

Mastering Unity 2017 Game Development With C

Mastering Unity 2017 Game Development with C#

Master realistic animations and graphics, particle systems, game AI and physics, sprites and VR development with Unity 2017 About This Book Create professional grade games with realistic animation and graphics, particle systems and game physics with Unity 2017 Unleash the power of C# scripting to create intelligent game AI and professional grade game workflows. Create immersive VR games using the latest Unity 2017 VR SDK. Who This Book Is For If you are a Unity developer who now wants to develop and deploy interesting games by leveraging the new features of Unity 2017, then this is the book for you. Basic knowledge of C# programming is assumed. What You Will Learn Explore hands-on tasks and real-world scenarios to make a Unity horror adventure game Create enemy characters that act intelligently and make reasoned decisions Use data files to save and restore game data in a way that is platform-agnostic Get started with VR development Use navigation meshes, occlusion culling, and Profiler tools Work confidently with GameObjects, rotations, and transformations Understand specific gameplay features such as AI enemies, inventory systems, and level design In Detail Do you want to make the leap from being an everyday Unity developer to being a pro game developer? Then look no further! This book is your one-stop solution to creating mesmerizing games with lifelike features and amazing gameplay. This book focuses in some detail on a practical project with Unity, building a first-person game with many features. You'll delve into the architecture of a Unity game, creating expansive worlds, interesting render effects, and other features to make your games special. You will create individual game components, use efficient animation techniques, and implement collision and physics effectively. Specifically, we'll explore optimal techniques for importing game assets, such as meshes and textures; tips and tricks for effective level design; how to animate and script NPCs; how to configure and deploy to mobile devices; how to prepare for VR development; how to work with version control; and more. By the end of this book, you'll have developed sufficient competency in Unity development to produce fun games with confidence. Style and approach This book takes an easy-to-follow, step-by-step tutorial approach. You will create an advanced level Unity game with an emphasis on leveraging advanced Unity 2017 features while developing the game in its entirety.

Mastering UI Development with Unity

Master Game UI system by creating captivating user interface components with Unity 5 through Unity 2018 and C#. Learn about UI texts, images, world space UI, mobile-specific UI and much more. Key Features Develop a game UI with both technical and aesthetic considerations Use all the UI elements provided by Unity's UI system Step-by-step examples of creating user interface components in the top game genres Book Description A functional UI is an important component for player interaction in every type of video game. Along with imparting crucial statistical information to the player, the UI is also the window through which the player engages with the world established by the game. Unity's tools give you the opportunity to create complex and attractive UIs to make your game stand out. This book helps you realize the full potential of Unity's powerful tools to create the best UI for your games by walking you through the creation of myriad user interface components. Learn how to create visually engaging heads-up-displays, pause menus, health bars, circular progress bars, animated menus, and more. This book not only teaches how to lay out visual elements, but also how to program these features and implement them across multiple games of varying genres. While working through the examples provided, you will learn how to develop a UI that scales to multiple screen resolutions, so your game can be released on multiple platforms with minimal changes. What you will learn Design principles and patterns for laying out elements in your UI Techniques that allow your UI to scale appropriately in different resolutions How to use automatic layouts to streamline your UI building process Properties of the Event System and how to appropriately hook events to your UI elements Access the components and properties of UI elements via code Implement all of Unity's built-in UI elements as well as

those provided by TextMeshPro Develop key UI components that are popularly used in multiple game genres Add visual flare to user interfaces with the use of animation and particle effects Create a UI that displays in the Screen Space as well as World Space Who this book is for This book is for anyone keen to improve their games via a great user interface with Unity's UI system. If you're looking for a book that explains how to develop specific user interfaces or that thoroughly explains how each of the individual Unity components work, this book is for you.

