

Unity In Action: Multiplatform Game Development In C

Unity in Action

A lot goes into publishing a successful game: amazing artwork, advanced programming techniques, creative story and gameplay, and highly-collaborative teamwork—not to mention flawless rendering and smooth performance on platforms ranging from game consoles to mobile phones. The Unity game development platform combines a powerful rendering engine with the professional code and art workflow tools needed to bring games to life. Unity in Action focuses on the programming part of game development (as opposed to art or design) and teaches readers to create projects in multiple game genres. Building on existing programming experience, readers will work through examples using the Unity toolset, adding the skills needed to go from application coder to game developer. They will leave the book with a well-rounded understanding of how to create graphically driven 2D and 3D applications. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications.

Unity in Action, Third Edition

Unity in Action, Third Edition teaches you to create games with the Unity game platform. It's many 2D, 3D, and AR/VR game examples give you hands-on experience with Unity's workflow tools and state-of-the-art rendering engine. This fully updated third edition presents new coverage of Unity's XR toolkit and shows you how you can start building with virtual and augmented reality.

Learning C# by Developing Games with Unity 2021

Learn C# programming from scratch using Unity as a fun and accessible entry point with this updated edition of the bestselling series. Includes invitation to join the online Unity Game Development community to read the book alongside peers, Unity developers/C# programmers and Harrison Ferrone. Purchase of the print or Kindle book includes a free eBook in the PDF format. Key Features Learn C# programming basics, terminology, and coding best practices Become confident with Unity fundamentals and features in line with Unity 2021 Apply your C# knowledge in practice and build a working first-person shooter game prototype in Unity Book Description The Learning C# by Developing Games with Unity series has established itself as a popular choice for getting up to speed with C#, a powerful and versatile programming language with a wide array of applications in various domains. This bestselling franchise presents a clear path for learning C# programming from the ground up through the world of Unity game development. This sixth edition has been updated to introduce modern C# features with Unity 2021. A new chapter has also been added that covers reading and writing binary data from files, which will help you become proficient in handling errors and asynchronous operations. The book acquaints you with the core concepts of programming in C#, including variables, classes, and object-oriented programming. You will explore the fundamentals of Unity game development, including game design, lighting basics, player movement, camera controls, and collisions. You will write C# scripts for simple game mechanics, perform procedural programming, and add complexity to your games by introducing smart enemies and damage-causing projectiles. By the end of the book, you will have developed the skills to become proficient in C# programming and built a playable game prototype with the Unity game engine. What you will learn Follow simple steps and examples to create and implement C# scripts in Unity Develop a 3D mindset to build games that come to life Create basic game mechanics such as player controllers and shooting projectiles using C# Divide your code into pluggable building blocks using interfaces, abstract classes, and class extensions Become familiar with stacks, queues, exceptions, error

handling, and other core C# concepts Learn how to handle text, XML, and JSON data to save and load your game data Explore the basics of AI for games and implement them to control enemy behavior Who this book is for If you're a developer, programmer, hobbyist, or anyone who wants to get started with Unity and C# programming in a fun and engaging manner, this book is for you. You'll still be able to follow along if you don't have programming experience, but knowing the basics will help you get the most out of this book.

Pro Unity Game Development with C#

In *Pro Unity Game Development with C#*, Alan Thorn, author of *Learn Unity for 2D Game Development* and experienced game developer, takes you through the complete C# workflow for developing a cross-platform first person shooter in Unity. C# is the most popular programming language for experienced Unity developers, helping them get the most out of what Unity offers. If you're already using C# with Unity and you want to take the next step in becoming an experienced, professional-level game developer, this is the book you need. Whether you are a student, an indie developer, or a season game dev professional, you'll find helpful C# examples of how to build intelligent enemies, create event systems and GUIs, develop save-game states, and lots more. You'll understand and apply powerful programming concepts such as singleton classes, component based design, resolution independence, delegates, and event driven programming. By the end of the book, you will have a complete first person shooter game up and running with Unity. Plus you'll be equipped with the know-how and techniques needed to deploy your own professional-grade C# games. If you already know a bit of C# and you want to improve your Unity skills, this is just the right book for you.

Unity Game Development Cookbook

Discover how to use the Unity game engine to its full potential for both 3D and 2D game development—from the basics of scripting to useful tricks in gameplay, behavior, and animation. With this problem-solving cookbook, you'll get started in two ways: First, you'll learn about the Unity game engine through brief recipes that teach specific features of the software and scripting systems. Second, you'll apply a collection of snippets to address common gameplay scenarios, such as properly keeping score. 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. This book is ideal for beginning to intermediate Unity developers. You'll find solutions for: 2D and 3D graphics Math, physics, and character control Animation and movement Behavior and AI Sound and music Input and gameplay Scripting and user interface

Unity Game Development Essentials

Build fully functional, professional 3D games with realistic environments, sound, dynamic effects, and more!

