Physics For Javascript Games Animation And Simulations With Html5 Canvas

Foundation HTML5 Animation with JavaScript covers everything that you need to know to create dynamic scripted animation using the HTML5 canvas. It provides information on all the relevant math you'll need, before moving on to physics concepts like acceleration, velocity, easing, springs, collision detection, conservation of momentum, 3D, and forward and inverse kinematics. Foundation HTML5 Animation with JavaScript is a fantastic resource for all web developers working in HTML5 or switching over from Flash to create standards-compliant games, applications, and animations that will work across all modern browsers and most mobile devices, including iPhones, iPads, and Android devices. You will learn how to utilize the amazing animation and physics-based code originally created by author Keith Peters in his hugely successful Foundation ActionScript Animation in all of your HTML5 applications. In no time at all, you'll understand the concepts behind scripted animation and also have the ability to create all manner of exciting animations and games.

Developing computer games is a perfect way to learn how to program in modern programming languages. This book teaches how to program in C# through the creation of computer games – and without requiring any previous programming experience. Contrary to most programming books, van Toll, Egges, and Fokker do not organize the presentation according to programming language constructs, but instead use the structure and elements of computer games as a framework. For instance, there are chapters on dealing with player input, game objects, game worlds, game states, levels, animation, physics, and intelligence. The reader will be guided through the development of four games showing the various aspects of game development. Starting with a simple shooting game, the authors move on to puzzle games consisting of multiple levels, and conclude the book by developing a full-fledged platform game with animation, game physics, and intelligent enemies. They show a number of commonly used techniques in games, such as drawing layers of sprites, rotating, scaling and animating sprites, dealing with physics, handling interaction between game objects, and creating pleasing visual effects. At the same time, they provide a thorough introduction to C# and object-oriented programming, introducing step by step important programming concepts such as loops, methods, classes, collections, and exception handling. This second edition includes a few notable updates. First of all, the book and all example programs are now based on the library MonoGame 3.6, instead of the obsolete XNA Game Studio. Second, instead of explaining how the example programs work, the text now invites readers to write these programs themselves, with clearly marked reference points throughout the text. Third, the book now makes a clearer distinction between general (C#) programming concepts and concepts that are specific to game development. Fourth, the most important programming concepts are now summarized in convenient "Quick Reference" boxes, which replace the syntax diagrams of the first edition. Finally, the updated exercises are now grouped per chapter and can be found at the end of each chapter, allowing readers to test their knowledge more directly. The book is also designed to be used as a basis for a game-oriented programming course. Supplementary materials for organizing such a course are available on an accompanying web site, which also includes all example programs, game sprites, sounds, and the solutions to all exercises.

Provides information on using HTML5 to build interactive multimedia applications and computer games, covering such topics as creating bitmap images, manipulating video, and adding audio.

How can we capture the unpredictable evolutionary and emergent properties of nature in software? How can understanding the mathematical principles behind our physical world help us to create digital worlds? This book focuses on a range of programming strategies and techniques behind computer simulations of natural systems, from elementary concepts in mathematics and physics to more advanced algorithms that enable sophisticated visual results. Readers will progress from building a basic physics engine to creating intelligent moving objects and complex systems, setting the foundation for further experiments in generative design. Subjects covered include forces, trigonometry, fractals, cellular automata, self-organization, and genetic algorithms. The book's examples are written in Processing, an open-source language and development environment built on top of the Java programming language. On the book's website (http: //www.natureofcode.com), the examples run in the browser via Processing's JavaScript mode.

Pro HTML5 Games

Game Development with Three.js

Advanced Game Design with HTML5 and JavaScript

Learn WebAssembly C++ programming by building a retro space game

HTML5 Canvas

Unity's JavaScript for Beginners

Follow a walkthrough of the Unity Engine and learn important 2D-centric lessons in scripting, working with image assets, animations, cameras, collision detection, and state management. In addition to the fundamentals, you'll learn best practices, helpful game-architectural patterns, and how to customize Unity to suit your needs, all in the context of building a working 2D game. While many books focus on 3D game creation with Unity, the easiest market for an independent developer to thrive in is 2D games. 2D games are generally cheaper to produce, more feasible for small teams, and more likely to be completed. If you live and breathe games and want to create them then 2D games are a great place to start. By focusing exclusively on 2D games and Unity's ever-expanding 2D workflow, this book gives aspiring independent game developers the tools they need to thrive. Various real-world examples of independent games are used to teach fundamental concepts of developing 2D games in Unity, using the very latest tools in Unity's updated 2D workflow. New all-digital channels for distribution, such as Nintendo eShop, XBox Live Marketplace, the Playstation Store, the App Store, Google Play, itch.io, Steam, and GOG.com have made it easier than ever to discover, buy, and sell games. The golden age of independent gaming is upon us, and there has never been a better time to get creative, roll up your sleeves, and build that game you've always dreamed about. Developing 2D Games with Unity can show you the way. What You'll Learn Delve deeply into useful 2D topics, such as sprites, tile slicing, and the brand new Tilemap feature. Build a working 2D RPG-style game as you learn.Construct a flexible and extensible game architecture using Unity-specific tools like Scriptable Objects, Cinemachine, and Prefabs.Take advantage of the streamlined 2D workflow provided by the Unity environment. Deploy games to desktop Who This Book Is For Hobbyists with some knowledge of programming, as well as seasoned programmers interested in learning to make games independent of a major studio. Have you ever wanted to include believable physical behaviors in your games and projects to give them that extra edge? Physics for JavaScript Games, Animation, and Simulations teaches you how to incorporate real physics, such as gravity, friction, and buoyancy, into your HTML5 games, animations, and simulations. It also includes more advanced topics, such as particle systems, which are essential