Mastering Android Game Development with Unity

Create enthralling Android games with Unity Faster Than Ever Before About This Book Develop complex Android games with the help of Unity's advanced features such as artificial intelligence, high-end physics, and GUI transformations. Create amazing Graphical User Interfaces (GUIs) with Unity's new uGUI system Unravel and deploy exciting games across Android devices Who This Book Is For If you are a Unity 5 developer and want to expand your knowledge of Unity 5 to create high-end complex Android games, then this book is for you. Readers are expected to have a basic understanding of Unity 5, working with its environment, and its basic concepts. What You Will Learn Develop your own Jetpack Joyride clone game Explore the advanced features of Unity 5 by building your own Action Fighting game Develop remarkable Graphical User Interfaces (GUIs) with Unity's new uGUI system Enhance your game by adding stunning particle systems and complex animations Build pleasing virtual worlds with special effects, lights, sky cube maps, and cameras Make your game more realistic by providing music and sound effects Debug and deploy your games on different Android devices In Detail Game engines such as Unity are the power-tools behind the games we know and love. Unity is one of the most widely-used and best loved packages for game development and is used by everyone, from hobbyists to large studios, to create games and interactive experiences for the Web, desktop, mobile, and console. With Unity's intuitive, easy-to-learn toolset and this book, it's never been easier to become a game developer. You will begin with the basic concepts of Android game development, a brief history of Android games, the building blocks of Android games in Unity 5, and the basic flow of games. You will configure an empty project for the Jetpack Joyride Clone Game, add an environment and characters, and control them. Next you will walk through topics such as particle systems, camera management, prefabs, animations, triggers, colliders, and basic GUI systems. You will then cover the basic setup for 3D action fighting games, importing models, textures and controlling them with a virtual on-screen joystick. Later you will set up Scene for 3D Configuration, create basic gameplays, and manage input controls. Next you will learn to create the interface for the main menu, gameplay, game over, achievements, and high score screens. Finally you will polish your game with stats, sounds, and Social Networking, followed by testing the game on Android devices and then publishing it on Google Play, Amazon, and OUYA Stores. Style and approach A step-by-step and detailed guide to developing high-end complex Android games utilizing the advanced concepts of Unity.

Augmented Reality with Unity AR Foundation

Explore the world of augmented reality development with the latest features of Unity and step-by-step tutorial-style examples with easy-to-understand explanations Key Features Build functional and interactive augmented reality applications using the Unity 3D game engine Learn to use Unity's XR and AR components, including AR Foundation and other standard Unity features Implement common AR application user experiences needed to build engaging applications Book DescriptionAugmented reality applications allow people to interact meaningfully with the real world through digitally enhanced content. The book starts by helping you set up for AR development, installing the Unity 3D game engine, required packages, and other tools to develop for Android (ARCore) and/or iOS (ARKit) mobile devices. Then we jump right into the building and running AR scenes, learning about AR Foundation components, other Unity features, C# coding, troubleshooting, and testing. We create a framework for building AR applications that manages user interaction modes, user interface panels, and AR onboarding graphics that you will save as a template for reuse in other projects in this book. Using this framework, you will build multiple projects, starting with a virtual photo gallery that lets you place your favorite framed photos on your real-world walls, and

interactively edit these virtual objects. Other projects include an educational image tracking app for exploring the solar system, and a fun selfie app to put masks and accessories on your face. The book provides practical advice and best practices that will have you up and running quickly. By the end of this AR book, you will be able to build your own AR applications, engaging your users in new and innovative ways. What you will learn Discover Unity engine features for building AR applications and games Get up to speed with Unity AR Foundation components and the Unity API Build a variety of AR projects using best practices and important AR user experiences Understand the core concepts of augmented reality technology and development for real-world projects Set up your system for AR development and learn to improve your development workflow Create an AR user framework with interaction modes and UI, saved as a template for new projects Who this book is for This augmented reality book is for game developers interested in adding AR capabilities to their games and apps. The book assumes beginner-level knowledge of Unity development and C# programming, familiarity with 3D graphics, and experience in using existing AR applications. Beginner-level experience in developing mobile applications will be helpful to get the most out of this AR Unity book.

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

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.

Beginning 3D Game Development with Unity 4

Beginning 3D Game Development with Unity 4 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 interactive games, ideal in scope for today's casual and mobile markets, 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, dialogue trees for character interaction, 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.

