

2d Game Engine

The Unity Engine Tutorial for Any Game Creator ζ Unity is now the world's #1 game engine, thanks to its affordability, continuous improvements, and amazing global community. With Unity, you can design, code, and author your game once, and then deploy it to multiple platforms, reaching huge audiences and earning maximum returns. Learning 2D Game Development with Unity® will help you master Unity and build powerful skills for success in today's game industry. It also includes a bonus rundown of the new GUI tools introduced in Unity's version 4.6 beta. ζ With this indispensable guide, you'll gain a solid, practical understanding of the Unity engine as you build a complete, 2D platform-style game, hands-on. The step-by-step project will get you started fast, whether you're moving to Unity from other engines or are new to game development. ζ This tutorial covers the entire development process, from initial concept, plans, and designs to the final steps of building and deploying your game. It illuminates Unity's newly integrated 2D toolset, covering sprites, 2D physics, game scripts, audio, and animations. Throughout, it focuses on the simplest and lowest-cost approaches to game development, relying on free software and assets. Everything you'll need is provided. ζ Register your book at informit.com/title/9780321957726 to access assets, code listings, and video tutorials on the companion website. ζ Learn How To Set up your Unity development environment and navigate its tools Create and import assets and packages you can add to your game Set up game sprites and create atlas sheets using the new Unity 2D tools Animate sprites using keyframes, animation controllers, and scripting Build a 2D game world from beginning to end Establish player control Construct movements that "feel right" Set up player physics and colliders Create and apply classic gameplay systems Implement hazards and tune difficulty Apply audio and particle effects to the game Create intuitive game menus and interface elements Debug code and provide smooth error handling Organize game resources and optimize game performance Publish your game to the web for others to see and play ζ Are you a Unity developer looking to switch to the Godot engine quickly? If so, this no-nonsense book is your guide to mastering the most popular open-source game engine. Godot is a completely free game engine for creating high-quality 2D and 3D games that can be launched on multiple platforms. You'll see how to transition seamlessly from Unity to Godot, getting up and running quickly and effectively, using practical case studies. In addition to building functional worlds from meshes and physical interactions, you'll work with reusable assets, such as textures. The book then moves on to lighting and rendering 2D and 3D scenes with baked and real-time lighting. You'll also work with navigation and path-finding for NPCs, and see how to create save-game states with JSON. With Moving from Unity to Godot you'll be ready to create amazing 2D and 3D games that will supercharge your business. What You Will Learn Explore the similarities and differences between Unity and Godot Maximize the benefits from Unity and Godot Create believable game world and characters with Godot Master the unique aspects of C# coding in Godot Who This Book is For Developers familiar with Unity who want to master another game engine, such as Godot.

A step-by-step, example-based guide to building immersive 3D games on the Web using the Three.js graphics library. This book is for people interested in programming 3D games for the Web. Readers are expected to have basic knowledge of JavaScript syntax 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.

Explore modern game programming and rendering techniques to build games using C++ programming language and its popular libraries Key Features Learn how you can build basic 2D and complex 3D games with C++ Understand shadows, texturing, lighting, and rendering in 3D game development using OpenGL Uncover modern graphics programming techniques and GPU compute methods using the Vulkan API Book Description Although numerous languages are currently being used to develop games, C++ remains the standard for fabricating expert libraries and tool chains for game development. This book introduces you to the world of game development with C++. C++ Game Development By Example starts by touching upon the basic concepts of math, programming, and computer graphics and creating a simple side-scrolling action 2D game. You'll build a solid foundation by studying basic game concepts such as creating game loops, rendering 2D game scenes using SFML, 2D sprite creation and animation, and collision detection. The book will help you advance to creating a 3D physics puzzle game using modern OpenGL and the Bullet physics engine. You'll understand the graphics pipeline, which entails creating 3D objects using vertex and index buffers and rendering them to the scene using vertex and fragment shaders. Finally, you'll create a basic project using the Vulkan library that'll help you get to grips with creating swap chains, image views, render passes, and frame buffers for building high-performance graphics in your games. By the end of this book, you'll be ready with 3 compelling projects created with SFML, the Vulkan API, and OpenGL, and you'll be able take your game and graphics programming skills to the next level. What you will learn Understand shaders and how to write a basic vertex and fragment shader Build a Visual Studio project and add SFML to it Discover how to create sprite animations and a game character class Add sound effects and background music to your game Grasp how to integrate Vulkan into Visual Studio Create shaders and convert them to the SPIR-V binary format Who this book is for If you're a developer keen to learn game development with C++ or get up to date with game development, this book is for you. Some knowledge of C++ programming is assumed. 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.