Learning 2D Game Development with Unity

The Unity Engine Tutorial for Any Game Creator ħ 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. ħ 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. ħ 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. ħ Register your book at informit.com/title/9780321957726 to access assets, code listings, and video

tutorials on the companion website. ¿ 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 ¿

Learning C# by Developing Games with Unity 2019

Understand the fundamentals of C# programming and get started with coding from ground up in an engaging and practical manner Key Features Build 3D games step-by-step while learning essential C# programming concepts and real-world coding skills Create interactive mechanics, animations, and AI behaviors using Unity's tools and scripting features Develop a strong programming foundation by understanding how code structures power gameplay and game logic Book Description Learning to program in today's technical landscape can be a daunting task, especially when faced with the sheer number of languages you have to choose from. Luckily, Learning C# with Unity 2019 removes the guesswork and starts you off on the path to becoming a confident, and competent, programmer using game development with Unity. You'll start off small by learning the building blocks of programming, from variables, methods, and conditional statements to classes and object-oriented systems. After you have the basics under your belt you'll explore the Unity interface, creating C# scripts, and translating your newfound knowledge into simple game mechanics. Throughout this journey, you'll get hands-on experience with programming best practices and macro-level topics such as manager classes and flexible application architecture. By the end of the book, you'll be familiar with intermediate C# topics like generics, delegates, and events, setting you up to take on projects of your own. What you will learn Understand programming fundamentals with practice examples in C# Explore the interface and features of Unity 2019 Learn C# programming syntax from scratch Create a game design document and prototype level Explore intermediate programming topics and best practices Implement game mechanics, interactions, and UI elements with C# Who this book is for This book is ideal for aspiring game developers, students, and hobbyists with little or no coding background who want to learn C# fundamentals and start building their own interactive 3D games in Unity. No prior programming or Unity experience is needed, making it perfect for complete beginners or those seeking a structured introduction to both C# and Unity's core tools.

Mobile Game Development with Unity

Do you want to build mobile games, but lack game development experience? No problem. This practical guide shows you how to create beautiful, interactive content for iOS and Android devices with the Unity game engine. Authors Jon Manning and Paris Buttfield-Addison (iOS Swift Game Development Cookbook) provide a top-to-bottom overview of Unity's features with specific, project-oriented guidance on how to use them in real game situations. Over the course of this book, you'll learn hands-on how to build 2D and 3D games from scratch that will hook and delight players. If you have basic programming skills, you're ready to get started. Explore the basics of Unity, and learn how to structure games, graphics, scripting, sounds, physics, and particle systems Use 2D graphics and physics features to build a side-scrolling action game Create a 3D space combat simulator with projectile shooting and respawning objects, and learn how to manage the appearance of 3D models Dive into Unity's advanced features, such as precomputed lighting, shading, customizing the editor, and deployment

Game Engine Architecture

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.

Game Programming with Unity and C#

Designed for beginners with no knowledge or experience in game development or programming, this book teaches the essentials of the Unity game engine, the C# programming language, and the art of object-oriented programming. New concepts are not only explained, but thoroughly demonstrated. Starting with an introduction to Unity, you'll learn about scenes, GameObjects, prefabs, components, and how to use the various windows to interact with the engine. You'll then dive into the fundamentals of programming by reviewing syntax rules, formatting, methods, variables, objects and types, classes, and inheritance, all while getting your hands dirty writing and testing code yourself. Later, the book explains how to expose script data in the Inspector and the basics of Unity's serialization system. This carefully crafted work guides you through the planning and development of bare bones, simple game projects designed to exercise programming concepts while keeping less relevant interruptions out of the way, allowing you to focus on the implementation of game mechanics first and foremost. Through these example projects, the book teaches input handling, rigidbodies, colliders, cameras, prefab instantiation, scene loading, user interface design and coding, and more. By the end, you'll have built a solid foundation in programming that will pave your way forward in understanding core C# syntax and fundamentals of object-oriented programming—not just what to type but why it's typed and what it's really doing. Game Programming with Unity and C# will send you on your way to becoming comfortable with the Unity game engine and its documentation and how to independently seek further information on yet-untouched concepts and challenges. What You'll Learn Understand the fundamentals of object-oriented computer programming, including topics specifically relevant for games. Leverage beginner-to-intermediate-level skills of the C# programming language and its syntax. Review all major component types of the Unity game engine: colliders and rigidbodies, lights, cameras, scripts, etc. Use essential knowledge of the Unity game engine and its features to balance gameplay mechanics for making interesting experiences. Who This Book Is For Beginners who have no prior experience in programming or game development who would like to learn with a solid foundation that prepares them to further develop their skills.

Hands-On Unity 2021 Game Development

Achieve mesmerizing game experiences using the latest Unity 2021 features by following a practical approach to building professional games Key FeaturesUnleash the capabilities of C# scripting to create UIs, graphics, game AI agents and moreExplore Unity's latest tools, including Universal Render Pipeline, Shader Graph, UI Toolkit, Visual Scripting, and VFX graph, to enhance graphics and animationBuild an AR

