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## *Mastering Autodesk Maya 2014*

The design of complex artifacts and systems requires the cooperation of multidisciplinary design teams using multiple commercial and non-commercial engineering tools such as CAD tools, modeling, simulation and optimization software, engineering databases, and knowledge-based systems. Individuals or individual groups of multidisciplinary design teams usually work in parallel and separately with various engineering tools, which are located on different sites, often for quite a long time. At any moment, individual members may be working on different versions of a design or viewing the design from various perspectives, at different levels of detail. In order to meet these requirements, it is necessary to have effective and efficient collaborative design environments. These environments should not only automate individual tasks, in the manner of traditional computer-aided engineering tools, but also enable individual members to share information, collaborate and coordinate their activities within the context of a design project. CSCW (computer-supported cooperative work) in design is concerned with the development of such environments. Please note that this title's color insert (referred to as "Plates" within the text) is not available for this digital product. OpenGL is a powerful software interface used to produce high-quality, computer-generated images and interactive applications using 2D and 3D objects, bitmaps, and color images. The OpenGL® Programming Guide, Seventh Edition, provides definitive and comprehensive information on OpenGL and the OpenGL Utility Library. The previous edition covered OpenGL through Version 2.1. This seventh edition of the best-selling "red book" describes the latest features of OpenGL Versions 3.0 and 3.1. You will find clear explanations of OpenGL functionality and many basic computer graphics techniques, such as building and rendering 3D models;

interactively viewing objects from different perspective points; and using shading, lighting, and texturing effects for greater realism. In addition, this book provides in-depth coverage of advanced techniques, including texture mapping, antialiasing, fog and atmospheric effects, NURBS, image processing, and more. The text also explores other key topics such as enhancing performance, OpenGL extensions, and cross-platform techniques. This seventh edition has been updated to include the newest features of OpenGL Versions 3.0 and 3.1, including Using framebuffer objects for off-screen rendering and texture updates Examples of the various new buffer object types, including uniform-buffer objects, transform feedback buffers, and vertex array objects Using texture arrays to increase performance when using numerous textures Efficient rendering using primitive restart and conditional rendering Discussion of OpenGL's deprecation mechanism and how to verify your programs for future versions of OpenGL This edition continues the discussion of the OpenGL Shading Language (GLSL) and explains the mechanics of using this language to create complex graphics effects and boost the computational power of OpenGL. The OpenGL Technical Library provides tutorial and reference books for OpenGL. The Library enables programmers to gain a practical understanding of OpenGL and shows them how to unlock its full potential. Originally developed by SGI, the Library continues to evolve under the auspices of the Khronos OpenGL ARB Working Group, an industry consortium responsible for guiding the evolution of OpenGL and related technologies. Thoroughly updated, this fourth edition focuses on modern techniques used to generate synthetic three-dimensional images in a fraction of a second. With the advent of programmable shaders, a wide variety of new algorithms have arisen and evolved over the past few years. This edition discusses current, practical rendering methods used in games and other applications. It also presents a solid theoretical framework and relevant mathematics for the field of

interactive computer graphics, all in an approachable style. New to this edition: new chapter on VR and AR as well as expanded coverage of Visual Appearance, Advanced Shading, Global Illumination, and Curves and Curved Surfaces. Learn GUI programming using Qt4, the powerful crossplatform framework, with the only official Qt book approved by Trolltech. **COMPREHENSIVE COVERAGE OF SHADERS AND THE PROGRAMMABLE PIPELINE** From geometric primitives to animation to 3D modeling to lighting, shading and texturing, *Computer Graphics Through OpenGL®: From Theory to Experiments* is a comprehensive introduction to computer graphics which uses an active learning style to teach key concepts. Equally emphasizing theory and practice, the book provides an understanding not only of the principles of 3D computer graphics, but also the use of the OpenGL® Application Programming Interface (API) to code 3D scenes and animation, including games and movies. The undergraduate core of the book takes the student from zero knowledge of computer graphics to a mastery of the fundamental concepts with the ability to code applications using fourth-generation OpenGL®. The remaining chapters explore more advanced topics, including the structure of curves and surfaces, applications of projective spaces and transformations and the implementation of graphics pipelines. This book can be used for introductory undergraduate computer graphics courses over one to two semesters. The careful exposition style attempting to explain each concept in the simplest terms possible should appeal to the self-study student as well.