Start your video game development journey by learning how to build a 2D game engine from scratch. Using Java (with NetBeans as your IDE and using Java's graphics framework) or by following along in C# (with Visual Studio as your IDE and using the MonoGame framework), you'll cover the design and implementation of a 2D game engine in detail. Each class will be reviewed with demonstration code. You'll gain experience using the engine by building a game from the ground up. Introduction to Video Game Engine Development reviews the design and implementation of a 2D game engine in three parts. Part 1 covers the low-level API class by class. You'll see how to abstract lower-level functionality and design a set of classes that interact seamlessly with each other. You'll learn how to draw objects, play sounds, render text, and more. In Part 2, you'll review the mid-level API that is responsible for drawing the game, loading resources, and managing user input. Lastly, in Part 3, you'll build a game from the ground up following a step-by-step process using the 2D game engine you just reviewed. On completing this book, you'll have a solid foundation in video game engine design and implementation. You'll also get exposure to building games from scratch, creating the solid foundation you'll need to work with more advanced game engines, and industry tools, that require learning complex software, APIs, and IDEs. What You Will Learn Gain experience with lower-level game engine APIs and abstracting framework functionality Write application-level APIs: launching the game, loading resources, settings, processing input, and more Discover cross-platform APIs in the game engine projects written in both Java and C#/MonoGame Develop games with an SDK-based game engine and simplified tool chain focused on direct control of the game through code Master creating games by using the game engine to build a game from the ground up with only code and an IDE Who This Book Is For Those of you out there with some programming experience,

moderate to advanced, who want to learn how to write video games using modern game engine designs.

What do you need to know to create a game for the iPhone? Even if you've already built some iPhone applications, developing games using iPhone's gestural interface and limited screen layout requires new skills. With iPhone Game Development, you get everything from game development basics and iPhone programming fundamentals to guidelines for dealing with special graphics and audio needs, creating in-game physics, and much more. Loaded with descriptive examples and clear explanations, this book helps you learn the technical design issues particular to the iPhone and iPod Touch, and suggests ways to maximize performance in different types of games. You also get plug-in classes to compensate for the areas where the iPhone's game programming support is weak. Learn how to develop iPhone games that provide engaging user experiences Become familiar with Objective-C and the Xcode suite of tools Learn what it takes to adapt the iPhone interface to games Create a robust, scalable framework for a game app Understand the requirements for implementing 2D and 3D graphics Learn how to add music and audio effects, as well as menus and controls Get instructions for publishing your game to the App Store 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 these 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 • Leads 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

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 these 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.

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.

2D games are hugely popular across a wide range of platforms and the ideal place to start if you're new to game development. With Learn 2D Game Development with C#, you'll learn your way around the universal building blocks of game development, and how to put them together to create a real working game. C# is increasingly becoming the language of choice for new game developers. Productive and easier to learn than C++, C# lets you get your games working quickly and safely without worrying about tricky low-level details like memory management. This book uses MonoGame, an open source framework that's powerful, free to use and easy to handle, to further reduce low-level details, meaning you can concentrate on the most interesting and universal aspects of a game development: frame, camera, objects and particles, sprites, and the logic and simple physics that determines how they interact. In each chapter, you'll explore one of these key elements of game development in the context of a working game, learn how to implement the example for yourself, and integrate it into your own game library. At the end of the book, you'll put everything you've learned together to build your first full working game! And what's more, MonoGame is designed for maximum cross-platform support, so once you've mastered the fundamentals in this book, you'll be ready to explore and publish games on a wide range of platforms including Windows 8, MAC OSX, Windows Phone, iOS, Android, and Playstation Mobile. Whether you're starting a new hobby or considering a career in game development, Learn 2D Game Development with C# is the ideal place to start. What you'll learn Know your way around the world of game design and the process of designing a game from scratch. Understand the basic architecture of a 2D game engine and develop your own game library. Work with the MonoGame framework and use it to build your own 2D interactive games. Learn and implement simple in-game pseudo autonomous behaviors. Understand and implement the math and physics underlying realistic game interactions. Give your game impact with graphic effects, and audio and special effects. Who this book is for This book is perfect for game enthusiasts, hobbyists, and anyone who is interested in building interactive games but is unsure of how to begin. It assumes no background in computer graphics or game development, but readers should be familiar with C# or another object-oriented language. Table of Contents Introducing 2D Game Development in C# Getting to Know the MonoGame Framework 2D Graphics, Coordinates, and Game State Getting Things Moving Pixel-Accurate Collisions Game Object States and Semiautonomous Behaviors Sprites,