experience using Unity's AR FoundationBook Description Learning how to use Unity is the quickest way to creating a full game, but that's not all you can do with this simple, yet comprehensive suite of video game development tools – Unity is just as useful for creating AR/VR experiences, complex simulations, real-time realistic rendering, films, and practical games for training and education. Hands-On Unity 2021 Game Development outlines a practical journey to creating your first full game from the ground up, building it step-by-step and applying your knowledge as you progress. Complete with hands-on tutorials and projects, this easy-to-follow guide will teach you how to develop the game using several Unity tools. As you advance, you will learn how to use the Unity engine, create simple scripts using C#, integrate graphics, sound, and animations, and manipulate physics to create interesting mechanics for your game. You'll be able to apply all the knowledge that you gain to a real-world game. Later chapters will show you how to code a simple AI agent to challenge the user and use profiling tools to ensure that the code runs efficiently. Finally, you'll work with Unity's AR tools to create AR experiences for 3D apps and games. By the end of this Unity book, you will have created a complete game and built a solid foundation in using a wide variety of Unity tools. What you will learnExplore both C# and Visual Scripting tools to customize various aspects of a game, such as physics, gameplay, and the UIProgram rich shaders and effects using Unity's new Shader Graph and Universal Render PipelineImplement postprocessing to improve graphics quality with full-screen effectsCreate rich particle systems for your Unity games from scratch using VFX Graph and ShurikenAdd animations to your game using the Animator, Cinemachine, and TimelineUse the brand new UI Toolkit package to create user interfacesImplement game AI to control character behaviorWho this book is for This book is best suited for game developers looking to upgrade their knowledge and those who want to migrate their existing skills to the Unity game engine. Those with prior Unity knowledge will also benefit from the chapters exploring the latest features. While you'll still be able to follow along if you don't have any programming experience, knowing the fundamentals of C# programming will help you get the most out of this book.

SDL Game Development

Written as a practical and engaging tutorial, SDL Game Development guides you through developing your own framework and the creation of two engaging games.If you know C++ and you're looking to make great games from the ground up, then this book is perfect for you.

Learn Unity for 2D Game Development

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.

Procedural Content Generation for C++ Game Development

Get to know techniques and approaches to procedurally generate game content in C++ using Simple and Fast Multimedia Library About This Book This book contains a bespoke Simple and Fast Multimedia Library (SFML) game engine with complete online documentation Through this book, you'll create games that are non-predictable and dynamic and have a high replayability factor Get a breakdown of the key techniques and approaches applied to a real game. Who This Book Is For If you are a game developer who is familiar with C++ and is looking to create bigger and more dynamic games, then this book is for you. The book assumes some prior experience with C++, but any intermediate concepts are clarified in detail. No prior experience

with SFML is required. What You Will Learn Discover the systems and ideology that lie at the heart of procedural systems Use Random number generation (RNG) with C++ data types to create random but controlled results Build levels procedurally with randomly located items and events Create dynamic game objects at runtime Construct games using a component-based approach Assemble non-predictable game events and scenarios Operate procedural generation to create dynamic content fast and easily Generate game environments for endless replayability In Detail Procedural generation is a growing trend in game development. It allows developers to create games that are bigger and more dynamic, giving the games a higher level of replayability. Procedural generation isn't just one technique, it's a collection of techniques and approaches that are used together to create dynamic systems and objects. C++ is the industry-standard programming language to write computer games. It's at the heart of most engines, and is incredibly powerful. SFML is an easy-to-use, cross-platform, and open-source multimedia library. Access to computer hardware is broken into succinct modules, making it a great choice if you want to develop cross-platform games with ease. Using C++ and SFML technologies, this book will guide you through the techniques and approaches used to generate content procedurally within game development. Throughout the course of this book, we'll look at examples of these technologies, starting with setting up a roguelike project using the C++ template. We'll then move on to using RNG with C++ data types and randomly scattering objects within a game map. We will create simple console examples to implement in a real game by creating unique and randomised game items, dynamic sprites, and effects, and procedurally generating game events. Then we will walk you through generating random game maps. At the end, we will have a retrospective look at the project. By the end of the book, not only will you have a solid understanding of procedural generation, but you'll also have a working roguelike game that you will have extended using the examples provided. Style and approach This is an easy-to-follow guide where each topic is explained clearly and thoroughly through the use of a bespoke example, then implemented in a real game project.

Developing 2D Games with Unity

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.

Mastering Unity Scripting

Mastering Unity Scripting is an advanced book intended for students, educators, and professionals familiar with the Unity basics as well as the basics of scripting. Whether you've been using Unity for a short time or are an experienced user, this book has something important and valuable to offer to help you improve your game development workflow.

Learning C# Programming with Unity 3D

Designed to give you enough familiarity in a programming language to be immediately productive, Learning

C# Programming with Unity 3D provides the basics of programming and brings you quickly up to speed. Organized into easy-to-follow lessons, the book covers how C# is used to make a game in Unity3D. After reading this book, you will be armed with the knowledge required to feel confident in learning more. You'll have what it takes to at least look at code without your head spinning. Writing a massive multiplayer online role-playing game is quite hard, of course, but learning how to write a simple behavior isn't. Like drawing, you start off with the basics such as spheres and cubes. After plenty of practice, you'll be able to create a real work of art. This applies to writing code—you start off with basic calculations, then move on to the logic that drives a complex game. By the end of this book, you will have the skills to be a capable programmer, or at least know what is involved with how to read and write code. Although you could go online and find videos and tutorials, there is a distinct advantage when it comes to learning things in order and in one place. Most online tutorials for C# are scattered, disordered, and incohesive. It's difficult to find a good starting point, and even more difficult to find a continuous list of tutorials to bring you to any clear understanding of the C# programming language. This book not only gives you a strong foundation, but puts you on the path to game development.