**Features**

- Covers the foundations of 3D computer graphics, including animation, visual techniques and 3D modeling
- Comprehensive coverage of OpenGL® 4.x, including the GLSL and vertex, fragment, tessellation and geometry shaders
- Includes 180 programs with 270 experiments based on them
- Contains 750 exercises, 110 worked examples, and 700 four-color illustrations
- Requires no previous knowledge of computer graphics
- Balances theory with programming practice using a

hands-on interactive approach to explain the underlying concepts This book is a practical guide to starting 3d programming with OpenGL, using the most recent version. It would suit anyone learning 3d programming that needs a practical guide with some help for common problems. The material is often used in this way by university courses and hobbyists. This book is a collection of worked-through examples of common real-time rendering techniques as used in video games or student projects. There are also some chapters or short articles for Tips and Tricks - not-so-obvious techniques that can add a lot of value to projects or make it easier to find problems. The idea is to be something like a lab manual - to get you going and over the trickier and more confusing hurdles presented by the API. 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 This is the eBook version of the print title. Access to the media files found on the DVD included with print editions included with

Upgrading and Repairing PCs, 21 Edition, is available through product registration—see instructions in back pages of your eBook. For 25 years, Upgrading and Repairing PCs has been the world's #1 guide to PC hardware: The single source for reliable information on troubleshooting and fixing problems, adding hardware, optimizing performance, and building new PCs. Now, better than ever, this 21st edition offers beefed-up coverage of the newest hardware innovations and maintenance techniques, plus more than two hours of new DVD video. Scott Mueller delivers practical answers about PC processors, mother-boards, buses, BIOSes, memory, SSD and HDD storage, video, audio, I/O, input devices, networks, Internet connectivity, power, and much more. You'll find the industry's best coverage of diagnostics, testing, and repair—plus cutting-edge discussions of improving performance via overclocking and other techniques.

**NEW IN THIS EDITION** • The newest processors, including Intel's 3rd generation Ivy Bridge Core i-Series processors and AMD's 2nd generation Trinity CPUs • 3TB (and larger) disks, 4K sectoring, partition alignment, faster SATA disk interfaces, and SSD (solid state drive) hard drive replacements • New firmware innovations, from full UEFI BIOS support to built-in motherboard flash BIOS upgrade utilities • Integrated video and audio, including 5.1/7.1 surround sound, HDMI, and DisplayPort connections, and Windows 8

compatible multi-touch touchscreen technology • Updated PCI Express 3.0, 4.0 interfaces, and Power Supply specifications for powering high-end video cards • Emerging interfaces such as SATA Express, USB 3.0, and Thunderbolt • Updated coverage of building PCs from scratch—from choosing and assembling hardware through BIOS setup and troubleshooting INCLUDED MEDIA Don't forget about the free bonus content available online! You'll find a cache of helpful material to go along with this book. To access these materials at no extra cost, see the instructions included in the back pages of this ebook. You will be required to register your book and supply a code found in the instructions. Download two hours of up-to-the minute, studio-quality how-to videos—all playable on your computer! In this edition, Scott Mueller offers true insider information about several of the key components in a PC, including motherboards, solid-state drives, and more. You also can download PDFs of the complete 19th and 20th editions of this book. Hands-on intermediate-to-advanced coverage of the leading 3D software Autodesk Maya is the industry-leading 3D animation and effects software used in movies, visual effects, games, and other genres. If you already know the basics of Maya and are ready to elevate your skills, then this book is for you. Nearly 1,000 pages are packed with organized, professional, and valuable insight on the leading 3D application on the market, enabling you to unlock the software's more complex features. Ideal as both a tutorial and study guide for the Autodesk Maya exam, this Autodesk Official Press book gets you up to speed on Maya's latest features and expands your skills with advanced instruction on cloth, fur, and fluids. Features challenging tutorials and real-world scenarios from some of the leading professionals in the industry Provides you with valuable insight into the entire CG production pipeline Covers the very latest Maya 2014 tools and features, including updates to dynamics, Maya muscle, stereo cameras, assets, rendering with mental ray, and more Helps you gain proficiency in high-level techniques for film,