Camera, Action! Particle Systems Building Your First 2D Game

Develop a 2D game engine that will give you the experience and core understanding of foundational concepts for building complex and fun 2D games that can be played across the Internet via popular web browsers. This book is organized so that the chapters follow logical steps of building a game engine and integrates concepts accordingly. Build Your Own 2D Game Engine and Create Great Web Games isolates and presents relevant concepts from software engineering, computer graphics, mathematics, physics, game development and game design in the context of building a 2D game engine from scratch. In this edition, all the code is based on updated versions of JavaScript with HTML5 and WebGL2: you will analyze the source code needed to create a game engine that is suitable for implementing typical casual 2D videogames. You will also learn about physics and particle system. The discussion of physics component includes rotations and popular physical materials such as wood, mud, and ice. The discussion of particle component has popular presets such as fire, smoke, and dust. By the end of the book, you will understand the core concepts and implementation details of a typical 2D game engine, learn insights into how these concepts affect game design and game play, and have access to a versatile 2D game engine that they can expand upon or utilize to build their own 2D games from scratch with HTML5, JavaScript, and WebGL2. What You Will Learn Understand essential concepts for building 2D games Grasp the basic architecture of 2D game engines Understand illumination models in 2D games Learn basic physics used in 2D games Find out how these core concepts affect game design and game play Learn to design and develop 2D interactive games Who Is This Book For Game enthusiasts, hobbyists, and anyone with little to no experience who are interested in building interactive games but are unsure of how to begin. This can also serve as a textbook for a junior- or senior-level "Introduction to Game Engine" course in a Computer Science department.

If you have C# knowledge but now want to become truly confident in creating fully functional 2D RPG games with Unity, then this book will show you everything you need to know.

This document contains the description of the development of a C++ game engine named BeEngine, as the final university project. The engine is focused on 2D game development and aims to provide all the necessary components and tools to create and deploy a video game from start to finish. The result is a standalone program that can be executed on any Windows machine, that has the ability to load and manage resources (such as images, scripts, audio, etc.), and allows the user to implement the logic and test the results before generating the final game. This project goes through some of the techniques and the logic behind the modules and tools of this engine, and the process of implementation followed to accomplish the final results.

Find out how to use the Unity Game Engine to its fullest for both 3D and 2D game development—from the basics to the hottest new tricks in virtual reality. With this unique cookbook, you'll get started in two ways: First, you'll learn about the Unity game engine by following very brief exercises that teach specific features of the software. Second, this tutorial-oriented guide provides a collection of snippets that solve common gameplay problems, like determining if a player has completed a lap in a race. Using our cookbook format, we pinpoint the problem, set out the solution, and discuss how to solve your problem in the best and most straightforward way possible so you can move onto the next step in the project. Unity Game Development Cookbook is ideal for beginning to intermediate Unity developers. Beginners will get a broad immersion into the Unity development environment, while intermediate developers will learn how to apply the foundational Unity skills they have to solve real game development problems.

Create a polished game that includes many levels and fights using MonoGame. This book will show you how to add AI agents and 2D physics into your game, while improving the performance of the game engine. By the end of Game Development with MonoGame, you will have created a game worthy of being published. Over the course of this book, you will be exposed to advanced game development concepts such as scripting and AI as you improve the performance of the game engine with better memory management. You will learn how to create a level editor that you will use to build game levels. You will also pick up tips and tricks for adding polish to your game project by adding a camera system, layers, menus, and improving the game's graphics using pixel shaders and better particle effects. Upon completing this book, you will have a clear understanding of the steps required to build a game from start to finish and what it takes to create a 2D game that could ultimately be published. What You Will Learn Write a performant 2D game engine Script the behavior of game objects Build and use a level editor for your game Add a UI to your game Who Is This Book For Intermediate to advanced C# developers with knowledge of MonoGame. Basic knowledge of how to install and use the 2D capabilities of MonoGame is required, along with knowledge on how to use the content pipeline tool.

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. "You've downloaded the Unity software, you know what the Inspector is, and now you're ready to build something. In this course, you'll create an entire physics-based 2D game starring a gnome who is lowered down a well on a rope and goes searching for treasure. You'll start from an empty scene and finish with a complete polished game. Along the way you'll learn about game design, GUI setup, camera control, the game manager, gameplay practices, advanced graphics techniques, and the iterative nature of game development. Learn how to create 2D games using Unity game development software; discover how ragdolls work and how to create physics-based gameplay; learn how to manage gameplay with game managers and advanced game scripting; practice techniques for better camera control and for

creating polished graphics; discover how the various pieces you build in Unity fit together to form gameplay; understand how to architect your games for easier changes"--Resource description page.