LibGDX Game Development By Example

Learn how to create your very own game using the libGDX cross-platform framework About This Book Learn the core features of libGDX to develop your own exciting games Explore game development concepts through example projects Target games for major app stores quickly and easily with libGDX's cross-platform functionality Who This Book Is For This book is intended for those who wish to learn the concepts of game development using libGDX. An understanding of Java and other programming languages would definitely be helpful, although it is not a must. What You Will Learn Create and configure a libGDX project to get started with making games Get to grips with a simple game loop that will drive your games Manage game assets to reduce code duplication and speed up development Pack game assets together into single assets to increase your game's performance Display textures on the screen and manipulate them with play input Play various types of sounds that a game can generate Design and modify a game user interface with libGDX's built-in tools Develop a game that will run across various platforms In Detail LibGDX is a cross-platform game development framework in Java that makes game programming easier and fun to do. It currently supports Windows, Linux, Mac OS X, Android, and HTML5. With a vast feature set on offer, there isn't a game that can't be made using libGDX. It allows you to write your code once and deploy it to multiple platforms without modification. With cross-platform delivery at its heart, a game can be made to target the major markets quickly and cost effectively. This book starts with a simple game through which the game update cycle is explained, including loading textures onto your screen, moving them around, and responding to input. From there you'll move on to more advanced concepts such as creating a formal game structure with a menu screen, adding a game screen and loading screen, sprite sheets, and animations. You'll explore how to introduce a font to optimize text, and with the help of a game that you'll create, you'll familiarise yourself with the 2D tile map API to create worlds that scroll as the characters move. In the final sample game of the book, you'll implement a basic version of an Angry Birds clone, which will allow you to use the physic library box2D that libGDX provides access to. An overview of exporting games to different platforms is then provided. Finally, you will discover how to integrate third-party services into games and take a sneak peak at the Social Media API to get a basic understanding of how it fits into the libGDX ecosystem. Style and approach With this book you'll learn game development with libGDX through example game projects. You'll finish the book with a thorough understanding of libGDX game development, along with completed games that you'll have built yourself.

Hands-On Reinforcement Learning for Games

Explore reinforcement learning (RL) techniques to build cutting-edge games using Python libraries such as PyTorch, OpenAI Gym, and TensorFlow Key FeaturesGet to grips with the different reinforcement and DRL algorithms for game developmentLearn how to implement components such as artificial agents, map and level generation, and audio generationGain insights into cutting-edge RL research and understand how it is

similar to artificial general researchBook Description With the increased presence of AI in the gaming industry, developers are challenged to create highly responsive and adaptive games by integrating artificial intelligence into their projects. This book is your guide to learning how various reinforcement learning techniques and algorithms play an important role in game development with Python. Starting with the basics, this book will help you build a strong foundation in reinforcement learning for game development. Each chapter will assist you in implementing different reinforcement learning techniques, such as Markov decision processes (MDPs), Q-learning, actor-critic methods, SARSA, and deterministic policy gradient algorithms, to build logical self-learning agents. Learning these techniques will enhance your game development skills and add a variety of features to improve your game agent's productivity. As you advance, you'll understand how deep reinforcement learning (DRL) techniques can be used to devise strategies to help agents learn from their actions and build engaging games. By the end of this book, you'll be ready to apply reinforcement learning techniques to build a variety of projects and contribute to open source applications. What you will learnUnderstand how deep learning can be integrated into an RL agentExplore basic to advanced algorithms commonly used in game developmentBuild agents that can learn and solve problems in all types of environmentsTrain a Deep Q-Network (DQN) agent to solve the CartPole balancing problemDevelop game AI agents by understanding the mechanism behind complex AIIntegrate all the concepts learned into new projects or gaming agentsWho this book is for If you're a game developer looking to implement AI techniques to build next-generation games from scratch, this book is for you. Machine learning and deep learning practitioners, and RL researchers who want to understand how to use self-learning agents in the game domain will also find this book useful. Knowledge of game development and Python programming experience are required.

Sfml Game Development

SFML Game Development is a fast-paced, step-by-step guide, providing you with all the knowledge and tools you need to create your first game using SFML 2.0.SFML Game Development addresses ambitious C++ programmers who want to develop their own game. If you have plenty of ideas for an awesome and unique game, but don't know how to start implementing them, then this book is for you. The book assumes no knowledge about SFML or game development, but a solid understanding of C++ is required.

Multiplayer Game Programming

The Practical Guide to Building Reliable Networked Multiplayer Games Networked multiplayer games are a multibillion dollar business: some games now attract tens of millions of players. In this practical, code-rich guide, Joshua Glazer and Sanjay Madhav guide you through every aspect of engineering them. Drawing on their immense experience as both game developers and instructors, the authors lead you through building a robust multiplayer architecture, and creating every engine-level system. You'll learn through in-depth working code examples for two complete games: an action game and a real time strategy (RTS) game. First, Madhav and Glazer review the essentials of networking and network programming from the standpoint of game developers. Next, they walk through managing game data transmission, updating game objects across the network, and organizing the devices that join your game. You'll learn how to ensure reliable performance despite the Internet's inherent inconsistencies, and how to design game code for maximum security and scalability. The authors conclude by addressing two increasingly crucial issues: incorporating gamer services and hosting your games in the cloud. This guide's content has been extensively tested through the authors' multiplayer game programming courses at USC. It is equally valuable both to students and to working game programmers moving into networked games. Coverage includes How games have evolved to meet the challenges of networked environments Using Internet communication protocols and standards in game development Working with Berkeley Socket, the most widely used networking construct in multiplayer gaming Formatting game data for efficient Internet transmission Synchronizing states so all players share the same world Organizing networking topologies for large-scale games Overcoming latency and jitter problems that cause delays or lost data Scaling games without compromising performance Combating security vulnerabilities and software cheats Leveraging the networking functionality of the popular Unreal 4 and

Unity game engines Integrating gamer services such as matchmaking, achievements, and leaderboards
Running game servers in the cloud About the Website C++ source code for all examples is available at github.com/MultiplayerBook. Instructors will also find a full set of PowerPoint slides and a sample syllabus.