television, game development, and more. If you've been looking for a complete, professional quality Maya resource to turn to again and again, look no further than *Mastering Autodesk Maya 2104*. The Official Reference Document to OpenGL, Version 1.4. OpenGL is a powerful software interface used to produce high-quality computer-generated images and interactive graphics applications by rendering 2D and 3D geometric objects, bitmaps, and color images. Officially sanctioned by the OpenGL Architecture Review Board (ARB), *The OpenGL Reference Manual, Fourth Edition*, is the comprehensive and definitive documentation of all core OpenGL functions. This fourth edition has been completely revised and updated for OpenGL Versions 1.3 and 1.4. It features coverage of cube-mapped textures, multisampling, depth textures and shadowing, multitexturing, and register combiners. In addition, this book documents all OpenGL Utility Library functions (GLU 1.3) and the OpenGL extension to the X Window System (GLX 1.3). A comprehensive reference section documents each set of related OpenGL commands. Each reference page contains: A description of the command's parameters The command's effect on rendering and how OpenGL's state is modified Examples References to related functions Errors generated by each function This book also includes a conceptual overview of OpenGL, a summary of commands and routines, a chapter on defined constants and associated commands, and descriptions of the multitexturing and imaging subset ARB extensions. The OpenGL Technical Library provides tutorial and reference books for OpenGL. The Library enables programmers to gain a practical understanding of OpenGL and shows them how to unlock its full potential. Originally developed by SGI, the Library continues to evolve under the auspices of the Architecture Review Board (ARB), an industry consortium responsible for guiding the evolution of OpenGL and related technologies. The OpenGL ARB is composed of leaders in the computer graphics industry: 3Dlabs, Apple, ATI, Dell, Evans & Sutherland, Hewlett-Packard, IBM,



Intel, Matrox, NVIDIA, SGI, and Sun Microsystems. 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. Provides information on using Android 3 to build and enhance mobile applications, covering such topics as creating user interfaces, using intents, databases, creating and controlling services, creating app widgets, playing audio and video, telephony, and using sensors. Original. Over 60 highly focused, practical recipes to maximize your OpenGL Shading language use. From geometric primitives to animation to 3D modeling to lighting, shading, and texturing, *Computer Graphics Through OpenGL®: From Theory to Experiments, Second Edition* presents a comprehensive introduction to computer graphics that uses an active learning style to teach key concepts. Equally emphasizing theory and practice, the book provides an understanding not only of the principles of 3D computer graphics, but also the use of the OpenGL® Application Programming Interface (API) to code 3D scenes and animation, including games and movies. The undergraduate core of the book is a one-semester sequence taking the student from zero knowledge of computer graphics to a mastery of the fundamental concepts with the ability to code applications using fourth-generation OpenGL. The remaining chapters explore more advanced topics, including the structure of curves and surfaces and the application of projective spaces and transformations. New to the Second Edition 30 more programs, 50 more experiments, and 50 more exercises Two new chapters on OpenGL 4.3 shaders and the programmable pipeline Coverage of: Vertex buffer and array objects Occlusion culling and queries and conditional rendering Texture matrices Multitexturing and texture combining Multisampling Point sprites Image and pixel manipulation Pixel buffer objects Shadow

mapping Web Resource The book's website at [www.sumantaguha.com](http://www.sumantaguha.com) provides program source code that runs on various platforms. It includes a guide to installing OpenGL and executing the programs, special software to help run the experiments, and figures from the book. The site also contains an instructor's manual with solutions to 100 problems (for qualifying instructors only).

OpenGL Shading Language 4 Cookbook is a hands-on guide that gets straight to the point - actually creating graphics, instead of just theoretical learning. Each recipe is specifically tailored to satisfy your appetite for producing real-time 3-D graphics using the latest GLSL specification. This book is for OpenGL programmers looking to use the modern features of GLSL 4 to create real-time, three-dimensional graphics. Familiarity with OpenGL programming, along with the typical 3D coordinate systems, projections, and transformations is assumed. It can also be useful for experienced GLSL programmers who are looking to implement the techniques that are presented here. Assuming no background in computer graphics, this junior - to graduate-level course presents basic principles for the design, use, and understanding of computer graphics systems and applications. The authors, authorities in their field, offer an integrated approach to two-dimensional and three-dimensional graphics topics. A complete update of a bestselling introduction to computer graphics, this volume explores current computer graphics hardware and software systems, current graphics techniques, and current graphics applications. Includes expanded coverage of algorithms, applications, 3-D modeling and rendering, and new topics such as distributed ray tracing, radiosity, physically based modeling, and visualization techniques. This new edition provides step-by-step instruction on modern 3D graphics shader programming in OpenGL with C++, along with its theoretical foundations. It is appropriate both for computer science graphics courses and for professionals interested in mastering 3D graphics skills. It has been designed in a 4-color, "teach-yourself" format