Learn the art of making Android games and turn your game development dreams into reality About This Book Leverage the latest features of Android N to create real-world 2D games Architect a 2D game from scratch and level up your Android game development skill Transition from developing simple 2D games to 3D games using basic Java code Who This Book Is For If you are a mobile developer who has basic Java programming knowledge, then this book is ideal for you. Previous Android development experience is not needed; however, basic mobile development knowledge is essential. What You Will Learn Understand the nuts and bolts of developing highly interactive and interesting games for Android N Link the interface to the code used in games through simple methods Interact with the images on the screen and also learn to animate them Set and save the game state and save high scores, hit points, and so on for your games Get a grasp of various collision techniques and implement the bounding box technique Convert your 2D games to 3D games using Android N Get an understanding of the process of UI creation using Android Studio In Detail In this book, we'll start with installing Android studio and its components, and setting it up ready for Android N. We teach you how to take inputs from users, create images and interact with them, and work with sprites to create animations. You'll then explore the various collision detection methods and use sprites to create an explosion. Moving on, you'll go through the process of UI creation and see how to create buttons as well as display the score and other parameters on screen. By the end of the book, you will have a working example and an understanding of a 2D platform game like Super Mario and know how to convert your 2D games to 3D games. Style and approach This easy-to-understand guide follows a step-by-step approach to building games, and contains plenty of graphical examples for you to follow and grasp quickly, giving you the chance to implement the concepts practically.

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.

Build your own 2D Game Engine and Create Great Web Games Using HTML5, JavaScript, and WebGL Apress Build your very own 2D physics-based game engine simulation system for rigid body dynamics. Beginning from scratch, in this book you will cover the implementation technologies, HTML5 and JavaScript; assemble a simple and yet complete fundamental mathematics support library; define basic rigid body behaviors; detect and resolve rigid body collisions; and simulate collision responses after the collisions. In this way, by the end of Building a 2D Game Physics Engine, you will have an in-depth understanding of the specific concepts and events, implementation details, and actual source code of a physics game engine that is suitable for building 2D games or templates for any 2D games you can create and can be played across the Internet via popular web browsers. What You'll Learn Gain an understanding of 2D game engine physics and how to utilize it in your own games Describe the basic behaviors of rigid bodies Detect collisions between rigid bodies Resolve interpretations after rigid body collisions Model and implement rigid body impulse responses Who This Book Is For Game enthusiasts, hobbyists, and anyone who is interested in building their own 2D physics game engines but is unsure of how to begin.

Utilize proven solutions to solve common problems in game development About This Book Untangle your game development workflow, make cleaner code, and create structurally solid games Implement key programming patterns that will enable you to make efficient AI and remove duplication Optimize your game using memory management techniques Who This Book Is For If you are a game developer who wants to solve commonly-encountered issues or have some way to communicate to other developers in a standardized format, then this book is for you. Knowledge of basic game programming principles and C++ programming is assumed. What You Will Learn Learn what design patterns are and why you would want to use them Reduce the maintenance burden with well-tested, cleaner code Employ the singleton pattern effectively to reduce your compiler workload Use the factory pattern to help you create different objects with the same creation logic and reduce coding time Improve game performance with Object Pools Allow game play to interact with physics or graphics in an abstract way Refactor your code to remove common code smells In Detail You've learned how to program, and you've probably created some simple games at some point, but now you want to build larger projects and find out how to resolve your problems. So instead of a coder, you might now want to think like a game developer or software engineer. To organize your code well, you need certain tools to do so, and that's what this book is all about. You will learn techniques to code quickly and correctly, while ensuring your code is modular and easily understandable. To begin, we will start with the core game programming patterns, but not the usual way. We will take the use case strategy with this book. We will take an AAA standard game and show you the hurdles at multiple stages of development. Similarly, various use cases are used to showcase other patterns such as the adapter pattern, prototype pattern, flyweight pattern, and observer pattern. Lastly, we'll go over some tips and tricks on how to refactor your code to remove common code smells and make it easier for others to work with you. By the end of the book you will be proficient

in using the most popular and frequently used patterns with the best practices. Style and approach This book takes a step-by-step real-life case studies approach. Every pattern is first explained using a bottleneck. We will show you a problem in your everyday workflow, and then introduce you to the pattern, and show you how the pattern will resolve the situation.

2D games are everywhere, from mobile devices and websites to game consoles and PCs. Timeless and popular, 2D games represent a substantial segment of the games market. In *Learn Unity for 2D Game Development*, targeted at both game development newcomers and established developers, experienced game developer Alan Thorn shows you how to use the powerful Unity engine to create fun and imaginative 2D games. Written in clear and accessible language, *Learn Unity for 2D Game Development* will show you how to set up a step-by-step 2D workflow in Unity, how to build and import textures, how to configure and work with cameras, how to establish pixel-perfect ratios, and all of this so you can put that infrastructure to work in a real, playable game. Then the final chapters show you how to put what you've already made to work in creating a card-matching game, plus you'll learn how to optimize your game for mobile devices.

