The Cg Tutorial The Definitive Guide To Programmable Real

This two-volume book contains research work presented at the First International Conference on Data Engineering and Communication Technology (ICDECT) held during March 10–11, 2016 at Lavasa, Pune, Maharashtra, India. The book discusses recent research technologies and applications in the field of Computer Science, Electrical and Electronics Engineering. The aim of the Proceedings is to provide cutting-edge developments taking place in the field data engineering and communication technologies which will assist the researchers and practitioners from both academia as well as industry to advance their field of study.

Blender is a powerful and free 3D graphics tool used by artists and designers worldwide. But even experienced designers can find it challenging to turn an idea into a polished piece. For those who have struggled to create professional-quality projects in Blender, author Ben Simonds offers this peek inside his studio. You'll learn how to create 3D models as you explore the creative process that he uses to model three example projects: a muscular bat creature, a futuristic robotic spider, and ancient temple ruins. Along the way, you'll master the Blender interface and learn how to create and refine your own models. You'll also learn how to: –Work with reference and concept art in Blender and GIMP to make starting projects easier –Block in models with simple geometry and build up more complex forms –Use Blender's powerful sculpting brushes to create detailed organic models –Paint textures with Blender and GIMP and map them onto your 3D artwork –Light, render, and composite your models to create striking images Each chapter walks you through a piece of the modeling process and offers detailed explanations of the tools and concepts used. Filled with full-color artwork and real-world tips, Blender Master Class gives you the foundation you need to create your own stunning masterpieces. Covers Blender 2.6x

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

3ds Max is the leading 3D modeling, animation, and rendering solution for artists, schools, and production environments. The unique tutorial approach of this book permits readers to learn essential techniques that every 3D artist needs to create CG environments by recreating the earth's elements of earth, air, fire and water. No extra plug-ins are required to perform the exercises. Draper studies the real world and then simlates it with 3ds Max -a unique approach that reflects classical art training. "Deconstructing the Elements" allows artists to re-create natural effects using Autodesk® 3ds Max®. This new edition boasts all new tutorials. All editorial content is updated to be current with the current version of 3ds Max. Inspirational images cover every page as the author shares his professional insight, detailing the how and why of each effect, ensuring the reader a complete understanding of all the processes involved. The companion web site includes all of the tutorials from the previous two editions, only available to purchasers of this 3rd edition - plus all new tutorials of the current edition. It's like getting 3 books in one!

Programmable graphics shaders, programs that can be downloaded to a graphics processor (GPU) to carry out operations outside the fixed-function pipeline of earlier standards, have become a key feature of computer graphics. This book is designed to open computer graphics shader programming to the student, whether in a traditional class or on their own. It is intended to complement texts based on fixed-function graphics APIs, specifically OpenGL. It introduces shader programming in general, and specifically the GLSL shader language. It also introduces a flexible, easy-to-use tool, glman, that helps you develop, test, and tune shaders outside an application that would use them.

This book constitutes the refereed proceedings of the Second International Conference on Virtual Reality, ICVR 2007, held in Beijing, China. It covers 3D rendering and visualization, interacting and navigating in virtual and augmented environments, industrial applications of virtual reality, as well as health, cultural, educational and entertainment applications.

Practical Software Architecture Solutions from the Legendary Robert C. Martin ("Uncle Bob") By applying universal rules of software architecture, you can dramatically improve developer productivity throughout the life of any software system. Now, building upon the success of his best-selling books Clean Code and The Clean Coder, legendary software craftsman Robert C. Martin ("Uncle Bob") reveals those rules and helps you apply them. Martin's Clean Architecture doesn't merely present options. Drawing on over a half-century of experience in software environments of every imaginable type, Martin tells you what choices to make and why they are critical to your success. As you've come to expect from Uncle Bob, this book is packed with direct, no-nonsense solutions for the real challenges you'll face–the ones that will make or break your projects. Learn what software architects need to achieve–and core disciplines and practices for achieving it Master essential software design principles for addressing function, component separation, and data management See how programming paradigms impose discipline by restricting what developers can do Understand what's critically important and what's merely a "detail" Implement optimal, high-level structures for web, database, thick-client, console, and embedded applications Define appropriate boundaries and layers, and organize components and services See why designs and architectures go wrong, and how to prevent (or fix) these failures Clean Architecture is essential reading for every current or aspiring software architect, systems analyst, system designer, and software manager–and for every programmer