with numerous examples that the reader can run just as presented. Every shader stage is explored, from the basics of modeling, textures, lighting, shadows, etc., through advanced techniques such as tessellation, normal mapping, noise maps, as well as new chapters on simulating water, stereoscopy, and ray tracing. FEATURES: Covers modern OpenGL 4.0+ shader programming in C++, with instructions for both PC/Windows and Macintosh Adds new chapters on simulating water, stereoscopy, and ray tracing Includes companion files with code, object models, figures, and more (also available for downloading by writing to the publisher) Illustrates every technique with running code examples. Everything needed to install the libraries, and complete source code for each example Includes step-by-step instruction for using each GLSL programmable pipeline stage (vertex, tessellation, geometry, and fragment) Explores practical examples for modeling, lighting, and shadows (including soft shadows), terrain, water, and 3D materials such as wood and marble Explains how to optimize code for tools such as Nvidia's Nsight debugger. Interactive Computer Graphics: A Top-Down Approach Using OpenGL: International Edition, 4/e Interactive Computer Graphics fourth edition presents introductory computer graphics concepts using a proven top-down, programming-oriented approach and careful integration of OpenGL to teach core concepts. The fourth edition has been revised to more closely follow the OpenGL pipeline architecture and includes a new chapter on programmable hardware topics (vertex shaders). As with previous editions, students learn to program three-dimensional applications as soon as possible--low level algorithms (for topics such as line drawing and fill polygons) are presented after students are creating graphics. The Fourth edition focuses on core theory in graphics. All topics required for a fundamental course, such as light-material interactions, shading, modeling, curves and surfaces, antialiasing, texture mapping, and compositing and hardware issues are covered. OpenGL: A Primer: International

Edition, 2/e OpenGL: A Primer is a concise presentation of fundamental OpenGL. The book makes it easy for students to find functions and their descriptions. Supplemental examples are included in every chapter. Over 70 recipes that cover advanced techniques for 3D programming such as lighting, shading, textures, particle systems, and image processing with OpenGL 4.6 Key FeaturesExplore techniques for implementing shadows using shadow maps and shadow volumesLearn to use GLSL features such as compute, geometry, and tessellation shadersUse GLSL to create a wide variety of modern, realistic visual effectsBook Description OpenGL 4 Shading Language Cookbook, Third Edition provides easy-to-follow recipes that first walk you through the theory and background behind each technique, and then proceed to showcase and explain the GLSL and OpenGL code needed to implement them. The book begins by familiarizing you with beginner-level topics such as compiling and linking shader programs, saving and loading shader binaries (including SPIR-V), and using an OpenGL function loader library. We then proceed to cover basic lighting and shading effects. After that, you'll learn to use textures, produce shadows, and use geometry and tessellation shaders. Topics such as particle systems, screen-space ambient occlusion, deferred rendering, depth-based tessellation, and physically based rendering will help you tackle advanced topics. OpenGL 4 Shading Language Cookbook, Third Edition also covers advanced topics such as shadow techniques (including the two of the most common techniques: shadow maps and shadow volumes). You will learn how to use noise in shaders and how to use compute shaders. The book provides examples of modern shading techniques that can be used as a starting point for programmers to expand upon to produce modern, interactive, 3D computer-graphics applications. What you will learnCompile, debug, and communicate with shader programsUse compute shaders for physics, animation, and general computingLearn about features such as shader storage buffer

