write performant OpenCL code, and introduce essential algorithms for developers. They also present many examples, performance tips, case studies, and problems designed to help developers rapidly become effective, whatever their application or computing environment. The Chaos Cookbook: A Practical Programming Guide discusses the use of

chaos in computer programming. The book is comprised of 11 chapters that tackle various topics relevant to chaos and programming. Chapter 1 reviews the concept of chaos, and Chapter 2 discusses the iterative functions. Chapters 3 and 4 cover differential and Lorenz equations. Chapter 5 talks about strange attractors, while Chapter 6 deals with the fractal link. The book also discusses the Mandelbrot set, and then covers the Julia sets. The other fractal systems and the cellular automata are also explained. The last chapter discusses practical chaos. The book will be of great use to professionals, students, and hobbyist programmers who have an interest with the chaos systems. Gives Numerous Examples & Illustrations to Help the Reader Learn to Program to Program in C

OpenVX is the computer vision API adopted by many high-performance processor vendors. It is quickly becoming the preferred way to write fast and power-efficient code on embedded systems. OpenVX Programming Guidebook presents definitive information on OpenVX 1.2 and 1.3, the Neural Network, and other extensions as well as the OpenVX Safety Critical standard. This book gives a high-level overview of the OpenVX standard, its design principles, and overall structure. It covers computer vision functions and the graph API, providing examples of usage for the majority of the functions. It is intended both for the first-time user of OpenVX and as a reference for experienced OpenVX developers. Get to grips with the OpenVX standard and gain insight why various options were chosen Start developing efficient OpenVX code instantly Understand design principles and use them to create robust code Develop consumer and industrial products that use computer vision to understand and interact with the real world "I would not hesitate to recommend the book." — Industrial Engineering. Entertaining, nontechnical introduction covers basic concepts of linear programming and its relationship to operations research; geometric interpretation and problem solving, solution techniques, network problems, much more. Appendix offers precise statements of definitions, theorems, and techniques, additional computational procedures. Only high-school algebra needed. Bibliography. The NXT-G visual programming language for the NXT robot is completely new and there are currently no books available on the subject. This book is written for kids, teachers, parents or anyone new to the NXT-G programming language. It covers all of the basic, intermediate, and advanced programming blocks that are standard with the NXT-G language suite. The book uses simple, non-technical terminology with plenty of screenshots and line drawings to demonstrate proper use of all the blocks as well as basic programming techniques such as loops, If-Then statements, case statements, and use of variables. This invaluable textbook presents a comprehensive introduction to modern competitive programming. The text highlights how competitive programming has proven to be an excellent way to learn algorithms, by encouraging the design of algorithms that actually work, stimulating the improvement of programming and debugging skills, and reinforcing the type of thinking required to solve problems in a competitive setting. The book contains many "folklore" algorithm design tricks that are known by experienced competitive programmers, yet which have previously only been formally discussed in online forums and blog posts. Topics and features: reviews the features of the C++ programming language, and describes how to create efficient algorithms that can quickly process large data sets; discusses sorting algorithms and binary search, and examines a selection of data structures of the C++ standard library; introduces the algorithm design technique of dynamic programming, and investigates elementary graph algorithms; covers such advanced algorithm design topics as bit-parallelism and amortized analysis, and presents a focus on efficiently processing array range queries; surveys specialized algorithms for trees, and discusses the mathematical topics that are relevant in competitive programming; examines advanced graph techniques, geometric algorithms, and string techniques; describes a selection of more advanced topics, including square root algorithms and dynamic programming optimization. This easy-to-follow guide is an ideal reference for all students wishing to learn algorithms, and practice for programming contests. Knowledge of the basics of programming is assumed, but previous background in algorithm design or programming contests is not necessary. Due to the broad range of topics covered at various levels of difficulty, this book is suitable for both beginners and more experienced readers. There are many excellent R resources for visualization, data science, and package development. Hundreds of scattered vignettes, web pages, and forums explain how to use R in particular domains. But little has been written on how to simply make R work effectively—until now. This hands-on book teaches novices and experienced R users how to write efficient R code. Drawing on years of experience teaching R courses, authors Colin Gillespie and Robin Lovelace provide practical advice on a range of topics—from optimizing the set-up of RStudio to leveraging C++—that make this book a useful addition to any R user's

bookshelf. Academics, business users, and programmers from a wide range of backgrounds stand to benefit from the guidance in Efficient R Programming. Get advice for setting up an R programming environment Explore general programming concepts and R coding techniques Understand the ingredients of an efficient R workflow Learn how to efficiently read and write data in R Dive into data carpentry—the vital skill for cleaning raw data Optimize your code with profiling, standard tricks, and other methods Determine your hardware capabilities for handling R computation Maximize the benefits of collaborative R programming Accelerate your transition from R hacker to R programmer This book aims to capture the fundamentals of computer programming without tying the topic to any specific programming language. To the best of the authors' knowledge there is no such book in the market. Explaining how graphics programs using Release 1.1, the latest release of OpenGL, this book presents the overall structure of OpenGL and discusses in detail every OpenGL feature including the new features introduced in Release 1.1. Numerous programming examples in C show how to use OpenGL functions. Also includes 16 pages of full-color examples. This book is a practical tutorial that explains all the features of Kinect SDK by creating sample applications throughout the book. It includes a detailed discussion of APIs with step-by-step explanation of development of a real-world sample application. The purpose of this book is to explain how to develop applications using the Kinect for Windows SDK. If you are a beginner and looking to start developing applications using the Kinect for Windows SDK, and if you want to build motion-sensing, speech-recognizing applications with Kinect, this book is for you. This book uses C# and WPF (Windows Presentation Foundation). With this book, students will learn step-by-step, through realistic examples, building their skills as they move from simple to complex solutions for building visually appealing web pages and 3D applications with WebGL. Media, 3D graphics, and WebGL pioneers Dr. Kouichi Matsuda and Dr. Rodger Lea offer easy-to-understand tutorials on key aspects of WebGL, plus 100 downloadable sample programs, each demonstrating a specific WebGL topic. Students will move from basic techniques such as rendering, animating, and texturing triangles, all the way to advanced techniques such as fogging, shadowing, shader switching, and displaying 3D models generated by Blender or other authoring tools. This book won't just teach WebGL best practices, it will give a library of code to jumpstart projects.

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