who must execute someone else’s designs. Register your product for convenient access to downloads, updates, and/or corrections as they become available.
* With this book readers might well be able to build the next Mars Rover. * First book out on Java robotics. * The biggest selling point about this book is that no one else shows readers how to combine the power of their PC with a robust programming language in Java to create exciting robotics. * The book is a great teaching aid (in robotics or software) that establishes a new paradigm for thinking about robotics along with simpler ways to do things, i.e., vs. the old way using microcontrollers.
'The most damaging half truth for savers is “performance matters more than expenses”. Read this book carefully and the financial services industry will have one fewer easy victim, but you will have a sound base for a lifetime of successful investment.' Martin White, Chair of UK Shareholders Association This is one of those great big books to buy and then tuck away for constant reference. It's a tour through everything from managing a portfolio to establishing a fair intrinsic value for a share. If it moves in the world of investing, it’s probably here.' David Stevenson, 'Adventurous Investor' in the Financial Times ‘Informative and easy to read, Glen Arnold has produced arguably the most comprehensive book there is today on stock market investing and one that unquestionably will give an edge to any retail investor. This is a must read for anyone serious about investing.' Simon Thompson, Companies Editor, Investors Chronicle The Financial Times Guide to Investing is the definitive introduction to the art of successful stock market investing. Bestselling author Glen Arnold takes you from the basics of what investors do and why companies need them through to the practicalities of buying and selling shares and how to make the most from your money. He describes different types of investment vehicles and advises you on how to be successful at picking companies, understanding their accounts, managing a sophisticated portfolio, measuring performance and risk and setting up an investment club. The third edition of this investing classic will give you everything you need to choose your shares with skill and confidence. Thoroughly updated, this edition now includes: - Comprehensive advice about unit trusts and other collective investments - A brand new section on dividend payments and what to watch out for - An expanded jargon-busting glossary to demystify those complex phrases and concepts - Recent Financial Times articles and tables to illustrate and expand on case studies and examples - Detailed updates of changes to tax rates and legislation as well as increases in ISA allowances and revisions to capital gains tax
Welcome to the proceedings of the 5th Paci?c Rim Conference on Multimedia (PCM 2004) held in Tokyo Waterfront City, Japan, November 30–December 3, 2004. Following the success of the preceding conferences, PCM 2000 in Sydney, PCM 2001 in Beijing, PCM 2002 in Hsinchu, and PCM 2003 in Singapore, the ?fth PCM brought together the researchers, developers, practitioners, and educators in the ?eld of multimedia. Theoretical breakthroughs and practical systems were presented at this conference, thanks to the support of the IEEE Circuits and Systems Society, IEEE Region 10 and IEEE Japan Council, ACM SIGMM, IEICE and ITE.
PCM2004featuredacomprehensiveprogramincludingkeynotetalks,regular paperpresentations,posters,demos,andspecialsessions.Wereceived385papers andthenumberofsubmissionswasthelargestamongrecentPCMs.Amongsuch a large number of submissions, we accepted only 94 oral presentations and 176 poster presentations. Seven special sessions were also organized by world-leading researchers. We kindly acknowledge the great support provided in the reviewing of submissions by the program committee members, as well as the additional reviewers who generously gave their time. The many useful comments provided by the reviewing process must have been very valuable for the authors’ work. Thisconferencewouldneverhavehappenedwithoutthehelpofmanypeople. We greatly appreciate the support of our strong organizing committee chairs and advisory chairs. Among the chairs, special thanks go to Dr. Ichiro Ide and Dr. Takeshi Naemura who smoothly handled publication of the proceedings with Springer. Dr. Kazuya Kodama did a fabulous job as our Web master.
It’s the latest and hottest technique, made possible only through digital. High Dynamic Range photography is the process of taking several pictures of a scene at various exposures, then merging them into one file. So the entire photo can look crisp and detailed, from highlights to midtones to shadows--and photographers needn’t sacrifice any part of their image. And the best way to master this exciting technology is with this thorough, easy-to-follow, and visually spectacular guide. No other title does justice to these cutting-edge techniques, which actually take the viewer into worlds far beyond normal photography--sometimes even beyond normal human perception. Ferrell McCollough, a widely respected photographer, pushes the boundaries and inspires others to pursue their artistic vision, too. The amazing results simply can’t be achieved any other way.
This is a concise and informal introductory book on the mathematical concepts that underpin computer graphics. The author, John Vince, makes the concepts easy to understand, enabling non-experts to come to terms with computer animation work. The book complements the author's other works and is written in the same accessible and easy-to-read style. It is also a useful reference book for programmers working in the field of computer graphics, virtual reality, computer animation, as well as students on digital media courses, and even mathematics courses.
This updated bestseller provides an introduction to programming interactive computer graphics, with an emphasis on game development using DirectX 11. The book is divided into three main parts: basic mathematical tools, fundamental tasks in Direct3D, and techniques and special effects. It includes new Direct3D 11 features such as hardware tessellation, the compute shader, dynamic shader linkage and covers advanced rendering techniques such as screen-space ambient occlusion, level-of-detail handling, cascading shadow maps, volume rendering, and character animation. Includes a companion CD-ROM with code and figures. eBook Customers: Companion files are available for downloading with order number/proof of purchase by writing to the publisher at info@merclearning.com.
Cg is a complete programming environment for the fast creation of special effects and real-time cinematic quality experiences on multiple platforms. This text provides a guide to