The C# Player's Guide

The C# Player's Guide (3rd Edition) is the ultimate guide for people starting out with C#, whether you are new to programming, or an experienced vet. This guide takes you from your journey's beginning, through the most challenging parts of programming in C#, and does so in a way that is casual, informative, and fun. This version of the book is updated for C# 7.0 and Visual Studio 2017. Get off the ground quickly, with a gentle introduction to C#, Visual Studio, and a step-by-step walkthrough and explanation of how to make your first C# program. Learn the fundamentals of procedural programming, including variables, math operations, decision making, looping, methods, and an in-depth look at the C# type system. Delve into object-oriented programming, from start to finish, including inheritance, polymorphism, interfaces, and generics. Explore some of the most useful advanced features of C#, and take on some of the most common tasks that a programmer will tackle. Learn to control the tools and tricks of programming in C#, including the .NET framework, dealing with compiler errors, and hunting down bugs in your program. Master the needed skills by taking on a large collection of Try It Out! challenges, to ensure that you've learned the things you need to. With this guide, you'll soon be off to save the world (or take over it) with your own awesome C# programs!

Unity 4.x Game Development by Example Beginner's Guide

This is a practical and light-hearted guide to get to grips with creating your first games, with easy-to-follow, step-by-step tutorials using the award winning Unity engine. If you've ever wanted to enter the world of independent game development but have no prior knowledge of programming or game development, then this is the book for you. Game developers transitioning from other tools like GameMaker and Flash will find this a useful tool to get them up to speed on the Unity engine, as will anyone who has never handled the Unity engine before.

Learning C# by Developing Games with Unity 3D

This book uses the learning-by-example approach. It takes simple examples from games to introduce all the main concepts of programming in an easy-to-digest and immediately recognizable way. This book is for the total beginner to any type of programming, focusing on the writing of C# code and scripts only. There are many parts that make up the Unity game engine. It is assumed that the reader already knows their way around Unity's user interface. The code editor used in this book is the MonoDevelop editor supplied by Unity.

Unity Games

Create your own augmented reality games from scratch with Unity 5 About This Book Create your own augmented reality game from scratch and join the virtual reality gaming revolution Use the latest Unity 5 VR SDK to create pro-level AR games like Pokemon Go Innovate and explore the latest and most promising trend of AR gaming in the mobile gaming industry Who This Book Is For This book is for those who have a basic knowledge of game development techniques, but no previous knowledge of Unity is required. Some basic programming knowledge would be desirable, but the book is an introduction to the topic. The book is also suitable for experienced developers new to GIS or GPS development. What You Will Learn Build a location-based augmented reality game called Foodie Go Animate a player's avatar on a map Use the mobile device's camera as a game background Implement database persistence with SQLite4Unity3D to carry inventory items across game sessions Create basic UI elements for the game, inventory, menu, and settings Perform location and content searches against the Google Places API Enhance the game's mood by adding visual shader effects Extend the game by adding multiplayer networking and other enhancements In Detail

The heyday of location-based augmented reality games is upon us. They have been around for a few years, but the release of Pokemon Go was a gamechanger that catalyzed the market and led to a massive surge in demand. Now is the time for novice and experienced developers alike to turn their good ideas into augmented reality (AR) mobile games and meet this demand! If you are keen to develop virtual reality games with the latest Unity 5 toolkit, then this is the book for you. The genre of location-based AR games introduces a new platform and technical challenges, but this book will help simplify those challenges and show how to maximize your game audience. This book will take you on a journey through building a location-based AR game that addresses the core technical concepts: GIS fundamentals, mobile device GPS, mapping, map textures in Unity, mobile device camera, camera textures in Unity, accessing location-based services, and other useful Unity tips. The technical material also discusses what is necessary for further development to create a multiplayer version of the game. At the end, you will be presented with troubleshooting techniques in case you get into trouble and need a little help. Style and approach This book shows you how to create every step of the game and gives practical examples.