Part of the new Digital Filmmaker Series! *Digital Filmmaking: An Introduction* is the first book in the new Digital Filmmaker Series. Designed for an introductory level course in digital filmmaking, it is intended for anyone who has an interest in telling stories with pictures and sound and won't assume any familiarity with equipment or concepts on the part of the student. In addition to the basics of shooting and editing, different story forms are introduced from documentary and live events through fictional narratives. Each of the topics is covered in enough depth to allow anyone with a camera and a computer to begin creating visual projects of quality.

Bachelorarbeit aus dem Jahr 2011 im Fachbereich Informatik - Internet, neue Technologien, Hochschule für Technik und Wirtschaft Berlin, Sprache: Deutsch, Abstract: Smartphones werden ein immer wichtigeres Werk- und Spielzeug in unserer modernen Welt. Schon 2010 war jedes dritte in Europa verkaufte Mobiltelefon ein Smartphone. Von den Smartphonebesitzern in den USA und Europa nutzen knapp 50% bereits das mobile Internet. Neben typischen Büroanwendungen (Kalender, Mail etc.) sind vor allem Spiele sehr gefragt. Ungefähr 25% ihrer Zeit verbringen Smartphonebesitzer mit Spielen. Es gibt bereits eine Unmenge an kurzweiligen Casual Games, doch an etwas komplexeren Strategie- und Denkspielen herrscht noch grosser Mangel. Genau an dem Punkt mochte ich ansetzen und ein Framework schaffen, um den meiner Meinung nach sehr vielversprechenden Genretyp Turn-Based Strategy Games (TBSG) zu fördern und selbst in Zukunft mit weniger Aufwand TBS-Spiele produzieren zu können. Rundenbasierte Strategiespiele Bei einem TBS-Spiel befinden sich zwei oder mehr Spieler auf einer Spielkarte und versuchen sich gegenseitig durch die Ausweitung ihres eigenen Einflussbereiches militärisch oder wirtschaftlich zu bezwingen. TBS-Spiele laufen immer nach dem gleichen Muster ab. Spieler verabreden sich in der realen oder virtuellen Welt und entscheiden, was für eine Karte gewählt wird, wer welche Fraktion vertritt und mit welchen optionalen Regeln (Match Settings) gespielt werden soll. Eine Spielsession (Match) ist in Runden (Rounds) unterteilt, in der jeder Spieler einmal an der Reihe ist (Turn). Ist ein Spieler an der Reihe, so kann er so viele Züge (Steps) spielen, wie ihm das Spielkonzept erlaubt. Alle Spielschritte sind von der Realzeit unabhängig. Es kann sein, dass ein Spieler für einen Zug mehrere Stunden benötigt. Es ist aber auch möglich, dass eine ganze Spielrunde desselben Matches nur wenige Minuten dauert. Die Unabhängigkeit von der Realzeit erlaubt es, ein Match in Etappen zu spielen, un

Build and Distribute Your Game Using an HTML5 Game Engine As mobile hardware improves, HTML5 is gradually being used for gaming apps and a growing industry of game engines has begun to support it. *HTML5 Game Engines: App Development and Distribution* presents an introduction to development with HTML5 game engines as well as an in-depth look at popular engines. Along with downloadable example projects for each engine, the book provides techniques for packaging and distributing the final app to all the major platforms. *Get Hands-On Guidance through Practical Techniques and Examples* The book is divided into three parts. The first one covers the essentials of HTML5, discusses development strategies and techniques, and takes you through a basic pong game running in the browser with no dependencies. The second part implements four games using the Crafty, EaselJS, Impact, and Turbulenz game engines. In the third part, the author describes how several of these games are distributed on platforms, such as the Chrome Web Store, Apple iOS App Store, Google Play Store, and Facebook.