the Cg graphics language.

Visualization and analysis tools, techniques, and algorithms have undergone a rapid evolution in recent decades to accommodate explosive growth in data size and complexity and to exploit emerging multi- and many-core computational platforms. High Performance Visualization: Enabling Extreme-Scale Scientific Insight focuses on the subset of scientific visualization concerned with algorithm design, implementation, and optimization for use on today's largest computational platforms. The book collects some of the most seminal work in the field, including algorithms and implementations running at the highest levels of concurrency and used by scientific researchers worldwide. After introducing the fundamental concepts of parallel visualization, the book explores approaches to accelerate visualization and analysis operations on high performance computing platforms. Looking to the future and anticipating changes to computational platforms in the transition from the petascale to exascale regime, it presents the main research challenges and describes several contemporary, high performance visualization implementations. Reflecting major concepts in high performance visualization, this book unifies a large and diverse body of computer science research, development, and practical applications. It describes the state of the art at the intersection of scientific visualization, large data, and high performance computing trends, giving readers the foundation to apply the concepts and carry out future research in this area.

DVD-ROM includes over 9 hours of video lectures.

The Cg TutorialThe Definitive Guide to Programmable Real-time GraphicsAddison-Wesley Professional

We welcome you to the First International Conference on Arts and Technology (ArtsIT 2009), hosted by CSIE of the National Ilan University and co-organized by the National Science Council, ICST, College of EECS at National Ilan University, Software Simulation Society in Taiwan, ISAC, TCA, NCHC, CREATE-NET, and Institute for Information Industry. ArtsIT2009 was held in Yilan, Taiwan, during September 24–25, 2009. The conference comprised the following themes: • New Media Technologies (Evolutionary systems that create arts or display art works, such as tracking sensors, wearable computers, mixed reality, etc.) • Software Art (Image processing or computer graphics techniques that create arts, including algorithmic art, mathematic art, advanced modeling and rend- ing, etc.) • Animation Techniques (2D or 3D computer animations, AI-based animations, etc.) • Multimedia (Integration of different media, such as virtual reality systems, audio, performing arts, etc.) • Interactive Methods (Vision-based tracking and recognition, interactive art, etc.) The conference program started with an opening ceremony, followed by three keynote speeches and four technical sessions distributed over a period of two days. Two poster sessions, one hour each, were scheduled before the afternoon oral sessions. An Int- active Arts Exhibition was held in conjunction with ArtsIT 2009. Twelve well-known digital arts teams from Taiwan exhibited 15 artworks in this event, including 10 int- active installation arts, 4 video arts, and 1 digital print. The conference received around 50 submissions from 15 different countries.

OpenGL® Shading Language, Third Edition, extensively updated for OpenGL 3.1, is the experienced application programmer's guide to writing shaders. Part reference, part tutorial, this book thoroughly explains the shift from fixed-functionality graphics hardware to the new era of programmable graphics hardware and the additions to the OpenGL API that support this programmability. With OpenGL and shaders written in the OpenGL Shading Language, applications can perform better, achieving stunning graphics effects by using the capabilities of both the visual processing unit and the central processing unit. In this book, you will find a detailed introduction to the OpenGL Shading Language (GLSL) and the new OpenGL function calls that support it. The text begins by describing the syntax and semantics of this high-level programming language. Once this foundation has been established, the book explores the creation and manipulation of shaders using new OpenGL function calls. OpenGL® Shading Language, Third Edition, includes updated descriptions for the language and all the GLSL entry points added though OpenGL 3.1, as well as updated chapters that discuss transformations, lighting, shadows, and surface characteristics. The third edition also features shaders that have been updated to OpenGL Shading Language Version 1.40 and their underlying algorithms, including Traditional OpenGL fixed functionality Stored textures and procedural textures Image-based lighting Lighting with spherical harmonics Ambient occlusion and shadow mapping Volume shadows using deferred lighting Ward's BRDF model The color plate section illustrates the power and sophistication of the OpenGL Shading Language. The API Function Reference at the end of the book is an excellent guide to the API entry points that support the OpenGL Shading Language.