for creating effects such as sparks or smoke. The book also addresses the key issue of balancing accuracy and simplicity in your games and simulations, and the final chapters provide you with the information and the code to make the right choice for your project. Physics for JavaScript Games, Animation, and Simulations assumes you have a basic knowledge of JavaScript and HTML5. However, no previous knowledge of physics is required—only some very basic math skills. The authors present everything from basic principles to advanced concepts in an approachable way, so you'll be able to follow the logic and easily adapt the principles to your own applications. The book is packed full of practical examples of how you can apply physics to your own games and applications. Spring behaviors can be used for anything from tweaking lowrider suspension to creating cloth simulation; flotation mechanics enable the simulation of submersibles or dirigibles; you can even create your own solar system with accurate orbits and gravity. It doesn't matter if you're modeling the Lorentz force in an electromagnetic field or you're modeling the lift force in a flight simulator, Physics for JavaScript Games, Animation, and Simulations enables you to fill your games and applications with accurate and realistic effects.

Build Your Own 2D Game Engine and Create Great Web Games teaches you how to develop your own web-based game engine step-by-step, allowing you to create a wide variety of online videogames that can be played in common web browsers. Chapters include examples and projects that gradually increase in complexity while introducing a ground-up design framework, providing you with the foundational concepts needed to build fun and engaging 2D games. By the end of this book you will have created a complete prototype level for a side scrolling action platform game and will be prepared to begin designing additional levels and games of your own. This book isolates and presents relevant knowledge from software engineering, computer graphics, mathematics, physics, game development, game mechanics, and level design in the context of building a 2D game engine from scratch. The book then derives and analyzes the source code needed to implement thes e concepts based on HTML5, JavaScript, and WebGL. After completing the projects you will understand the core-concepts and implementation details of a typical 2D game engine and you will be familiar with a design and prototyping methodology you can use to create game levels and mechanics that are fun and engaging for players. You will gain insights into the many ways software design and creative design must work together to deliver the best game experiences, and you will have access to a versatile 2D game engine that you can expand upon or utilize directly to build your own 2D games that can be played online from anywhere. • Assists the reader in understanding the core-concepts behind a 2D game engine • Guides the reader in building a functional game engine based on these concepts • Lead s the reader in exploring the interplay between technical design and game experience design • Teaches the reader how to build their own 2D games that can be played across internet via popular browsers

Building JavaScript Games teaches game programming through a series of engaging, arcade-style games that quickly expand your JavaScript and HTML5 skills. JavaScript is in the top ten most-used programming languages world wide, and is the basis for applications that can run in any modern browser, on any device from smart phone to tablet to PC. Especial emphasis is given to touch-based interface, but all games also run using a regular mouse and keyboard setup. The four games you'll develop from reading this book are: Painter Jewel Jam Penguin Pairs Tick Tick These four games are casual, arcade-style games representing the aim-and-shoot, puzzle, maze, and platform styles of game play. The approach in Building JavaScript Games follows the basic structure of a game rather than the syntax of a language. From almost the very first chapter you are building games to run on your phone or other device and show to your friends. Successive projects teach about handling player input, manipulating game objects, designing game worlds, managing levels, and realism through physics. All told, you'll develop four well-designed games, making Building JavaScript Games one of the most enjoyable ways there is to learn about programming browser-based games. The final chapters in the book contain a very nice bonus of sorts. In them you will find excerpts from interviews with two prominent people from the game industry: Mark Overmars, who is CTO of Tingly Games and creator of GameMaker, and Peter Vesterbacka, the CMO of Rovio Entertainment - the creators of the Angry Birds franchise. Their insight and perspective round off what is already a fun and valuable book.

Coding with JavaScript For Dummies
HTML5 Game Development with GameMaker
For Games and Entertainment
Foundation Game Design with HTML5 and JavaScript
Game Anim
The Advanced Game Developer's Toolkit