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. ħ 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 ħ

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 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.

Mastering Unreal Engine 4.X

Take your game development skills to the next level with one of the best engines on the market About This Book Build an entire AAA game level throughout the book Take your C++ scripting skills to the next level and use them extensively to build the game An advanced practical guide with a tutorial style approach that will help you make the best of Unreal engine 4 Who This Book Is For This book is for game developers who have a basic knowledge of Unreal Engine and C++ scripting knowledge. If you want to take the leap from a casual game developer to a full-fledged professional game developer with Unreal Engine 4, this is the book for you. What You Will Learn Script your player controls in C++ Build a superb and engaging level with advanced design techniques Program AI with C++ Use Cascade to add life to your games Use custom shaders and advanced shading techniques to make things pretty Implement an awesome UI in the game Control gameplay using data tables In Detail Unreal Engine 4 has garnered a lot of attention in the gaming world because of its new and improved graphics and rendering engine, the physics simulator, particle generator, and more. This book is the ideal guide to help you leverage all these features to create state-of-the-art games that capture the eye of your audience. Inside we'll explain advanced shaders and effects techniques and how you can implement them in your games. You'll create custom lighting effects, use the physics simulator to add that extra edge to your games, and create customized game environments that look visually stunning using the rendering technique. You'll find out how to use the new rendering engine efficiently, add amazing post-processing effects, and use data tables to create data-driven gameplay that is engaging and exciting. By the end of this book, you will be able to create professional games with stunning graphics using Unreal Engine 4! Style and approach An advanced guide that will take you to the next level of developing games with Unreal engine with illustrative examples that will make you confident of creating customized professional level games on your own.

Unity 2018 By Example

Build exciting 2D/3D games and virtual reality applications with the help of hands-on examples Key Features Create five different types of games from scratch with Unity 2018 Import custom content into Unity from third-party tools such as Maya and Blender Learn to build NPCs with artificial intelligent behavior. Book Description Unity is the most exciting and popular engine used for developing games. With its 2018 release, Unity has become the primary source of both game development and virtual reality content. In Unity 2018 By Example, you'll learn how to use Unity in order to make amazing games from popular genres - from action shooters to mind-bending puzzle games to adventure and Virtual Reality (VR) games. Even if you have no previous experience of using Unity, this book will help you understand the toolsets it provides in depth. In addition to this, you'll understand how to create time-critical collection games, twin-stick space shooters, platformers, and action-fest games with intelligent enemies. Finally, you'll get to grips with creating VR games with the new toolsets introduced by Unity to help you develop amazing VR experiences. To make things easier, you will be provided with step-by-step tutorials for making five great games in Unity 2018, along with a detailed explanation of all the fundamental concepts. By the end of this book, you'll have established a strong foundation in making games with Unity 2018. What you will learn Understand core

Unity concepts, such as game objects, components, and scenes Study level-design techniques for building immersive and interesting worlds Make functional games with C# scripting Use the toolset creatively to build games with different themes and styles Handle player controls and input functionality Work with terrains and world-creation tools Get to grips with making both 2D and 3D games Who this book is for You don't need to have any previous experience with Unity to enjoy Unity 2018 By Example, although you need to have basic knowledge of C#.

Game Programming Patterns

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

Artificial Intelligence and Games

This is the first textbook dedicated to explaining how artificial intelligence (AI) techniques can be used in and for games. After introductory chapters that explain the background and key techniques in AI and games, the authors explain how to use AI to play games, to generate content for games and to model players. The book will be suitable for undergraduate and graduate courses in games, artificial intelligence, design, human-computer interaction, and computational intelligence, and also for self-study by industrial game developers and practitioners. The authors have developed a website (<http://www.gameaibook.org>) that complements the material covered in the book with up-to-date exercises, lecture slides and reading.