Solutions for Time-Critical Remote Sensing Applications The recent use of latest-generation sensors in airborne and satellite platforms is producing a nearly continual stream of high-dimensional data, which, in turn, is creating new processing challenges. To address the computational requirements of time-critical applications, researchers have begun incorporating high performance computing (HPC) models in remote sensing missions. High Performance Computing in Remote Sensing is one of the first volumes to explore state-of-the-art HPC techniques in the context of remote sensing problems. It focuses on the computational complexity of algorithms that are designed for parallel computing and processing. A Diverse Collection of Parallel Computing Techniques and Architectures The book first addresses key computing concepts and developments in remote sensing. It also covers application areas not necessarily related to remote sensing, such as multimedia and video processing. Each subsequent chapter illustrates a specific parallel computing paradigm, including multiprocessor (cluster-based) systems, large-scale and heterogeneous networks of computers, grid computing platforms, and specialized hardware architectures for remotely sensed data analysis and interpretation. An Interdisciplinary Forum to Encourage Novel Ideas The extensive reviews of current and future developments combined with thoughtful perspectives on the potential challenges of adapting HPC paradigms to remote sensing problems will undoubtedly foster collaboration and development among many fields.

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.

This book is a high-level overview of Sh and its relationship to other realtime shading and Graphics processing unit programming languages. It is a reference manual and language specification and

methodically and exhaustively presents details of the various features of Sh.

With contributions by Michael Ashikhmin, Michael Gleicher, Naty Hoffman, Garrett Johnson, Tamara Munzner, Erik Reinhard, Kelvin Sung, William B. Thompson, Peter Willemsen, Brian Wyvill. The third edition of this widely adopted text gives students a comprehensive, fundamental introduction to computer graphics. The authors present the mathematical foundations of computer graphics with a focus on geometric intuition, allowing the programmer to understand and apply those foundations to the development of efficient code. New in this edition: Four new contributed chapters, written by experts in their fields: Implicit Modeling, Computer Graphics in Games, Color, Visualization, including information visualization Revised and updated material on the graphics pipeline, reflecting a modern viewpoint organized around programmable shading. Expanded treatment of viewing that improves clarity and consistency while unifying viewing in ray tracing and rasterization. Improved and expanded coverage of triangle meshes and mesh data structures. A new organization for the early chapters, which concentrates foundational material at the beginning to increase teaching flexibility.

"This book presents research on the most recent technological developments in all fields of knowledge or disciplines of computer games development, including planning, design, development, marketing, business management, users and behavior"--Provided by publisher.

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

Focusing on developing cross-platform shaders in OpenGL Shader Language (GLSL) using the RenderMonkey environment, this guide makes it possible to combine the producing of complex graphics effects with the convenience of using OpenGL. Covering the sharp growth of the capabilities of graphic accelerators that has made writing shaders for complex real-time graphic effects a popular and rapidly developing subject, this book also includes a CD-ROM with cross-platform source codes for the program examples given in the book; both work with Microsoft Windows and with the increasingly popular Linux system.

An introduction to the basic concepts of 3D computer graphics that offers a careful mathematical exposition within a modern computer graphics application programming interface. Computer graphics technology is an amazing success story. Today, all of our PCs are capable of producing high-quality computer-generated images, mostly in the form of video games and virtual-life environments; every summer blockbuster movie includes jaw-dropping computer generated special effects. This book explains the fundamental concepts of 3D computer graphics. It introduces the basic algorithmic technology needed to produce 3D computer graphics, and covers such topics as understanding and manipulating 3D geometric transformations, camera transformations, the image-rendering process, and materials and texture mapping. It also touches on advanced topics including color representations, light simulation, dealing with geometric representations, and producing animated computer graphics. The book takes special care to develop an original exposition that is accessible and concise but also offers a clear explanation of the more difficult and subtle mathematical issues. The topics are organized around a modern shader-based version of OpenGL, a widely used computer graphics application programming interface that provides a real-time “rasterization-based” rendering environment. Each chapter concludes with exercises. The book is suitable for a rigorous one-semester introductory course in computer graphics for upper-level undergraduates or as a professional reference. Readers should be moderately competent programmers and have had some experience with linear algebra. After mastering the material presented, they will be on the path to expertise in an exciting and challenging field.