Build a tower defense game and earn delectable C# treats by baking cupcakes and fighting fearsome sweet-toothed pandas About This Book Build a complete and exciting 2D Tower Defense game from scratch. Understand and learn to perform each phase of the game development pipeline Homework and exercises to improve your skills and take them to the next level Who This Book Is For If you are looking forward to get started with 2D game development, either if you are a newcomer to this world, or you came from 3D games or other game engines, this book is for you. Although there are many references to other resources throughout the book, it is assumed that you have a general understanding of C# and its syntax and structure. What You Will Learn Import and set up assets for 2D game development Design and implement dynamic and responsive User Interfaces Create and handle complex animation systems Unlock all the potentiality of the physics engine Implement Artificial Intelligence algorithms to give intelligence to your NPCs Script gameplay and overall bring your ideas to life In Detail Want to get started in the world of 2D game development with Unity? This book will take your hand and guide you through this amazing journey to let you know exactly what you need to build the games you want to build, without sacrificing quality. You will build a solid understanding of Unity 5.x, by focusing with the embedded tools to develop 2D games. In learning about these, along with accurate explanations and practical examples, you will design, develop, learn how to market and publish a delectable Tower Defense game about cupcakes versus pandas. Each chapter in this book is structured to give you a full understanding on a specific aspect of the workflow pipeline. Each of these aspects are essential for developing games in Unity. In a step-by-step approach, you will learn about each of the following phases: Game Design, Asset Importing, Scripting, User Interfaces, Animations, Physics, Artificial Intelligence, Gameplay Programming, Polishing and Improving, Marketing, Publishing and much more. This book provides you with exercises and homework at the end of each chapter so that you can level up your skills as a Unity game developer. In addition, each of these parts are centered on a common point of discussion with other learners just like you. Therefore, by sharing your ideas with other people you will not only develop your skills but you will also build a network. Style and approach This is a fun step-by-step approach in the whole pipeline of 2D game development in Unity, which is explained in a conversational and easy-to-follow style. Each topic is explained sequentially, allowing you to experience both basics and advanced features of Unity. By doing this, the book is able to provide you with a solid grasp on each of the topics. In this way, by engaging with the book's content, exploring the additional references to further readings and completing the homework sections, you are able to challenge yourself and apply what you know in a variety of ways. Once you have finished reading this book, you will be well on your way to developing games from start to finish!

2D games are everywhere, from mobile devices and websites to game consoles and PCs. Timeless and popular, 2D games represent a substantial segment of the games market. In *Learn Unity for 2D Game Development*, targeted at both game development newcomers and established developers, experienced game developer Alan Thorn shows you how to use the powerful Unity engine to create fun and imaginative 2D games. Written in clear and accessible language, *Learn Unity for 2D Game Development* will show you how to set up a step-by-step 2D workflow in Unity, how to build and import textures, how to configure and work with cameras, how to establish pixel-perfect ratios, and all of this so you can put that infrastructure to work in a real, playable game. Then the final chapters show you how to put what you've

already made to work in creating a card-matching game, plus you'll learn how to optimize your game for mobile devices. What you'll learn How to create a 2D workflow in Unity Customizing the Unity Editor How to generate atlas textures and textured quads Animation effects and camera configuration Handling user input Creating a game from start to finish Optimizing for mobile devices Who this book is for Game development students and professionals, indie developers, game artists and designers, and Unity developers looking to improve their workflow and effectiveness. Table of Contents 1. Unity Basics for 2D Games 2. Materials and Textures 3. Quick 2D Workflow 4. Customizing the Editor with Editor Classes 5. Procedural Geometry and Textured Quads 6. Generating Atlas Textures 7. UVs and Animation 8. Cameras and Pixel Perfection 9. Input for 2D Games 10. Getting Started with a 2D Game 11. Completing the 2D Card Game 12. Optimization 13. Wrapping Things Up

It was early 1993 and id Software was at the top of the PC gaming industry. Wolfenstein 3D had established the First Person Shooter genre and sales of its sequel Spear of Destiny were skyrocketing. The technology and tools id had taken years to develop were no match for their many competitors. It would have been easy for id to coast on their success, but instead they made the audacious decision to throw away everything they had built and start from scratch. Game Engine Black Book: Doom is the story of how they did it. This is a book about history and engineering. Don't expect much prose (the author's English has improved since the first book but is still broken). Instead you will find inside extensive descriptions and drawings to better understand all the challenges id Software had to overcome. From the hardware -- the Intel 486 CPU, the Motorola 68040 CPU, and the NeXT workstations -- to the game engine's revolutionary design, open up to learn how DOOM changed the gaming industry and became a legend among video games.

Design and code your own 2D and 3D games efficiently using OpenGL and C++ About This Book Create 2D and 3D games completely, through a series of end-to-end game projects Learn to render high performance 2D and 3D graphics using OpenGL Implement a rudimentary game engine using step-by-step code Who This Book Is For If you are a prospective game developer with some experience using C++, then this book is for you. Both prospective and experienced game programmers will find nuggets of wisdom and practical advice as they learn to code two full games using OpenGL, C++, and a host of related tools. What You Will Learn Set up your development environment in Visual Studio using OpenGL Use 2D and 3D coordinate systems Implement an input system to handle the mouse and the keyboard Create a state machine to handle complex changes in the game Load, display, and manipulate both 2D and 3D graphics Implement collision detection and basic physics Discover the key components needed to complete a polished game Handle audio files and implement sound effects and music In Detail OpenGL is one of the most popular rendering SDKs used to develop games. OpenGL has been used to create everything from 3D masterpieces running on desktop computers to 2D puzzles running on mobile devices. You will learn to apply both 2D and 3D technologies to bring your game idea to life. There is a lot more to making a game than just drawing pictures and that is where this book is unique! It provides a complete tutorial on designing and coding games from the setup of the development environment to final credits screen, through the creation of a 2D and 3D game. The book starts off by showing you how to set up a development environment using Visual Studio, and create a code framework for your game. It then walks you through creation of two games—a 2D platform game called Roboracer 2D and a 3D first-person space shooter game—using OpenGL to render both 2D and 3D graphics using a 2D coordinate system. You'll create sprite classes, render sprites and animation, and navigate and control the characters. You will also learn how to implement input, use audio, and code basic collision and physics systems. From setting up the development environment to creating the final credits screen, the book will take you through the complete journey of creating a game engine that you can extend to create your own games. Style and approach An easy-to-follow guide full of code examples to illustrate every concept and help you build a 2D and 3D game from scratch, while learning the key tools that surround a typical OpenGL project.