Lean Game Development

Apply lean frameworks and other concepts of software development to the process of your game development. Resistance to Agile methodologies in the gaming industry is most often due to frustrated attempts to use lean tools and frameworks. Lean Game Development teaches you how to apply frameworks and concepts successfully to benefit you and your team. You will see how to manage, develop and coexist in a lean game development environment. You'll understand what lean is and how it helps the gaming industry. You'll see how to apply MVP concepts and why you should. The concepts taught are used not only in the design of the software code but also in all stages of the development process. Ideal for any game development company, including indie and small studios, Lean Game Development offers new opportunities for streamlining your workflow and benefiting your game development overall. What You'll Learn Discover how lean helps the gaming industry Understand the value of lean over Agile Apply MVP concepts to gaming industry Work with basic automated testing for gaming environment Who This Book Is For Game developers, artist, designers and project managers

Mastering SFML Game Development

Create complex and visually stunning games using all the advanced features available in SFML development About This Book Build custom tools, designed to work with your specific game. Use raw modern OpenGL and go beyond SFML. Revamp your code for better structural design, faster rendering, and flashier graphics. Use advanced lighting techniques to add that extra touch of sophistication. Implement a very fast and efficient particle system by using a cache-friendly design. Who This Book Is For This book is ideal for game developers who have some basic knowledge of SFML and also are familiar with C++ coding in general. No knowledge of OpenGL or even more advanced rendering techniques is required. You will be guided through

every bit of code step by step. What You Will Learn Dive deep into creating complex and visually stunning games using SFML, as well as advanced OpenGL rendering and shading techniques Build an advanced, dynamic lighting and shadowing system to add an extra graphical kick to your games and make them feel a lot more dynamic Craft your own custom tools for editing game media, such as maps, and speed up the process of content creation Optimize your code to make it blazing fast and robust for the users, even with visually demanding scenes Get a complete grip on the best practices and industry grade game development design patterns used for AAA projects In Detail SFML is a cross-platform software development library written in C++ with bindings available for many programming languages. It provides a simple interface to the various components of your PC, to ease the development of games and multimedia applications. This book will help you become an expert of SFML by using all of its features to its full potential. It begins by going over some of the foundational code necessary in order to make our RPG project run. By the end of chapter 3, we will have successfully picked up and deployed a fast and efficient particle system that makes the game look much more 'alive'. Throughout the next couple of chapters, you will be successfully editing the game maps with ease, all thanks to the custom tools we're going to be building. From this point on, it's all about making the game look good. After being introduced to the use of shaders and raw OpenGL, you will be guided through implementing dynamic scene lighting, the use of normal and specular maps, and dynamic soft shadows. However, no project is complete without being optimized first. The very last chapter will wrap up our project by making it lightning fast and efficient. Style and approach This book uses a step by step approach by breaking the problems down into smaller, much more manageable obstacles, and guiding the reader through them with verified, flexible, and autonomous solutions.

Augmented Reality for Developers

Build exciting AR applications on mobile and wearable devices with Unity 3D, Vuforia, ARToolKit, Microsoft Mixed Reality HoloLens, Apple ARKit, and Google ARCore About This Book Create unique AR applications from scratch, from beginning to end, with step-by-step tutorials Use Unity 3D to efficiently create AR apps for Android, iOS, and Windows platforms Use Vuforia, ARToolKit, Windows Mixed Reality, and Apple ARKit to build AR projects for a variety of markets Learn best practices in AR user experience, software design patterns, and 3D graphics Who This Book Is For The ideal target audience for this book is developers who have some experience in mobile development, either Android or iOS. Some broad web development experience would also be beneficial. What You Will Learn Build Augmented Reality applications through a step-by-step, tutorial-style project approach Use the Unity 3D game engine with the Vuforia AR platform, open source ARToolKit, Microsoft's Mixed Reality Toolkit, Apple ARKit, and Google ARCore, via the C# programming language Implement practical demo applications of AR including education, games, business marketing, and industrial training Employ a variety of AR recognition modes, including target images, markers, objects, and spatial mapping Target a variety of AR devices including phones, tablets, and wearable smartglasses, for Android, iOS, and Windows HoloLens Develop expertise with Unity 3D graphics, UIs, physics, and event systems Explore and utilize AR best practices and software design patterns In Detail Augmented Reality brings with it a set of challenges that are unseen and unheard of for traditional web and mobile developers. This book is your gateway to Augmented Reality development—not a theoretical showpiece for your bookshelf, but a handbook you will keep by your desk while coding and architecting your first AR app and for years to come. The book opens with an introduction to Augmented Reality, including markets, technologies, and development tools. You will begin by setting up your development machine for Android, iOS, and Windows development, learning the basics of using Unity and the Vuforia AR platform as well as the open source ARToolKit and Microsoft Mixed Reality Toolkit. You will also receive an introduction to Apple's ARKit and Google's ARCore! You will then focus on building AR applications, exploring a variety of recognition targeting methods. You will go through multiple complete projects illustrating key market sectors including business marketing, education, industrial training, and gaming. By the end of the book, you will have gained the necessary knowledge to make quality content appropriate for a range of AR devices, platforms, and intended uses. Style and approach This book adopts a practical, step-by-step, tutorial-style approach. The design principles and methodology will be explained by creating different modules of the AR app.