Summary Deep learning has transformed the fields of computer vision, image processing, and natural language applications. Thanks to TensorFlow.js, now JavaScript developers can build deep learning apps without relying on Python or R. Deep Learning with JavaScript shows developers how they can bring DL technology to the web. Written by the main authors of the TensorFlow library, this new book provides fascinating use cases and in-depth instruction for deep learning apps in JavaScript in your browser or on Node. Foreword by Nikhil Thorat and Daniel Smilkov. About the technology Running deep learning applications in the browser or on Node-based backends opens up exciting possibilities for smart web applications. With the TensorFlow.js library, you build and train deep learning models with JavaScript. Offering uncompromising production-quality scalability, modularity, and responsiveness, TensorFlow.js really shines for its portability. Its models run anywhere JavaScript runs, pushing ML farther up the application stack. About the book In Deep Learning with JavaScript, you'll learn to use TensorFlow.js to build deep learning models that run directly in the browser. This fast-paced book, written by Google engineers, is practical, engaging, and easy to follow. Through diverse examples featuring text analysis, speech processing, image recognition, and self-learning game AI, you'll master all the basics of deep learning and explore advanced concepts, like retraining existing models for transfer learning and image generation. What's inside - Image and language processing in the browser - Tuning ML models with client-side data - Text and image creation with generative deep learning - Source code samples to test and modify About the reader For JavaScript programmers interested in deep learning. About the author Shanqing Cai, Stanley Bileschi and Eric D. Nielsen are software engineers with experience on the Google Brain team, and were crucial to the development of the high-level API of TensorFlow.js. This book is based in part on the classic, Deep Learning with Python by François Chollet. TOC: PART 1 - MOTIVATION AND BASIC CONCEPTS 1 • Deep learning and JavaScript PART 2 - A GENTLE INTRODUCTION TO TENSORFLOW.JS 2 • Getting started: Simple linear regression in TensorFlow.js 3 • Adding nonlinearity: Beyond weighted sums 4 • Recognizing images and sounds using convnets 5 • Transfer learning: Reusing pretrained neural networks PART 3 - ADVANCED DEEP LEARNING WITH TENSORFLOW.JS 6 • Working with data 7 • Visualizing data and models 8 • Underfitting, overfitting, and the universal workflow of machine learning 9 • Deep learning for sequences and text 10 • Generative deep learning 11 • Basics of deep reinforcement learning PART 4 - SUMMARY AND CLOSING WORDS 12 • Testing, optimizing, and deploying models 13 • Summary, conclusions, and beyond

The book is a friendly but explosive reference for all skill levels, with several action packed projects. You will develop the ability to build games from scratch with a comprehensive practical tutorial guide. This book is assured to boost your skill set to another level.This book is for anyone with a passion to create fun and action packed web browser games using GameMaker Studio. This intuitive practical guide appeals to both beginners and advanced users wanting to create and release online games to share with the world, using the powerful GameMaker tool.

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

Learn to build a fully-functional 2D game inspired by the 1979 Atari classic, Asteroids, using just HTML5, CSS and JavaScript. Developing games has never been easier than it is now. New web technology allows even beginner developers to turn their hand to game development. Developed from an undergraduate course module, Introducing JavaScript Game Development teaches each new technology as it is introduced so can be followed by enthusiastic beginners as well as intermediate coders. You will learn how to work with HTML5 and the canvas element, how to understand paths, how to draw to a design and create your spaceship and asteroids. You'll then move on to animating your game, and finally building. You will work step-by-step through the game design process, starting with only what is necessary to complete each step, and refactoring the code as necessary along the way, reflecting the natural progression that code follows in the real world. Each chapter is designed to take your code base to the next level and to add to your skills. After completing the examples in this book you will have the tools necessary to build your own, high-quality games. Make the process of creating object-oriented 2D games more fun and more productive and get started on your game development journey.

2D Graphics Programming for Games

Graphics, Animation, and Game Development

Game Programming Patterns

Foundation HTML5 Canvas

Core HTML5 Canvas

Reshma Saujani

The biggest challenge facing many game programmers is completing their game. Most game projects fizzle out, overwhelmed the complexity of their own code. Game Programming Patterns tackles that exact problem. Based on years of experience in shipped AAA titles, this book collects proven patterns to untangle and optimize your game, organized as independent recipes you can pick just the patterns you need. You will learn how to write a robust game loop, how to organize your entities using components, and take advantage of the CPUs cache to improve your performance. You'll dive deep into how scripting engines encode behavior, how quadtrees and other spatial partitions optimize your engine, and how other classic design patterns can used in games.

A step-by-step, example-based guide to building immersive 3D games on the Web using the Three.js graphics library. This book for people interested in programming 3D games for the Web. Readers are expected to have basic knowledge of JavaScript sy and a basic understanding of HTML and CSS. This book will be useful regardless of prior experience with game programming, whether you intend to build casual side projects or large-scale professional titles.

Master the most important skills and techniques you need to know for professional HTML5 and JavaScript 2D game developm This book delves into many of the great classic techniques of video game design. You'll discover how to develop games and game levels using Tiled Editor, how to implement tile-based collision, how to design advanced pathfinding and enemy AI syste the fundamentals of broad-phase collision, and how to make isometric games. All the techniques and supporting code are explained in an easy-to-understand manner and written in a general way so that they can be applied to any game engine or technology that you're comfortable using. You'll find detailed working examples, with dozens of illustrations and many concept you can freely apply to your own projects. All the math and programming techniques are elaborately explained and examples open-ended to encourage you to think of original ways to use these techniques in your own games. You can use what you le this book as the basis for making games for desktops, mobile phones, tablets, or the Web. The Advanced Game Developer's Toolkit is a great next step if you already have some JavaScript game-making- experience, or a great continuation if you've already read Advanced Game Design with HTML5 and JavaScript by the same author. What You'll Learn Work with advanced t based design techniques for puzzle, platform and maze games Use Tiled Editor to build game worlds Build path-finding and AI systems using Line of Sight and A* (A-Star) Make isometric games Manage complexity to build games of any size that scale seamlessly Who This Book Is For Video game developers with some experience who want to learn the essential techniques th need to know to take their skills to the next level and for readers who want to understand and fine-tune every line of code write, without resorting to quick fixes.