Augmented Reality Game Development

Summary Oculus Rift in Action introduces the powerful Oculus Rift headset and teaches you how to integrate its many features into 3D games and other virtual reality experiences. You'll start by understanding the capabilities of the Rift hardware. Then you'll follow interesting and instantly-relevant examples that walk you through programming real applications using the Oculus SDK. Examples are provided for both using the Oculus C API directly and for using Unity, a popular development and 3D graphics engine, with the Oculus Unity integration package. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Book Virtual reality has long been the domain of researchers and developers with access to specialized hardware and proprietary tools. With the appearance of the Oculus Rift VR headset, the game has changed. Using standard programming tools and the intuitive Oculus SDKs, you can deliver powerful immersive games, simulations, and other virtual experiences that finally nail the feeling of being in the middle of the action. Oculus Rift in Action teaches you how to create 3D games and other virtual reality experiences for the Oculus Rift. You'll explore the Rift hardware through examples of real applications using the Oculus SDK and both the Oculus C API and the Unity 3D graphics engine. Along the way, you'll get practical guidance on how to use the Rift's sensors to produce fluid VR experiences. Experience with C++, C#, or another OO language is assumed. What's Inside Creating immersive VR Integrating the Rift with the Unity 3D SDK Implementing the mathematics of 3D Avoiding motion-sickness triggers About the Authors Brad Davis is an active VR developer who maintains a great set of example Rift applications on Github. Karen Bryla is a freelance developer and writer. Alex Benton is a lecturer in 3D graphics at the University of Cambridge and a software engineer at Google. Table of Contents PART 1 GETTING STARTED Meet the Oculus Rift PART 2 USING THE OCULUS C API Creating your first Rift interactions Pulling data out of the Rift: working with the head tracker Sending output to the Rift: working with the display Putting it all together: integrating head tracking and 3D rendering Performance and quality PART 3 USING UNITY Unity: creating applications that run on the Rift Unity: tailoring your application for the Rift PART 4 THE VR USER EXPERIENCE UI design for VR Reducing motion sickness and discomfort PART 5 ADVANCED RIFT INTEGRATIONS Using the Rift with Java and Python Case study: a VR shader editor Augmenting virtual reality

Oculus Rift in Action

This hands-on beginners guide gets you building games fast, all with the awesome Unity engine! You'll speed past the basics and use your existing coding skills to create 2D, 3D, and AR/VR games. In Unity in Action, Third Edition, you will learn how to: Create characters that run, jump, and bump into things Build 3D first-person shooters and third-person action games Construct 2D card games and side-scrolling platformers Script enemies with AI Improve game graphics by importing models and images Design an intuitive user interface for your games Play music and spatially-aware sound effects Connect your games to the internet for online play Deploy your games to desktop, mobile, and the web Thousands of new game

developers have chosen Joe Hocking's Unity in Action as their first step toward Unity mastery. Starting with the initial groundwork of a new game development project, you'll quickly start writing custom code instead of clicking together premade scripts. This fully updated third edition comes packed with fully refreshed graphics, Unity's latest features, and coverage of augmented and virtual reality toolkits. You'll master the Unity toolset from the ground up, learning the skills to go from application coder to game developer. Foreword by Jesse Schell. About the technology Writing games is rewarding and fun—and with Unity, it's easy to get started! Unity handles the heavy lifting, so you can focus on game play, graphics, and user experience. C# support and a huge ecosystem of prebuilt components help even first-time developers go from the drawing board to the screen fast. About the book Unity in Action, Third Edition teaches you to create games with the Unity game platform. It's many 2D, 3D, and AR/VR game examples give you hands-on experience with Unity's workflow tools and state-of-the-art rendering engine. This fully updated third edition presents new coverage of Unity's XR toolkit and shows you how you can start building with virtual and augmented reality. What's inside Create characters that run, jump, and bump into things Script enemies with AI Play music and spatially-aware sound effects Deploy your games to desktop, mobile, and the web About the reader For programmers who know any object-oriented programming language. Examples are in C#. About the author Joe Hocking is a software engineer and Unity expert specializing in interactive media development. Table of Contents PART 1 FIRST STEPS 1 Getting to know Unity 2 Building a demo that puts you in 3D space 3 Adding enemies and projectiles to the 3D game 4 Developing graphics for your game PART 2 GETTING COMFORTABLE 5 Building a Memory game using Unity's 2D functionality 6 Creating a basic 2D platformer 7 Putting a GUI onto a game 8 Creating a third-person 3D game: Player movement and animation 9 Adding interactive devices and items within the game PART 3 STRONG FINISH 10 Connecting your game to the internet 11 Playing audio: Sound effects and music 12 Putting the parts together into a complete game 13 Deploying your game to players' devices

Unity in Action, Third Edition

Do you have an awesome idea for the next break-through mobile gaming title? This updated edition will help you kick-start your project as it guides you through the process of creating several example game apps using APIs available in Android. You will learn the basics needed to join the ranks of successful Android game app developers. the book starts with game design fundamentals using Canvas and Android SDK 10 or earlier programming basics. You then will progress toward creating your own basic game engine and playable game apps that work on Android 10 or earlier smartphones and tablets. You take your game through the chapters and topics in the book to learn different tools such as OpenGL ES. And you will learn about publishing and marketing your games to monetize your creation. What You Will Learn Gain knowledge on the fundamentals of game programming in the context of Android Use Android's APIs for graphics, audio, and user input to reflect those fundamentals Develop two 2D games from scratch, based on Canvas API and OpenGL ES Create a full-featured 3D game Publish your games, get crash reports, and support your users Complete your own playable 2D OpenGL games Who This Book Is For Those with basic knowledge of Java who want to write games on the Android platform, and experienced game developers who want to know about the pitfalls and peculiarities of the platform

Beginning Android Games Development

Create professional and realistic games using C++ with interesting demosAbout This Book* Make best use of object oriented capabilities of C++ to develop high-end games* Create reusable C++ libraries and editor tools for your game* Series of example projects demonstrating advanced techniques to build games of any genreWho This Book Is ForThis book is intended for aspiring game developers who are proficient in C++ programming and are interested in developing professional games with C++What You Will Learn* Work and communicate effectively in the modern games industry.* Develop simple and advanced gameplay systems* Use modern real-time rendering techniques to achieve immersive 3D visuals* Achieve narrative-driven game experience using a variety of data management techniques* Program and implement a variety of AI algorithms for motion, behavior and decision making.* Leverage your game with multiplayer support*