100 Principles of Game Design

Game designers spend their lives solving extraordinary problems and facing mind-bending paradoxes. It's their job to make a meticulous plan for "spontaneous fun" players will want to experience over and over again. Pressure is heaped on with demands for innovation and blockbuster status. So designers find themselves facing an abyss of problems, pressure, and possibilities, armed only with their brains and an assortment of design principles they picked up over years of experience. For the first time, 100 Principles of Game Design gathers some of the best of these big ideas into one toolkit. Seasoned designers will be glad they don't have to hold it all in their heads anymore, and beginning design students can use the book to learn the tools of the trade. When the going gets tough, everyone can turn to this book for guidance, inspiration, or just to remind them of what works. Collected from every popular school of thought in game design, these core principles are organized by theme: innovation, creation, balancing, and troubleshooting. • Includes advances from the world's leading authorities on game design, some explained by the creators themselves • A reference book of finite, individual principles for easy access, providing a jumping off point for further research • Principles originating in fields as diverse as architecture, psychiatry, and economics, but shown here as they apply to game design • Richly designed with illustrations and photos, making each principle easy to understand and memorable • Timeless approach includes feedback loops, game mechanics, prototyping, economies of scale, user-centered design, and much more Professional designers and instructors at one of the world's leading game design institutions lay out the building blocks of diverse knowledge required to design even the simplest of games.

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

The Art of Game Design

Anyone can master the fundamentals of game design - no technological expertise is necessary. The Art of Game Design: A Book of Lenses shows that the same basic principles of psychology that work for board games, card games and athletic games also are the keys to making top-quality videogames. Good game design happens when you view your game from many different perspectives, or lenses. While touring through the unusual territory that is game design, this book gives the reader one hundred of these lenses - one hundred sets of insightful questions to ask yourself that will help make your game better. These lenses are gathered from fields as diverse as psychology, architecture, music, visual design, film, software engineering, theme park design, mathematics, writing, puzzle design, and anthropology. Anyone who reads this book will be inspired to become a better game designer - and will understand how to do it.

Unity Game Development Essentials

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

The Essential Guide to Game Audio

The Essential Guide to Game Audio: The Theory and Practice of Sound for Games is a first of its kind textbook and must-have reference guide for everything you ever wanted to know about sound for games. This book provides a basic overview of game audio, how it has developed over time, and how you can make a career in this industry. Each chapter gives you the background and context you will need to understand the unique workflow associated with interactive media. The practical, easy to understand interactive examples provide hands-on experience applying the concepts in real world situations.

Unity 2D Game Development

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!