Physics for JavaScript Games, Animation, and SimulationsApress

Neural networks in TensorFlow.js

Physics for Game Developers

Blender For Dummies

Physics for JavaScript Games, Animation, and Simulations

with HTML5 Canvas

for Phones, Tablets, and Desktop

The second edition of Game Anim expands upon the first edition with an all-new chapter on 2D and Pixel Art Animation, an enhanced mocap chapter covering the latest developments in Motion Matching, and even more interviews with top professionals in the field. Combined with everything in the first edition, this updated edition provides the reader with an even more comprehensive understanding of all areas of video game animation – from small indie projects to the latest AAA blockbusters. Key Features • New 2nd Edition Content: An all-new chapter on 2D and Pixel Art Animation, Motion Matching, and more • 20 Years of Insight: Accumulated knowledge from 2 decades of experience in all areas of game animation. • The 5 Fundamentals: Reinterprets the classic 12 animation principles and sets out 5 new fundamentals for great game animation. • Full Production Cycle: Walks through every stage of a game production from the animator's perspective. • Animator Interviews: Notable game animators offer behind-the-scenes stories, tips, and advice. • Free Animation Rig: Free "AZRI" maya rig, tutorials and other resources on the accompanying website: www.gameanim.com/book About The Author Jonathan Cooper is an award-winning video game animator who has brought virtual characters to life professionally

since 2000, leading teams on large projects such as the Assassin's Creed and Mass Effect series, with a focus on memorable stories and characters and cutting-edge video game animation. He has since focused on interactive cinematics in the latest chapters of the DICE and Annie award-winning series Uncharted and The Last of Us. Jonathan has presented at the Game Developers Conference (GDC) in San Francisco and at other conferences across Canada and the United Kingdom. He holds a Bachelor of Design honors degree in animation. The success of Angry Birds, Peggle, and Fruit Ninja has proven that fun and immersive game experiences can be created in two dimensions. Furthermore, 2D graphics enable developers to quickly prototype ideas and mechanics using fewer resources than 3D.2D Graphics Programming for Games provides an in-depth single source on creating 2D graphics that c

Foundation Game Design with HTML5 and JavaScript teaches you everything you need to know about how to make video games. If you've never done any programming before and don't know where to start, this book will show you how to make games from start to finish. You'll learn all the latest programming technologies (HTML5, CSS, and JavaScript) to create your games. All written in a fun and friendly style with open-ended projects that encourage you to build your own original games. Foundation Game Design with HTML5 and JavaScript starts by showing you how you can use basic programing to create logic games, adventure games, and create interactive game graphics. Design a game character, learn to control it with the keyboard, mouse, or touch screen interface, and then learn how to use collision detection to build an interactive game world. You'll learn to make maze games, platform jumping games, and fast paced action games that cover all the popular genres of 2D gaming. Create intelligent enemies, use realistic physics, sound effects and music, and learn how to animate game characters. Whether you're creating games for the web or mobile devices, everything you need to get started on a career as a game designer is right here. Focused and friendly introduction to making games with HTML5. Essential programming and graphic design techniques for building games, with each chapter gently building on the skills of preceding chapters. Detailed case studies demonstrating techniques that can be used for making games in a wide variety of genres.

Build your next game on a bigger scale with Pro HTML5 Games. This book teaches you the essentials of advanced game programming in HTML5. You'll learn techniques that you can transfer to any area of HTML5 game development to make your own professional HTML5 games! Led by an expert game programmer, you'll build two complete games in HTML5: a strategy puzzle game based on the Box2d physics engine and in the style of Angry Birds and a real-time strategy (RTS) game complete with units, buildings, path-finding, artificial intelligence, and multiplayer support. In the process, you'll learn how to do the following: Create realistic physics in your game by incorporating the Box2d physics engine Design large worlds with lots of characters and let users interact with them Use sprite sheets, panning, parallax scrolling, and sound effects to build a more polished game Incorporate pathfinding and steering to help characters navigate through your world Create challenging levels with intelligent enemies by using decision trees, state machines, and scripted events Add multiplayer in your games using Node.js and the WebSocket API This book will help you take your HTML5/JavaScript programming experience to the next level. It gives you the knowledge and skills you need to develop more complex, bolder games and become an HTML5 games pro.

3D Animation Essentials

Game Engine Architecture, Second Edition

Create Amazing Web-based Games with JavaScript and HTML5

Video Game Animation Explained

Hands-On Game Development with WebAssembly

Native Interactivity and Animation for the Web

How do you make a video game? Advanced Game Design with HTML5 and JavaScript is a down to earth education in how to make video games from scratch, using the powerful HTML5 and JavaScript technologies. This book is a point-by-point round up of all the essential techniques that every game designer needs to know. You'll discover how to create and render game graphics, add interactivity, sound, and animation. You'll learn how to build your own custom game engine with reusable components so that you can quickly develop games with maximum impact and minimum code. You'll also learn the secrets of vector math and advanced collision detection techniques, all of which are covered in a friendly and non-technical manner. You'll find detailed working examples, with hundreds of illustrations and thousands of lines of source code that you can freely adapt for your own projects. All the math and programming techniques are elaborately explained and examples are open-ended to encourage you to think of original ways to use these techniques in your own games. You can use what you learn in this book to make games for desktops, mobile phones, tablets or the Web. Advanced Game Design with HTML5 and JavaScript is a great next step for experienced programmers or ambitious beginners who already have some JavaScript experience, and want to jump head first into the world of video game

development. It's also great follow-up book for readers of Foundation Game Design with HTML5 and JavaScript (by the same author) who want to add depth and precision to their skills. The game examples in this book use pure JavaScript, so you can code as close to the metal as possible without having to be dependent on any limiting frameworks or game engines. No libraries, no dependencies, no third-party plugins: just you, your computer, and the code. If you're looking for a book to take your game design skills into the stratosphere and beyond, this is it!