A First Course in Game Programming Most of today's commercial games are written in C++ and are created using a game engine.

Addressing both of these key elements, Programming 2D Games provides a complete, up-to-date introduction to game programming. All of the code in the book was carefully crafted using C++. As game programming techniques are introduced, students learn how to incorporate them into their own game engine and discover how to use the game engine to create a complete game. Enables Students to Create 2D Games The text covers sprites, animation, collision detection, sound, text display, game dashboards, special graphic effects, tiled games, and network programming. It systematically explains how to program DirectX applications and emphasizes proper software engineering techniques. Every topic is explained theoretically and with working code examples. The example programs for each chapter are available at www.programming2dgames.com.

Learn the fundamentals of Godot by diving headfirst into creating a 2D platformer from scratch. This book is a hands-on, practical guide to developing 2D games using the Godot Engine 3.2.3/3.3, with the help of GDScript. Author Maithili Dhule begins by explaining some basic tools and techniques used to make games, the factors that need to be considered while choosing a game engine, and pointing out the benefits of using Godot. He then walks you through downloading the engine and guides you as you explore key features of its interface. Next, you'll receive a concise introduction to the basics of GDScript, the main scripting language used in Godot, before moving on to essential topics such as Godot's node-scene architecture, the interaction of various physics bodies, the creation of game scenes, and writing scripts. As the book progresses, you'll learn how to create and animate your game character, design the game world, add enemies, and implement a coin-collection system. You'll also see how the user's gaming experience can be enhanced through the addition of parallax backgrounds, a title screen, music, and sound effects. To complete the book, you'll learn how to export your game to different platforms, both mobile and PC, as well as possible avenues for monetizing the game. Throughout the book, theoretical concepts are supplemented with concrete, ready-to-implement examples that you can try out. Upon finishing this book, you'll be able to make and publish your first 2D platform game. Beginning Game Development with Godot is for game development enthusiasts of all levels interested in creating their own games. What You Will Learn Understand the Godot engine and the benefits of using it for game development Master the fundamentals of programming in GDScript Use the Godot graphical interface to design and animate players, the game world, menus, and various games scenes Create your first 2D game in Godot and publish it to various platforms Who This Book Is For Aspiring game developers who may be new to game development, as well as experts exploring the potential of the Godot Engine.

Master the art of game creation with MonoGame—the cross-platform framework of choice for independent developers. Learn the various aspects needed to create your next game by covering MonoGame framework specifics, engine creation, graphics, patterns, and more. The MonoGame framework provides an incredible canvas for the programmer to create their next 2D game, and this book teaches you to make the most of it. You will start from the ground up, beginning with the basics of what MonoGame is, the pipeline, and then how to build a reusable game engine on top of the framework. You will deep dive into various components of each aspect of a game, including graphics, input, audio, and

artificial intelligence. The importance of game tooling is also covered. By the end, you will have a mastery level of understanding of how to create a 2D game using MonoGame. With a fully functional 2D game, aspiring developers will have the ideal blueprint to tackle their next fully featured game. The material covered is applicable for almost any 2D game project ranging from side scrolling adventures to fighting games. What You Will Learn Learn to build a game with the MonoGame framework. Understand game engine architecture and how to build an engine onto the MonoGame framework. Grasp common design patterns used in game development and in fully featured engines, such as Unity. Who This Book Is For Beginner to advanced MonoGame programmer would find this book helpful. The audience is expected to have a working knowledge of C#.

A fun, easytofollow experience that takes you from an empty project in Unity 4.3+ all the way to a finished, functional 2D platformer, while giving you challenges and ideas to take what you learn in this book and expand upon it. This book is ideal for anyone who wants to learn how to build 2D video games or who just wants to expand their knowledge of the Unity game engine. It would be helpful to know how to navigate your way around Unity and some basic C# before getting started with this book; however, if you don't, no worries – we will point you in the right direction!