objects and image load/store Utilize noise in shaders and learn how to use shaders in animations Use textures for various effects including cube maps for reflection or refraction Understand physically based reflection models and the SPIR-V Shader binary Learn how to create shadows using shadow maps or shadow volumes Create particle systems that simulate smoke, fire, and other effects Who this book is for If you are a graphics programmer looking to learn the GLSL shading language, this book is for you. A basic understanding of 3D graphics and programming experience with C++ are required. OpenGL ES is the standard graphics API used for mobile and embedded systems. Despite its widespread use, there is a lack of material that addresses the balance of both theory and practice in OpenGL ES. JungHyun Han's Introduction to Computer Graphics with OpenGL ES achieves this perfect balance. Han's depiction of theory and practice illustrates how 3D graphics fundamentals are implemented. Theoretical or mathematical details around real-time graphics are also presented in a way that allows readers to quickly move on to practical programming. Additionally, this book presents OpenGL ES and shader code on many topics. Industry professionals, as well as, students in Computer Graphics and Game Programming courses will find this book of importance. Key Features: Presents key graphics algorithms that are commonly employed by state-of-the-art game engines and 3D user interfaces Provides a hands-on look at real-time graphics by illustrating OpenGL ES and shader code on various topics Depicts troublesome concepts using elaborate 3D illustrations so that they can be easily absorbed Includes problem sets, solutions manual, and lecture notes for those wishing to use this book as a course text. Over 35 hands-on recipes to create impressive, stunning visuals for a wide range of real-time, interactive applications using OpenGL About This Book Get acquainted with a set of fundamental OpenGL primitives and concepts that enable users to create stunning visuals of arbitrarily complex 2D and 3D datasets for many common applications Explore

interactive, real-time visualization of large 2D and 3D datasets or models, including the use of more advanced techniques such as stereoscopic 3D rendering. Create stunning visuals on the latest platforms including mobile phones and state-of-the-art wearable computing devices

### Who This Book Is For

This book is aimed at anyone interested in creating impressive data visualization tools using modern graphics hardware. Whether you are a developer, engineer, or scientist, if you are interested in exploring the power of OpenGL for data visualization, this book is for you. While familiarity with C/C++ is recommended, no previous experience with OpenGL is assumed.

### What You Will Learn

- Install, compile, and integrate the OpenGL pipeline into your own project
- Create interactive applications using GLFW to handle user inputs and the Android Sensor framework to detect gestures and motions on mobile devices
- Use OpenGL primitives to plot 2-D datasets such as time series dynamically
- Render complex 3D volumetric datasets with techniques such as data slicers and multiple viewpoint projection
- Render images, videos, and point cloud data from 3D range-sensing cameras using the OpenGL Shading Language (GLSL)
- Develop video see-through augmented reality applications on mobile devices with OpenGL ES 3.0 and OpenCV
- Visualize 3D models with meshes and surfaces using stereoscopic 3D technology

### In Detail

OpenGL is a great multi-platform, cross-language, and hardware-accelerated graphics interface for visualizing large 2D and 3D datasets. Data visualization has become increasingly challenging using conventional approaches as datasets become larger and larger, especially with the Big Data evolution. From a mobile device to a sophisticated high-performance computing cluster, OpenGL libraries provide developers with an easy-to-use interface to create stunning visuals in 3D in real time for a wide range of interactive applications. This book provides a series of easy-to-follow, hands-on tutorials to create appealing OpenGL-based visualization tools with minimal development time. We will first illustrate how to

quickly set up the development environment in Windows, Mac OS X, and Linux. Next, we will demonstrate how to visualize data for a wide range of applications using OpenGL, starting from simple 2D datasets to increasingly complex 3D datasets with more advanced techniques. Each chapter addresses different visualization problems encountered in real life and introduces the relevant OpenGL features and libraries in a modular fashion. By the end of this book, you will be equipped with the essential skills to develop a wide range of impressive OpenGL-based applications for your unique data visualization needs, on platforms ranging from conventional computers to the latest mobile/wearable devices.

**Style and approach** This is an easy-to-follow, comprehensive Cookbook showing readers how to create an application with real-time, interactive data visualization in stereoscopic 3D. Each topic is explained in a step-by-step format. A range of hot topics is included, including data visualization on mobile and wearable platforms. This textbook, first published in 2003, emphasises the fundamentals and the mathematics underlying computer graphics. The minimal prerequisites, a basic knowledge of calculus and vectors plus some programming experience in C or C++, make the book suitable for self study or for use as an advanced undergraduate or introductory graduate text. The author gives a thorough treatment of transformations and viewing, lighting and shading models, interpolation and averaging, Bézier curves and B-splines, ray tracing and radiosity, and intersection testing with rays. Additional topics, covered in less depth, include texture mapping and colour theory. The book covers some aspects of animation, including quaternions, orientation, and inverse kinematics, and includes source code for a Ray Tracing software package. The book is intended for use along with any OpenGL programming book, but the crucial features of OpenGL are briefly covered to help readers get up to speed. Accompanying software is available freely from the book's web site. Thoroughly revised, this third