Explains how to create computer games using Java code, including realistic fantasy worlds with texture mapping, advanced imaging, and seamless mapping techniques

Presents an introduction to WebGL development and production concepts to create full 3D applications.

The exciting new book on the exciting new Blender 2.5! If you want to design 3D animation, here's your chance to jump in with both feet, free software, and a friendly guide at your side! Blender For Dummies, 2nd Edition is the perfect introduction to the popular, open-source, Blender 3D animation software, specifically the revolutionary new Blender 2.5. Find out what all the buzz is about with this easy-access guide. Even if you?re just beginning, you'll learn all the Blender 2.5 ropes, get the latest tips, and soon start creating 3D animation that dazzles. Walks you through what you need to know to start creating eye-catching 3D animations with Blender 2.5, the latest update to the top open-source 3D animation program Shows you how to get the very most out of Blender 2.5's new multi-window unblocking interface, new event system, and other exciting new features Covers how to create 3D objects with meshes, curves, surfaces, and 3D text; add color, texture, shades, reflections and transparency; set your objects in motion with animations and rigging; render your objects and animations; and create scenes with lighting and cameras If you want to start creating your own 3D animations with Blender, Blender For Dummies, 2nd Edition is where you need to start!

AdvancED ActionScript 3.0 Animation

Girls Who Code Founder

Independent Game Programming with C#

Deep Learning with JavaScript

Real-Time Rendering

Build your own 2D Game Engine and Create Great Web Games

Get a gentle introduction to the Cocos2d-JS framework to begin working with sprite manipulations, animations, and other 2d game development topics. This book covers environment setup and getting started with a framework that works seamlessly across all browsers. Rapid Game Development Using Cocos2d-JS teaches you the overall architecture of Cocos2d-JS and explains the internal working of the framework. You will dive deep into sprites, the most important entity in Cocos2d-JS, animation APIs, and primitive shapes. You'll also learn about the Cocos2d-JS UI system to get a head start in 2d game development. Finally, you'll discover the features of Chipmunk (the built-in physics engine) with full examples. What You'll Learn Get a simple head start in Cocos2d-JS Gain an architectural overview of the different blocks of the framework Master sprites, spritesheets, and frame animation Work with the event system in Cocos2d-JS Discover the animation APIs in Cocos2d-JS Leverage the built-in physics engine Who This Book Is For Beginners looking to develop cross-platform mobile/web games with cocos2d-js, developers with intermediate skills on cocos2d-js looking for the reference.

The essential fundamentals of 3D animation for aspiring 3D artists 3D is everywhere--video games, movie and television special effects, mobile devices, etc. Many aspiring artists and animators have grown up with 3D and computers, and naturally gravitate to this field as their area of interest. Bringing a blend of studio and classroom experience to offer you thorough coverage of the 3D animation industry, this must-have book shows you what it takes to create compelling and realistic 3D imagery. Serves as the first step to understanding the language of 3D and computer graphics (CG) Covers 3D animation basics: pre-production, modeling, animation, rendering, and post-production Dissects core 3D concepts including design, film, video, and games Examines what artistic and technical skills are needed to succeed in the industry Offers helpful real-world scenarios and informative interviews with key educators and studio and industry professionals Whether you're considering a career in as a 3D artist or simply wish to expand your understanding of general CG principles, this book will give you a great overview and knowledge of core 3D Animation concepts and the industry.

Dive into game development and create great multiplayer online games with Pro Android Web Game Apps. This hands-on guide covers both the theory and practice of browser game development for the Android platform. You'll use cutting-edge technologies to make game engines in your browser, establish real-time server communication, and create amazing gaming experiences with artificial intelligence and rich media. Bring your knowledge of HTML and JavaScript to the next level with Pro Android Web Game Apps. You are guided through exciting projects that give you firsthand experience with core game app development concepts. You'll start with a blank HTML page, and by the end of the book, have the skills needed to create a multiplayer online game with rich graphics, sound, animation, and more—even if you have no previous games development or server-side experience.