A project based guides to learn animation, advanced shaders, environments, particle rendering, and networked games with Godot 3.0 Key Features Learn the art of developing cross-platform games Leverage Godot's node and scene system to design robust, reusable game objects Integrate Blender easily and efficiently with Godot to create powerful 3D games Book Description Godot Engine Game Development Projects is an introduction to the Godot game engine and its new 3.0 version. Godot 3.0 brings a large number of new features and capabilities that make it a strong alternative to expensive commercial game engines. For beginners, Godot offers a friendly way to learn game development techniques, while for experienced developers it is a powerful, customizable tool that can bring your visions to life. This book consists of five projects that will help developers achieve a sound understanding of the engine when it comes to building games. Game development is complex and involves a wide spectrum of knowledge and skills. This book can help you build on your foundation level skills by showing you how to create a number of small-scale game projects. Along the way, you will learn how Godot works and discover important game development techniques that you can apply to your projects. Using a straightforward, step-by-step approach and practical examples, the book will take you from the absolute basics through to sophisticated game physics, animations, and other techniques. Upon completing the final project, you will have a strong foundation for future success with Godot 3.0. What you will learn Get started with the Godot game engine and editor Organize a game project Import graphical and audio assets Use Godot's node and scene system to design robust, reusable game objects Write code in GDScript to capture input and build complex behaviors Implement user interfaces to display information Create visual effects to spice up your game Learn techniques that you can apply to your own game projects Who this book is for Godot Engine Game Development Projects is for both new users and experienced developers, who want to learn to make games using a modern game engine. Some prior programming experience in C and C++ is recommended.

2D games are hugely popular across a wide range of platforms and the ideal place to start if you're new to game development. With Learn 2D Game Development with C#, you'll learn your way around the universal building blocks of game development, and how to put them together to create a real working game. C# is increasingly becoming the language of choice for new game developers. Productive and easier to learn than C++, C# lets you get your games working quickly and safely without worrying about tricky low-level details like memory management. This book uses MonoGame, an open source framework that's powerful, free to use and easy to handle, to further reduce low-level details, meaning you can concentrate on the most interesting and universal aspects of a game development: frame, camera, objects and particles, sprites, and the logic and simple physics that determines how they interact. In each chapter, you'll explore one of these key elements of game development in the context of a working game, learn how to implement the example for yourself, and integrate it into your own game library. At the end of the book, you'll put everything you've learned together to build your first full working game! And what's more, MonoGame is designed for maximum cross-platform support, so once you've mastered the fundamentals in this book, you'll be ready to explore and publish games on a wide range of platforms including Windows 8, MAC OSX, Windows Phone, iOS, Android, and Playstation Mobile. Whether you're starting a new hobby or considering a career in game development, Learn 2D Game Development with C# is the ideal place to start.

Master the most important skills and techniques you need to know for professional HTML5 and JavaScript 2D game development. 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 systems, 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 concepts you can freely apply to 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 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 tile-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 they 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 they write, without resorting to quick fixes.

Do you love video games? Ever wondered if you could create one of your own, with all the bells and whistles? It's not as complicated as you'd think, and you don't need to be a math whiz or a programming genius to do it. In fact, everything you need to create your first game, "Invasion of the Slugwroths," is included in this book and CD-ROM. Author David Conger starts at square one, introducing the tools of the trade and all the basic concepts for getting started programming with C++, the language that powers most current commercial games. Plus, he's put a wealth of top-notch (and free) tools on the CD-ROM, including the Dev-C++ compiler, linker, and debugger--and his own LlamaWorks2D game engine. Step-by-step instructions and ample illustrations take you through game program structure, integrating sound and music into games, floating-point math, C++ arrays, and much more. Using the sample programs and the source code to run them, you can follow along as you learn. Bio: David Conger has been programming professionally for over 23 years. Along with countless custom business applications, he has written several PC and online games. Conger also worked on graphics firmware for military aircraft, and taught computer science at the university level for four years. Conger has written numerous books on C, C++, and other computer-related topics. He lives in western Washington State and has also published a collection of Indian folk tales.

Complete book format tutorial for GD Script. GD Script is Godot game engine's main script. Are you creating a new game? Are you Godot game developer? Do you want to learn something interesting and new? If yes, GD Script book is for you. Godot game engine is a leading open-source game engine for 2D and 3D game creation. You will learn how to create games using only GD Script. This will give you the freedom to create games with lots of possibilities. You will learn how to create many different 2D, 3D and control objects with GD Script only, how to implement them inside the game scene and how to combine them into a good computer game. Book is an important tool for SLAVS MAKE GAMES courses students. After you bought GD Script book all SLAVS MAKE GAMES courses are with a discount for you.

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