edition focuses on modern techniques used to generate synthetic three-dimensional images in a fraction of a second. With the advent of programmable shaders, a wide variety of new algorithms have arisen and evolved over the past few years. This edition discusses current, practical rendering methods used in games and other applications. It also presents a solid theoretical framework and relevant mathematics for the field of interactive computer graphics, all in an approachable style. The authors have made the figures used in the book available for download for fair use.:Download Figures. Reviews Rendering has been a required reference for professional graphics practitioners for nearly a decade. This latest edition is as relevant as ever, covering topics from essential mathematical foundations to advanced techniques used by today's cutting edge games. -- Gabe Newell, President, Valve, May 2008 Rendering ... has been completely revised and revamped for its updated third edition, which focuses on modern techniques used to generate three-dimensional images in a fraction of the time old processes took. From practical rendering for games to math and details for better interactive applications, it's not to be missed. -- The Bookwatch, November 2008 You'll get brilliantly lucid explanations of concepts like vertex morphing and variance shadow mapping—as well as a new respect for the incredible craftsmanship that goes into today's PC games. -- Logan Decker, PC Gamer Magazine , February 2009 Table of contents Beginning iPhone 4 Development is here! The authors of the bestselling Beginning iPhone 3 Development are back, with the same excellent material completely updated for iOS 4 and written from the ground up using the latest version of Apple's Xcode 3. All source code has been updated to use the latest Xcode templates and current APIs, and all-new screenshots show Xcode 3 in action. Beginning iPhone 4 Development is a complete course in iOS 4 apps development. You'll master techniques that work on iPhone, iPad, and iPod touch. We start with the basics, showing you how to download and install the tools you'll



need, and how to create your first simple application. Next you'll learn to integrate all the interface elements iOS users have come to know and love, such as buttons, switches, pickers, toolbars, and sliders. You'll master a variety of design patterns, from the simplest single view to complex hierarchical drill-downs. The confusing art of table building will be demystified, and you'll learn techniques to save and retrieve your data using SQLite, iPhone's built-in database management system and Core Data, the standard for persistence that Apple brought to iOS with the release of SDK 3. And there's much more! You'll learn to draw using Quartz 2D and OpenGL ES, add multitouch gestural support (pinches and swipes) to your applications, and work with the camera, photo library, accelerometer, and built-in GPS. You'll discover the fine points of application preferences and learn how to localize your apps for multiple languages. You'll also learn how to use the new concurrency APIs included in iOS 4, and make robust multithreaded applications using Grand Central Dispatch. The iPhone 4 update to the best-selling and most recommended book for Cocoa touch developers Written in an accessible, easy-to-follow style Full of useful tips and techniques to help you become an iOS pro NOTE: For iPhone 4S or iOS 5 apps development, please instead check out the next edition of this book, Beginning iOS 5 Development - now available. Over 70 recipes that cover advanced techniques for 3D programming such as lighting, shading, textures, particle systems, and image processing with OpenGL 4.6 Key Features Explore techniques for implementing shadows using shadow maps and shadow volumes Learn to use GLSL features such as compute, geometry, and tessellation shaders Use GLSL to create a wide variety of modern, realistic visual effects Book Description OpenGL 4 Shading Language Cookbook, Third Edition provides easy-to-follow recipes that first walk you through the theory and background behind each technique, and then proceed to showcase and explain the GLSL and OpenGL code needed to implement them. The

book begins by familiarizing you with beginner-level topics such as compiling and linking shader programs, saving and loading shader binaries (including SPIR-V), and using an OpenGL function loader library. We then proceed to cover basic lighting and shading effects. After that, you'll learn to use textures, produce shadows, and use geometry and tessellation shaders. Topics such as particle systems, screen-space ambient occlusion, deferred rendering, depth-based tessellation, and physically based rendering will help you tackle advanced topics. OpenGL 4 Shading Language Cookbook, Third Edition also covers advanced topics such as shadow techniques (including the two of the most common techniques: shadow maps and shadow volumes). You will learn how to use noise in shaders and how to use compute shaders. The book provides examples of modern shading techniques that can be used as a starting point for programmers to expand upon to produce modern, interactive, 3D computer-graphics applications. What you will learn Compile, debug, and communicate with shader programs Use compute shaders for physics, animation, and general computing Learn about features such as shader storage buffer objects and image load/store Utilize noise in shaders and learn how to use shaders in animations Use textures for various effects including cube maps for reflection or refraction Understand physically based reflection models and the SPIR-V Shader binary Learn how to create shadows using shadow maps or shadow volumes Create particle systems that simulate smoke, fire, and other effects Who this book is for If you are a graphics programmer looking to learn the GLSL shading language, this book is for you. A basic understanding of 3D graphics and programming experience with C++ are required. Downloading the example cod ... This new edition provides step-by-step instruction on modern 3D graphics shader programming in OpenGL with Java, along with its theoretical foundations. It is appropriate both for computer science graphics courses, and for professionals interested in mastering 3D graphics skills.