Go from beginner to builder quickly with this hands-on JavaScript guide Coding with JavaScript For Dummies provides easy, hands-on instruction for anyone looking to learn this popular client-side language. No experience? No problem! This friendly guide starts from the very beginning and walks you through the basics, then shows you how to apply what you've learned to real projects. You'll start building right away, including web page elements and simple applications, so you can immediately see how JavaScript is used in the real world. Online exercises allow you to test your code and expand your skills, and the easy-to-follow instruction provides step-by-step guidance toward understanding the JavaScript syntax, applications, and language. JavaScript enhances static web pages by providing dynamic elements that can adapt and react to user action. It's a need-to-know tool for aspiring web designers, but anyone can benefit from understanding this core development language. Coding with JavaScript For Dummies takes you from beginner to builder quickly as you: Learn what JavaScript does, how it works, and where to use it Master the core elements of JavaScript and immediately put it to work Build interactive web elements and try out your code online Create basic applications as you apply JavaScript to the app development workflow Anytime a website responds to your movement around the screen, that's JavaScript. It makes websites more functional, more beautiful, more engaging, and your site visitors will demand nothing less. If you want to build a better website, you need JavaScript. If you need JavaScript, Coding with JavaScript For Dummies gets you started off quickly and painlessly, with plenty of hands-on practice.

Learning C# by Programming Games

Developing 2D Games with Unity

Introducing JavaScript Game Development

Java Game Programming for Dummies

Using HTML5, CSS3 and JavaScript

Foundation HTML5 Animation with JavaScript

Learn Unity Programming with UnityScript is your step-by-step guide to learning to make your first Unity games using UnityScript. You will move from point-and-click components to fully customized features. You need no prior programming knowledge or any experience with other design tools such as PhotoShop or Illustrator - you can start from scratch making Unity games with what you'll learn in this book. Through hands-on examples of common game patterns, you'll learn and apply the basics of game logic and design. You will gradually become comfortable with UnityScript syntax, at each point having everything explained to you clearly and concisely. Many beginner programming books refer to documentation that is too technically abstract for a beginner to use - Learn Unity Programming with UnityScript will teach you how to read and utilize those resources to hone your skills, and rapidly increase your knowledge in Unity game development. You'll learn about animation, sound, physics, how to handle user interaction and so much more. Janine Suvak has won awards for her game development and is ready to show you how to start your journey as a game developer. The Unity3D game engine is flexible, cross-platform, and a great place to start your game development adventure, and UnityScript was made for it - so get started game programming with this book today.

Hailed as a "must-have textbook" (CHOICE, January 2010), the first edition of Game Engine Architecture provided readers with a complete guide to the theory and practice of game engine software development. Updating the content to match today's landscape of game engine architecture, this second edition continues to thoroughly cover the major components that make up a typical commercial game engine. New to the Second Edition Information on new topics, including the latest variant of the C++ programming language, C++11, and the architecture of the eighth generation of gaming consoles, the Xbox One and PlayStation 4 New chapter on audio technology covering the fundamentals of the physics, mathematics, and technology that go into creating an AAA game audio engine Updated sections on multicore programming, pipelined CPU architecture and optimization, localization, pseudovectors and Grassman algebra, dual quaternions, SIMD vector math, memory alignment, and anti-aliasing Insight into the making of Naughty Dog's latest hit, The Last of Us The book presents the theory underlying various subsystems that comprise a commercial game engine as well as the data structures, algorithms, and software interfaces that are typically used to implement them. It primarily focuses on the engine itself, including a host of low-level foundation systems, the rendering engine, the collision system, the physics simulation, character animation, and audio. An in-depth discussion on the "gameplay foundation layer" delves into the game's object model, world editor, event system, and scripting system. The text also touches on some aspects of gameplay programming, including player mechanics, cameras, and AI. An awareness-building tool and a jumping-off point for further learning, Game Engine Architecture, Second Edition gives readers a solid understanding of both the theory and common practices employed within each of the engineering disciplines covered. The book will help readers on their journey through this fascinating and multifaceted field.

Flash is fading fast as Canvas continues to climb. The second edition of this popular book gets you started with HTML5 Canvas by showing you how to build interactive multimedia applications. You'll learn how to draw, render text, manipulate images, and create animation—all in the course of building an interactive web game throughout the book. Updated for the latest implementations of Canvas and related HTML5 technologies, this edition includes clear and reusable code examples to help you quickly pick up the basics—whether you currently use Flash, Silverlight, or just HTML and JavaScript. Discover why HTML5 is the future of innovative web development. Create and modify 2D drawings, text, and bitmap images Use algorithms for math-based movement and physics interactions Incorporate and manipulate video, and add audio Build a basic framework for creating a variety of games Use bitmaps and tile sheets to develop animated game graphics Go mobile: build web apps and then modify them for iOS devices Explore ways to use Canvas for 3D and multiplayer game applications

This book is a compilation of advanced ActionScript 3.0 animation techniques for any user creating games, user interaction, or motion control with ActionScript. It's an anthology of topics that follow from the author's earlier book, Foundation ActionScript 3.0 Animation: Making Things Move, and things that became possible in version 10 of Flash Player. This book covers a diverse selection of topics that don't necessarily lead one into the other. You don't need to start with Chapter 1 and read it cover to cover. Just start with any chapter that looks interesting and jump around as you see fit. In this book, you'll find chapters on advanced collision detection, artificial intelligence and steering behaviors, isometric projection, using the camera and microphone for input, 3D, and much, much more. AdvancED ActionScript 3.0 Animation is also more experimental in nature. The techniques shown here might not be the best way to do things, but they should work well and get you started in your own efforts to achieve a perfect implementation. In fact, many of the chapters can be seen as introductions to very complex topics that could fill a whole book by themselves. Many of these subjects have been extensively covered elsewhere, but not necessarily targeted for Flash or ActionScript 3.0. So it took a fair amount of work to pull the data together and get it all working and explain it all

clearly in ActionScript. This book will inspire you to find out about subjects that you might
not have considered before, acting as a springboard into your own research into the
possibilities of ActionScript 3.0.
WebGL: Up and Running
Using HTML5, JavaScript, and WebGL
Learn Unity3D Programming with UnityScript
Rapid Game Development Using Cocos2d-JS
Instant HTML5 2D Platformer