Create an immersive Virtual Reality experience
In Detail
Many languages are available for game development, but C++ remains a fixture in the games industry. The main reasons for this are its performance, cross-platform compatibility and widespread availability across toolchains. The primary goal of the book is to teach you to create high quality video games using C++ game programming. To begin with, you will be presented with insight into the games industry landscape, popular development methodologies, and a guide to building strong coding standards. You will also learn to make best use the target platform's specific C++ toolchain, track down bugs during and after development, and measure performance to inform optimization approaches. You will be designing and building a set of reusable C++ libraries and also creating your own level editor as per your game requirements. In the next half of the book, you will be working with game demos which will be packed with advanced rendering techniques, interactive physics, modern animation techniques, tips for creating narrative-driven games and Advanced AI techniques. You will also learn how to deal with highly interactive, fast-paced multiplayer games within the constraints of today's internet. As a last chapter in the book, you will find out how the power of C++ can be leveraged to create an immersive VR experience. By the end of the book, you will be able to create a high-end video game.

Mastering C++ Game Development

Have you ever wanted to learn computer programming but were afraid it would be too difficult for you? Or perhaps you already know other programming languages, and are now interested in learning C#. C# is part of the .Net framework and is intended to be a simple general-purpose programming language that can be used to develop different types of applications, including console, windows, web and mobile apps.

Learn C# in One Day and Learn It Well

Previous ed.: Boston, Mass.: Thomson Course Technology, 2008.

Beginning Java SE 6 Game Programming

Summary Manning's bestselling and highly recommended Unity book has been fully revised! Unity in Action, Second Edition teaches you to write and deploy games with the Unity game development platform. You'll master the Unity toolset from the ground up, adding the skills you need to go from application coder to game developer. Foreword by Jesse Schell, author of The Art of Game Design Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Technology Build your next game without sweating the low-level details. The Unity game development platform handles the heavy lifting, so you can focus on game play, graphics, and user experience. With support for C# programming, a huge ecosystem of production-quality prebuilt assets, and a strong dev community, Unity can get your next great game idea off the drawing board and onto the screen! About the Book Unity in Action, Second Edition teaches you to write and deploy games with Unity. As you explore the many interesting examples, you'll get hands-on practice with Unity's intuitive workflow tools and state-of-the-art rendering engine. This practical guide exposes every aspect of the game dev process, from the initial groundwork to creating custom AI scripts and building easy-to-read UIs. And because you asked for it, this totally revised Second Edition includes a new chapter on building 2D platformers with Unity's expanded 2D toolkit. What's Inside Revised for new best practices, updates, and more! 2D and 3D games Characters that run, jump, and bump into things Connect your games to the internet About the Reader You need to know C# or a similar language. No game development knowledge is assumed. About the Author Joe Hocking is a software engineer and Unity expert specializing in interactive media development. Table of Contents PART 1 - First steps Getting to know Unity Building a demo that puts you in 3D space Adding enemies and projectiles to the 3D game Developing graphics for your game PART 2 - Getting comfortable Building a Memory game using Unity's 2D functionality Creating a basic 2D Platformer Putting a GUI onto a game Creating a third-person 3D game: player movement and animation Adding interactive devices and items within the game PART 3 - Strong finish Connecting your game to the internet Playing audio: sound effects and music Putting the parts together into a complete game Deploying your game to players' devices

Unity in Action

Learn C# from first principles the Rob Miles way. With jokes, puns, and a rigorous problem solving based approach. You can download all the code samples used in the book from here: <http://www.robmiles.com/s/Yellow-Book-Code-Samples-64.z>

The C# Programming Yellow Book

Beginning 3D Game Development with Unity is perfect for those who would like to come to grips with programming Unity. You may be an artist who has learned 3D tools such as 3ds Max, Maya, or Cinema 4D, or you may come from 2D tools such as Photoshop and Illustrator. On the other hand, you may just want to familiarize yourself with programming games and the latest ideas in game production. This book introduces key game production concepts in an artist-friendly way, and rapidly teaches the basic scripting skills you'll need with Unity. It goes on to show how you, as an independent game artist, can create casual interactive adventure games in the style of Telltale's Tales of Monkey Island, while also giving you a firm foundation in game logic and design. The first part of the book explains the logic involved in game interaction, and soon has you creating game assets through simple examples that you can build upon and gradually expand. In the second part, you'll build the foundations of a point-and-click style first-person adventure game—including reusable state management scripts, load/save functionality, a robust inventory system, and a bonus feature: a dynamically configured maze and mini-map. With the help of the provided 2D and 3D content, you'll learn to evaluate and deal with challenges in bite-sized pieces as the project progresses, gaining valuable problem-solving skills in interactive design. By the end of the book, you will be able to actively use the Unity 3D game engine, having learned the necessary workflows to utilize your own assets. You will also have an assortment of reusable scripts and art assets with which to build future games.