A book and CD-ROM package provides a Mosaic navigating browser and a collection of hard-to-find resources from such vendors as Adobe, Apple, IBM, Microsoft, and Silicon Graphics, as well as test images and code examples. Original. (Advanced).

The complete Perl learning resource for novices and experienced programmers alike, with advanced coverage that highlights GUI development, networking applications, real database integration, and much more. Includes many clear examples of using references (pointers)--the cornerstone of all advanced Perl development.

In the recent decades, there has been a growing interest in micro- and nanotechnology. The advances in nanotechnology give rise to new applications and new types of materials with unique electromagnetic and mechanical properties. This book is devoted to the modern methods in electrodynamics and acoustics, which have been developed to describe wave propagation in these modern materials and nanodevices. The book consists of original works of leading scientists in the field of wave propagation who produced new theoretical and experimental methods in the research field and obtained new and important results. The first part of the book consists of chapters with general mathematical methods and approaches to the problem of wave propagation. A special attention is attracted to the advanced numerical methods fruitfully applied in the field of wave propagation. The second part of the book is devoted to the problems of wave propagation in newly developed metamaterials, micro- and nanostructures and porous media. In this part the interested reader will find important and fundamental results on electromagnetic wave propagation in media with negative refraction index and electromagnetic imaging in devices based on the materials. The third part of the book is devoted to the problems of wave propagation in elastic and piezoelectric media. In the fourth part, the works on the problems of wave propagation in plasma are collected. The fifth, sixth and seventh parts are devoted to the problems of wave propagation in media with chemical reactions, in nonlinear and disperse media, respectively. And finally, in the eighth part of the book some experimental methods in wave propagations are considered. It is necessary to emphasize that this book is not a textbook. It is important that the results combined in it are taken “from the desks of researchers“. Therefore, I am sure that in this book the interested and actively working readers (scientists, engineers and students) will find many interesting results and new ideas.

"As the 'Red Book' is known to be the gold standard for OpenGL, the 'Orange Book' is considered to be the gold standard for the OpenGL Shading Language. With Randi's extensive knowledge of OpenGL and GLSL, you can be assured you will be learning from a graphics industry veteran. Within the pages of the second edition you can find topics from beginning shader development to advanced topics such as the spherical harmonic lighting model and more." —David Tommeraasen, CEO/Programmer, Plasma Software "This will be the definitive guide for OpenGL shaders; no other book goes into this detail. Rost has done an excellent job at setting the stage for shader development, what the purpose is, how to do it, and how it all fits together. The book includes great examples and details, and good additional coverage of 2.0 changes!" —Jeffery Galinovsky, Director of Emerging Market Platform Development, Intel Corporation "The coverage in this new edition of the book is pitched just right to help many new shader-writers get started, but with enough deep information for the 'old hands.'" —Marc Olano, Assistant Professor, University of Maryland "This is a really great book on GLSL—well written and organized, very accessible, and with good real-world examples and sample code. The topics flow naturally and easily, explanatory code fragments are inserted in very logical places to illustrate concepts, and all in all, this book makes an excellent tutorial as well as a reference." —John Carey, Chief Technology Officer, C.O.R.E. Feature Animation OpenGL® Shading Language, Second Edition, extensively updated for OpenGL 2.0, is the experienced application programmer's guide to writing shaders. Part reference, part tutorial, this book thoroughly explains the shift from fixed-functionality graphics hardware to the new era of programmable graphics hardware and the additions to the OpenGL API that support this programmability. With OpenGL and shaders written in the OpenGL Shading Language, applications can perform better, achieving stunning graphics effects by using the capabilities of both the visual processing unit and the central processing unit. In this book, you will find a detailed introduction to the OpenGL Shading Language (GLSL) and the new OpenGL function calls that support it. The text begins by describing the syntax and semantics of this high-level programming language. Once this foundation has been established, the book explores the creation and manipulation of shaders using new OpenGL function calls. OpenGL® Shading Language, Second Edition, includes updated descriptions for the language and all the GLSL entry points added to OpenGL 2.0; new chapters that discuss lighting, shadows, and surface characteristics; and an under-the-hood look at the implementation of RealWorldz, the most ambitious GLSL application to date. The second edition also features 18 extensive new examples of shaders and their underlying algorithms, including Image-based lighting Lighting with spherical harmonics Ambient occlusion Shadow mapping Volume shadows using deferred lighting Ward's BRDF model The color plate section illustrates the power and sophistication of the OpenGL Shading Language. The API Function Reference at the end of the book is an excellent guide to the API entry points that support the OpenGL Shading Language. Also included is a convenient Quick Reference Card to GLSL.