It has been designed in a 4-color, “teach-yourself” format with numerous examples that the reader can run just as presented. Every shader stage is explored, from the basics of modeling, textures, lighting, shadows, etc., through advanced techniques such as tessellation, normal mapping, noise maps, as well as new chapters on simulating water, stereoscopy, and ray tracing. FEATURES Covers modern OpenGL 4.0+ shader programming in Java, with instructions for both PC/Windows and Macintosh Illustrates every technique with running code examples. Everything needed to install the libraries, and complete source code for each example Includes step-by-step instruction for using each GLSL programmable pipeline stage (vertex, tessellation, geometry, and fragment) Explores practical examples for modeling, lighting and shadows (including soft shadows), terrain, water, and 3D materials such as wood and marble Adds new chapters on simulating water, stereoscopy, and ray tracing with compute shaders Explains how to optimize code with tools such as Nvidia’s Nsight debugger Includes companion files with code, object models, figures, and more The Three-Volume-Set CCIS 323, 324, 325 (AsiaSim 2012) together with the Two-Volume-Set CCIS 326, 327 (ICSC 2012) constitutes the refereed proceedings of the Asia Simulation Conference, AsiaSim 2012, and the International Conference on System Simulation, ICSC 2012, held in Shanghai, China, in October 2012. The 267 revised full papers presented were carefully reviewed and selected from 906 submissions. The papers are organized in topical sections on modeling theory and technology; modeling and simulation technology on synthesized environment and virtual reality environment; pervasive computing and simulation technology; embedded computing and simulation technology; verification, validation and accreditation technology; networked modeling and simulation technology; modeling and simulation technology of continuous system, discrete system, hybrid system, and intelligent system; high performance computing and simulation technology; cloud

simulation technology; modeling and simulation technology of complex system and open, complex, huge system; simulation based acquisition and virtual prototyping engineering technology; simulator; simulation language and intelligent simulation system; parallel and distributed software; CAD, CAE, CAM, CIMS, VP, VM, and VR; visualization; computing and simulation applications in science and engineering; computing and simulation applications in management, society and economics; computing and simulation applications in life and biomedical engineering; computing and simulation applications in energy and environment; computing and simulation applications in education; computing and simulation applications in military field; computing and simulation applications in medical field. The main objective of ICCSAI2013 is to provide a platform for the presentation of top and latest research results in global scientific areas. The conference aims to provide a high level international forum for researcher, engineers and practitioners to present and discuss recent advances and new techniques in computer science and artificial intelligence. It also serves to foster communications among researcher, engineers and practitioners working in a common interest in improving computer science, artificial intelligence and the related fields. We have received 325 numbers of papers through "Call for Paper", out of which 94 numbers of papers were accepted for publication in the conference proceedings through double blind review process. The conference is designed to stimulate the young minds including Research Scholars, Academicians, and Practitioners to contribute their ideas, thoughts and nobility in these two disciplines. Drawing on an impressive roster of experts in the field, Fundamentals of Computer Graphics, Fourth Edition offers an ideal resource for computer course curricula as well as a user-friendly personal or professional reference. Focusing on geometric intuition, the book gives the necessary information for understanding how images get onto the screen by using the