Beginning 3D Game Development with Unity

"Simple yet empowering. Kids will be amazed at how quickly they can get productive." - James McGinn, Bull Valley Key Features Learn to program with Python, a language designed to be easy for beginners Written by father-and-son team Warren and Carter Sande Colorful pictures, clever cartoons, and fun examples Practice questions and exercises Kid-tested and reviewed by professional educators Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About The Book With this book, ANYONE can learn to write useful programs and games in Python. Designed especially for readers 9-16 years old, this book is easy to read and use. Printed in full color, it's never boring, with hands-on practice and interesting graphics throughout. Hello World! Computer Programming for Kids and Other Beginners, Third Edition introduces the world of computer programming in a clear and fun style. Using Python, a programming language designed to be easy to learn, each engaging lesson teaches skills that apply to any kind of programming. It brings to life the basic concepts of computing—looping, decisions, input and output, graphics, and more. Now in its third edition, this international bestseller has been fully updated to Python 3 and includes a new chapter about how the internet works. What You Will Learn Install Python and get set up for programming Math and data for programming Building GUIs for your programs Creating simple games Adding comments to your code Graphics, sprites, and collision detection Simulate pets and a lunar landing Where to go next on your programming journey This Book Is Written For Like the previous two editions, Hello World! Third Edition is not just for kids. While the tone is light and engaging, it doesn't "talk down" to the reader, and beginners of any age will love its readability and sense of humor. Written by Warren Sande and his son, Carter, it is full of examples that will get you thinking and learning. Reviewed by professional educators, this book is kid-tested and parent-approved. You don't need to know anything about programming to use the book, just the basics of using a computer. If you can start a program and save a file, you can learn to program using this book!

Hello World! Third Edition

The two volumes LNCS 10337 and 10338 constitute the proceedings of the International Work-Conference on the Interplay Between Natural and Artificial Computation, IWINAC 2017, held in Corunna, Spain, in June 2017. The total of 102 full papers was carefully reviewed and selected from 194 submissions during two rounds of reviewing and improvement. The papers are organized in two volumes, one on natural and artificial computation for biomedicine and neuroscience, addressing topics such as theoretical neural computation; models; natural computing in bioinformatics; physiological computing in affective smart environments; emotions; as well as signal processing and machine learning applied to biomedical and neuroscience applications. The second volume deals with biomedical applications, based on natural and artificial computing and addresses topics such as biomedical applications; mobile brain computer interaction; human robot interaction; deep learning; machine learning applied to big data analysis; computational intelligence in data coding and transmission; and applications.

Natural and Artificial Computation for Biomedicine and Neuroscience

Learning C# Programming with Unity 3D, Second Edition is for the novice game programmer without any prior programming experience. Readers will learn how C# is used to make a game in Unity 3D. Many example projects provide working code to learn from and experiment with. As C# evolves, Unity 3D evolves along with it. Many new features and aspects of C# are included and explained. Common programming tasks are taught by way of making working game mechanics. The reader will understand how to read and apply C# in Unity 3D and apply that knowledge to other development environments that use C#. New to this edition: includes latest C# language features and useful tools included with the .NET library like LINQ, Local Functions Tuples, and more! Key Features Provides a starting point for the first-time programmer C# Code examples are simple short and clear Learn the very basics on up to interesting tricks which C# offers

Learning C# Programming with Unity 3D, second edition

Summary Oculus Rift in Action introduces the powerful Oculus Rift headset and teaches you how to integrate its many features into 3D games and other virtual reality experiences. You'll start by understanding the capabilities of the Rift hardware. Then you'll follow interesting and instantly-relevant examples that walk you through programming real applications using the Oculus SDK. Examples are provided for both using the Oculus C API directly and for using Unity, a popular development and 3D graphics engine, with the Oculus Unity integration package. Purchase of the print book includes a free eBook in PDF, Kindle, and ePub formats from Manning Publications. About the Book Virtual reality has long been the domain of researchers and developers with access to specialized hardware and proprietary tools. With the appearance of the Oculus Rift VR headset, the game has changed. Using standard programming tools and the intuitive Oculus SDKs, you can deliver powerful immersive games, simulations, and other virtual experiences that finally nail the feeling of being in the middle of the action. Oculus Rift in Action teaches you how to create 3D games and other virtual reality experiences for the Oculus Rift. You'll explore the Rift hardware through examples of real applications using the Oculus SDK and both the Oculus C API and the Unity 3D graphics engine. Along the way, you'll get practical guidance on how to use the Rift's sensors to produce fluid VR experiences. Experience with C++, C#, or another OO language is assumed. What's Inside Creating immersive VR Integrating the Rift with the Unity 3D SDK Implementing the mathematics of 3D Avoiding motion-sickness triggers About the Authors Brad Davis is an active VR developer who maintains a great set of example Rift applications on Github. Karen Bryla is a freelance developer and writer. Alex Benton is a lecturer in 3D graphics at the University of Cambridge and a software engineer at Google. Table of Contents PART 1 GETTING STARTED Meet the Oculus Rift PART 2 USING THE OCULUS C API Creating your first Rift interactions Pulling data out of the Rift: working with the head tracker Sending output to the Rift: working with the display Putting it all together: integrating head tracking and 3D rendering Performance and quality PART 3 USING UNITY Unity: creating applications that run on the Rift Unity: tailoring your application for the Rift PART 4 THE VR USER EXPERIENCE UI design for VR Reducing motion sickness and discomfort PART 5 ADVANCED RIFT INTEGRATIONS Using the Rift with Java and Python Case study: a VR

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Oculus Rift in Action

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