One of HTML5's most exciting features, Canvas provides a powerful 2D graphics API that lets you implement everything from word processors to video games. In Core HTML5 Canvas , best-selling author David Geary presents a code-fueled, no-nonsense deep dive into that API, covering everything you need to know to implement rich and consistent web applications that run on a wide variety of operating systems and devices. Succinctly and clearly written, this book examines dozens of real-world uses of the Canvas API, such as interactively drawing and manipulating shapes, saving and restoring the drawing surface to temporarily draw shapes and text, and implementing text controls. You'll see how to keep your applications responsive with web workers when you filter images, how to implement smooth animations, and how to create layered, 3D scrolling backgrounds with parallax. In addition, you'll see how to implement video games with extensive coverage of sprites, physics, collision detection, and the implementation of a game engine and an industrial-strength pinball game. The book concludes by showing you how to implement Canvas-based controls that you can use in any HTML5 application and how to use Canvas on mobile devices, including iOS5. This authoritative Canvas reference covers The canvas element—using it with other HTML elements, handling events, printing a canvas, and using offscreen canvases Shapes—drawing, dragging, erasing, and editing lines, arcs, circles, curves, and polygons; using shadows, gradients, and patterns Text—drawing, positioning, setting font properties; building text controls Images—drawing, scaling, clipping, processing, and animating Animations—creating smooth, efficient, and portable animations Sprites—implementing animated objects that have painters and behaviors Physics—modeling physical systems (falling bodies, pendulums, and projectiles), and implementing tweening for nonlinear motion and animation Collision detection—advanced techniques, clearly explained Game development—all aspects of game development, such as time-based motion and high score support, implemented in a game engine Custom controls—infrastructure for implementing custom controls; implementing progress bars, sliders, and an image panner Mobile applications—fitting Canvas apps on a mobile screen, using media queries, handling touch events, and specifying iOS5 artifacts, such as app icons Throughout the book, Geary discusses high-quality, reusable code to help professional developers learn everything they really need to know, with no unnecessary verbiage. All of the book's code and live demonstrations of key techniques are available at corehtml5canvas.com.

Discover over 100 easy-to-follow recipes to help you implement efficient game physics and collision detection in your games About This Book Get a comprehensive coverage of techniques to create high performance collision detection in games Learn the core mathematics concepts and physics involved in depicting collision detection for your games Get a hands-on experience of building a rigid body physics engine Who This Book Is For This book is for beginner to intermediate game developers. You don't need to have a formal education in games—you can be a hobbyist or indie developer who started making games with Unity 3D. What You Will Learn Implement fundamental maths so you can develop solid game physics Use matrices to encode linear transformations Know how to check geometric primitives for collisions Build a Physics engine that can create realistic rigid body behavior Understand advanced techniques, including the Separating Axis Theorem Create physically accurate collision reactions Explore spatial partitioning as an acceleration structure for collisions Resolve rigid body collisions between primitive shapes In Detail Physics is really important for game programmers who want to add realism and functionality to their games. Collision detection in particular is a problem that affects all game developers, regardless of the platform, engine, or toolkit they use. This book will teach you the concepts and formulas behind collision detection. You will also be taught how to build a simple physics engine, where Rigid Body physics is the main focus, and learn about intersection algorithms for primitive shapes. You'll begin by building a strong foundation in mathematics that will be used throughout the book. We'll guide you through implementing 2D and 3D primitives and show you how to perform effective collision tests for them. We then pivot to one of the harder areas of game development—collision detection and resolution. Further on, you will learn what a Physics engine is, how to set up a game window, and how to implement rendering. We'll explore advanced physics topics such as constraint solving. You'll also find out how to implement a rudimentary physics engine, which you can use to build an Angry Birds type of game or a more advanced game. By the end of the book, you will have implemented all primitive and some advanced collision tests, and you will be able to read on geometry and linear Algebra formulas to take forward to your own games! Style and approach Gain the necessary skills needed to build a Physics engine for your games through practical recipes, in an easy-to-read manner. Every topic explained in the book has clear, easy to understand code accompanying it.

Filled with practical, step-by-step instructions and clear explanations for the most important and useful tasks. The step-by-step approach taken by this book will show you how to develop a 2D HTML5 platformer-based game that you will be able to publish to multiple devices.This book is great for anyone who has an interest in HTML5 games development, and who already has a basic to intermediate grasp on both the HTML markup and JavaScript programming languages. Therefore, due to this requirement, the book will not discuss the inner workings of either of these languages but will instead attempt to describe the functionality of the code present within this book.