complementary approaches of ray tracing and rasterization. It covers topics common to an introductory course, such as sampling theory, texture mapping, spatial data structure, and splines. It also includes a number of contributed chapters from authors known for their expertise and clear way of explaining concepts. Highlights of the Fourth Edition Include: Updated coverage of existing topics Major updates and improvements to several chapters, including texture mapping, graphics hardware, signal processing, and data structures A text now printed entirely in four-color to enhance illustrative figures of concepts The fourth edition of Fundamentals of Computer Graphics continues to provide an outstanding and comprehensive introduction to basic computer graphic technology and theory. It retains an informal and intuitive style while improving precision, consistency, and completeness of material, allowing aspiring and experienced graphics programmers to better understand and apply foundational principles to the development of efficient code in creating film, game, or web designs. Key Features Provides a thorough treatment of basic and advanced topics in current graphics algorithms Explains core principles intuitively, with numerous examples and pseudo-code Gives updated coverage of the graphics pipeline, signal processing, texture mapping, graphics hardware, reflection models, and curves and surfaces Uses color images to give more illustrative power to concepts This is a 12-page quick reference for OpenGL version 4.6. OpenGL] is the most widely adopted 2D and 3D graphics API in the industry, bringing thousands of applications to a wide variety of computer platforms. It is window-system and operating-system independent as well as network-transparent. OpenGL enables developers of software for PC, workstation, and supercomputing hardware to create high-performance, visually compelling graphics software applications, in markets such as CAD, content creation, energy, entertainment, game development, manufacturing, medical, and virtual reality. OpenGL exposes all the features of the latest graphics

hardware. Learn OpenGL will teach you the basics, the intermediate, and tons of advanced knowledge, using modern (core-profile) OpenGL. The aim of this book is to show you all there is to modern OpenGL in an easy-to-understand fashion, with clear examples and step-by-step instructions, while also providing a useful reference for later studies. Interactive Computer Graphics is the only introduction to computer graphics text for undergraduates that fully integrates OpenGL® and emphasizes application-based programming. Graphics Systems and Models; Graphics Programming; Input and Interaction; Geometric Objects and Transformations; Viewing; Shading; From Vertices to Fragments; Discrete Techniques; Programmable Shaders; Modeling; Curves and Surfaces; Advanced Rendering; Sample Programs; Spaces; Matrices; Synopsis of OpenGL Functions. MARKET: For all readers interested in computer animation and graphics using OpenGL®. Get Real-World Insight from Experienced Professionals in the OpenGL Community With OpenGL, OpenGL ES, and WebGL, real-time rendering is becoming available everywhere, from AAA games to mobile phones to web pages. Assembling contributions from experienced developers, vendors, researchers, and educators, OpenGL Insights presents real-world techniques for intermediate and advanced OpenGL, OpenGL ES, and WebGL developers. Go Beyond the Basics The book thoroughly covers a range of topics, including OpenGL 4.2 and recent extensions. It explains how to optimize for mobile devices, explores the design of WebGL libraries, and discusses OpenGL in the classroom. The contributors also examine asynchronous buffer and texture transfers, performance state tracking, and programmable vertex pulling. Sharpen Your Skills Focusing on current and emerging techniques for the OpenGL family of APIs, this book demonstrates the breadth and depth of OpenGL. Readers will gain practical skills to solve problems related to performance, rendering, profiling, framework design, and more. OpenGL Shading Language 4 Cookbook is a hands-on guide that gets straight to the point - actually

creating graphics, instead of just theoretical learning. Each recipe is specifically tailored to satisfy your appetite for producing real-time 3-D graphics using the latest GLSL specification. This book is for OpenGL programmers looking to use the modern features of GLSL 4 to create real-time, three-dimensional graphics. Familiarity with OpenGL programming, along with the typical 3D coordinate systems, projections, and transformations is assumed. It can also be useful for experienced GLSL programmers who are looking to implement the techniques that are presented here. Reflecting the rapid expansion of the use of computer graphics and of C as a programming language of choice for implementation, this new version of the best-selling Hearn and Baker text converts all programming code into the C language. Assuming the reader has no prior familiarity with computer graphics, the authors present basic principles for design, use, and understanding of computer graphics systems. The authors are widely considered authorities in computer graphics, and are known for their accessible writing style. *Beginning Android 4 Games Development* offers everything you need to join the ranks of successful Android game developers. You'll start with game design fundamentals and programming basics, and then progress toward creating your own basic game engine and playable game that works on Android 4.0 and earlier devices. This will give you everything you need to branch out and write your own Android games. The potential user base and the wide array of available high-performance devices makes Android an attractive target for aspiring game developers. Do you have an awesome idea for the next break-through mobile gaming title? *Beginning Android 4 Games Development* will help you kick-start your project. The book will guide you through the process of making several example games for the Android platform, and involves a wide range of topics: The fundamentals of Android game development targeting Android 1.5-4.0+ devices The Android platform basics to apply those fundamentals in the context of making a game The design of

2D and 3D games and their successful implementation on the Android platform

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