Electrochemistry plays a key role in a broad range of research and applied areas including the exploration of new inorganic and organic compounds, biochemical and biological systems, corrosion, energy applications involving fuel cells and solar cells, and nanoscale investigations. The Handbook of Electrochemistry serves as a source of electrochemical information, providing details of experimental considerations, representative calculations, and illustrations of the possibilities available in electrochemical experimentation. The book is divided into five parts: Fundamentals, Laboratory Practical, Techniques, Applications, and Data. The first section covers the fundamentals of electrochemistry which are essential for everyone working in the field, presenting an overview of electrochemical conventions, terminology, fundamental equations, and electrochemical cells, experiments, literature, textbooks, and specialized books. Part 2 focuses on the different laboratory aspects of electrochemistry which is followed by a review of the various electrochemical techniques ranging from classical experiments to scanning electrochemical microscopy, electrogenerated chemiluminesence and spectroelectrochemistry. Applications of electrochemistry include electrode kinetic determinations, unique aspects of metal deposition, and electrochemistry in small places and at novel interfaces and these are detailed in Part 4. The remaining three chapters provide useful electrochemical data and information involving electrode potentials, diffusion coefficients, and methods used in measuring liquid junction potentials. * serves as a source of electrochemical information * includes useful electrochemical data and information involving electrode potentials, diffusion coefficients, and methods used in measuring liquid junction potentials * reviews electrochemical techniques (incl. scanning electrochemical microscopy, electrogenerated chemiluminesence and spectroelectrochemistry)

Get the most realistic effects from 3ds Max without having to spend more on plug-ins! Boost your effects skill-set with this 3ds Max workshop. Tutorial lessons give you hands-on experience in creating realistic fire, earth, air and water effects. Updated to demonstrate production techniques suitable for any version of 3ds Max, this new edition is co-published by Autodesk Media and Entertainment, and includes new tutorials on entering the Earth's atmosphere, glaciers, lava eruptions and a Badlands landscape. Inspirational color images cover every page of the book as the author shares his professional techniques and workflow processes. The companion DVD contains all of the required tutorial media as well as over 6 hours of video tutorials. User level: Intermediate and advanced

This book constitutes the refereed proceedings of the 16th International Conference on Artificial Reality and Telexistence, ICAT 2006, held in Hangzhou, China in November/December 2006. The 138 revised papers cover anthropomorphic intelligent robotics, artificial life, augmented reality, distributed and collaborative VR system, motion tracking, real time computer simulation virtual reality, as well as VR interaction and navigation techniques.

"This book set unites fundamental research on the history, current directions, and implications of gaming at individual and organizational levels, exploring all facets of game design and application and describing how this emerging discipline informs and is informed by society and culture"--Provided by publisher.

This book constitutes the refereed proceedings of the 6th International Conference on Entertainment Computing, ICEC 2007. The papers are organized in topical sections on augmented, virtual and mixed reality, computer games, image processing, mesh and modeling, digital storytelling and interactive systems, sound, music and creative environments, video processing, rendering, computer animation and networks, game based interfaces, as well as robots and cyber pets.

A back-to-basics look at the fundamental concepts, conventions and theory that should be considered when creating art.

Designed for advanced undergraduate and beginning graduate courses, 3D Graphics for Game Programming presents must-know information for success in interactive graphics. Assuming a minimal prerequisite understanding of vectors and matrices, it also provides sufficient mathematical background for game developers to combine their previous experience in graphics API and

shader programming with the background theory of computer graphics. Well organized and logically presented, this book takes its organizational format from GPU programming and presents a variety of algorithms for programmable stages along with the knowledge required to configure hard-wired stages. Easily accessible, it offers a wealth of elaborate 3D visual presentations and includes additional theoretical and technical details in separate shaded boxes and optional sections. Maintaining API neutrality throughout to maximize applicability, the book gives sample programs to assist in understanding. Full PowerPoint files and additional material, including video clips and lecture notes with all of the figures in the book, are available on the book's website: http://media.korea.ac.kr/book