Make your WebAssembly journey fun while making a game with it Key Features Create a WebAssembly game that implements sprites, animations, physics, particle systems, and other game development fundamentals Get to grips with

advanced game mechanics in WebAssembly Learn to use WebAssembly and WebGL to render to the HTML5 canvas element Book Description Within the next few years, WebAssembly will change the web as we know it. It promises a world where you can write an application for the web in any language, and compile it for native platforms as well as the web. This book is designed to introduce web developers and game developers to the world of WebAssembly by walking through the development of a retro arcade game. You will learn how to build a WebAssembly application using C++, Emscripten, JavaScript, WebGL, SDL, and HTML5. This book covers a lot of ground in both game development and web application development. When creating a game or application that targets WebAssembly, developers need to learn a plethora of skills and tools. This book is a sample platter of those tools and skills. It covers topics including Emscripten, C/C++, WebGL, OpenGL, JavaScript, HTML5, and CSS. The reader will also learn basic techniques for game development, including 2D sprite animation, particle systems, 2D camera design, sound effects, 2D game physics, user interface design, shaders, debugging, and optimization. By the end of the book, you will be able to create simple web games and web applications targeting WebAssembly. What you will learn Build web applications with near-native performance using WebAssembly Become familiar with how web applications can be used to create games using HTML5 Canvas, WebGL, and SDL Become well versed with game development concepts such as sprites, animation, particle systems, AI, physics, camera design, sound effects, and shaders Deploy C/C++ applications to the browser using WebAssembly and Emscripten Understand how Emscripten HTML shell templates, JavaScript glue code, and a WebAssembly module interact Debug and performance tune your WebAssembly application Who this book is for Web developers and game developers interested in creating applications for the web using WebAssembly. Game developers interested in deploying their games to the web Web developers interested in creating applications that are potentially orders of magnitude faster than their existing JavaScript web apps C/C++ developers interested in using their existing skills to deploy applications to the web

Building JavaScript Games
Build a 2D Game from the Ground Up
An end-to-end guide to 2D game development using JavaScript
Game Physics Cookbook
Pro Android Web Game Apps
The Nature of Code

Reshma Saujani is an attorney and the first Indian American woman to run for US Congress. She later founded Girls Who Code to help close the gender gap in technology. This inspiring biography shares Saujani's story.

Offers advice for using physics concepts to increase the realism of computer games, covering mechanics, real-world situations, and real-time simulations.

Foundation HTML5 Canvas: For Games and Entertainment teaches you how to make exciting interactive games and applications using HTML5 canvas. Canvas lets you produce graphics, animations, and applications using the HTML5 and JavaScript web standards. It allows you to draw directly within the browser without the need for third-party plugins like Adobe Flash, and so canvas works perfectly across desktop and mobile devices, like the iPhone and Android. Foundation HTML5 Canvas begins by introducing you to HTML5 and the cool new features that it opens up for you. You are then offered a quick guide to JavaScript programming to get you up to speed. Next up you'll receive a thorough introduction to the canvas element, which teaches you how to draw objects within the browser with great ease. Once the basics are covered you'll move on to the more advanced features of canvas, including image and video manipulation. You'll also learn how to create realistic animations with the help of some basic physics. Foundation HTML5 Canvas then teaches you how to create two thrilling space-based games using all the skills you've learned so far. You'll find plenty of code examples and illustrations designed to help you understand even the most complex of topics. HTML5 is already here for you, and this book will provide you with all the information you need to enjoy the show. For more information, source code, and the latest blog posts from author Rob Hawkes, visit http://rawkes.com/foundationcanvas.

Have you ever wanted to include believable, solid interactivity in your games and projects to give them that extra edge? Physics for JavaScript Games, Animation, and Simulations teaches you how to incorporate real physics, such as gravity, friction, and buoyancy, into your HTML5 games, animations, and simulations. It also includes more advanced topics, such as particle systems, which are essential for creating effects such as sparks or smoke. Finally, the book addresses the key issue of balancing accuracy and performance in your games and simulations, and the final chapters give you the information and the code to make the right choice for your project. Physics for JavaScript Games, Animation, and Simulations assumes you have a basic knowledge of JavaScript and HTML5. However, no previous knowledge of physics is required—only some very basic math skills. The authors present everything from basic principles to advanced concepts in an approachable way, so you'll be able to follow the logic and easily adapt the principles to your own applications. The book is packed full of practical examples of how physics can be applied to your own games and applications. Spring behaviors can be used for anything from tweaking lowrider suspension to creating menu systems; flotation mechanics enable the simulation of submersibles or dirigibles; you can even create your own universe with accurate orbits and gravity. It doesn't matter if you're modeling the Lorentz force in an electromagnetic field, or you're modeling the lethal force of your blade of Ch'Thon, Physics for JavaScript Games, Animation, and Simulations enables you to fill your games and applications with accurate and realistic effects. What you'll learn Learn all the basic math and physics you'll need to incorporate realism into your projects. Incorporate a wide range of forces such as gravity, friction, and buoyancy. Build a number of realistic simulations. Model particle systems and use them to create visual effects. Create complex systems using rigid bodies and mass-spring systems. Deal with numerical subtleties, including accuracy and stability of integration schemes. Who this book is for Physics for JavaScript Games, Animation, and Simulations is for JavaScript developers interested in incorporating real physics into their games, animations, simulations or generative art projects.