Beginning C++ Programming

Modern C++ at your fingertips! About This Book This book gets you started with the exciting world of C++ programming It will enable you to write C++ code that uses the standard library, has a level of object orientation, and uses memory in a safe and effective way It forms the basis of programming and covers concepts such as data structures and the core programming language Who This Book Is For A computer, an internet connection, and the desire to learn how to code in C++ is all you need to get started with this book. What You Will Learn Get familiar with the structure of C++ projects Identify the main structures in the language: functions and classes Feel confident about being able to identify the execution flow through the code Be aware of the facilities of the standard library Gain insights into the basic concepts of object orientation Know how to debug your programs Get acquainted with the standard C++ library In Detail C++ has come a long way and is now adopted in several contexts. Its key strengths are its software infrastructure and resource-constrained applications, including desktop applications, servers, and performance-critical applications, not to forget its importance in game programming. Despite its strengths in these areas, beginners usually tend to shy away from learning the language because of its steep learning curve. The main mission of this book is to make you familiar and comfortable with C++. You will finish the book not only being able to write your own code, but more importantly, you will be able to read other projects. It is only by being able to read others' code that you will progress from a beginner to an advanced programmer. This book is the first step in that progression. The first task is to familiarize you with the structure of C++ projects so you will know how to start reading a project. Next, you will be able to identify the main structures in the language, functions, and classes, and feel confident being able to identify the execution flow through the code. You will then become aware of the facilities of the standard library and be able to determine whether you need to write a routine yourself, or use an existing routine in the standard library. Throughout the book, there is a big emphasis on memory and pointers. You will understand memory usage, allocation, and access, and be able to write code that does not leak memory. Finally, you will learn about C++ classes and get an introduction to object orientation and polymorphism. Style and approach This straightforward tutorial will help you build strong skills in C++ programming, be it for enterprise software or for low-latency applications such as games or embedded programming. Filled with examples, this book will take you gradually up the steep learning curve of C++.

Mastering OpenCV with Practical Computer Vision Projects

Each chapter in the book is an individual project and each project is constructed with step-by-step instructions, clearly explained code, and includes the necessary screenshots. You should have basic OpenCV and C/C++ programming experience before reading this book, as it is aimed at Computer Science graduates, researchers, and computer vision experts widening their expertise.

Learning C#

From bestselling author Liberty comes an entry-level book that presents this young programming language and the basics of object-oriented .NET programming.

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.

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.

Learning C++ by Creating Games with Unreal Engine 4, Second Edition

Learn the fundamentals of C++ programming with a fun-filled, practical guide and create your own games using Unreal Engine 4. Key Features Gain foundational knowledge of C++ language and syntax while creating games with UE4 Build 2D and 3D games having compelling user interfaces, game physics, and artificial intelligence Discover the latest trends in game development such as Virtual Reality, Augmented Reality, and AI Book Description Learning to program in C++ requires some serious motivation. Unreal Engine 4 (UE4) is a powerful C++ engine with a full range of features used to create top-notch, exciting games by AAA studios, making it the fun way to dive into learning C++17. This book starts by installing a code editor so you can begin to write C++17 code. You will then get acquainted with important C++ aspects, such as variables and memory, if, else, and switch, looping, functions and macros, objects, classes, inheritance, and dynamic memory allocation. As we dig into more advanced C++17 concepts, you will also start to explore the functionality the UE4 engine has to offer. You will use the UE4 editor to create your own world, and then program in some seriously fun gameplay. We delve further to discuss building game features, pathfinding, behavior trees, and more, and introduce you to the basics of machine learning and neural networks. We go on to talk about improving UI feedback with UMG and audio. In this edition of the book, we add the latest VR and AR features along with procedural programming. By the end of this book, you should have a good grasp of how to program in C++17. What you will learn Learn the basics of C++ and also basic UE4 editing Learn your way around the UE4 editor and the basics of using C++ and Blueprints within the engine Learn how to use basic C++ containers and data structures to store your game data Create players, NPCs, and monsters Give information to users using the UE4 UMG UI system Gain a basic understanding of how to use procedural programming to give your game more replay value Learn how UE4 can help you build projects using the hottest new technologies, such as VR and AR Who this book is for If you are really passionate about games and have always wanted to write your own, this book is perfect for you. It will help you get started with programming in C++ and explore the immense functionalities of UE4.

Beginning Java SE 6 Game Programming

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

Mastering Unity 5.x

Create amazing games with solid gameplay features, using a professional-grade workflow inside the Unity engine! About This Book Become a Unity master by creating a practical, in-depth game-development project with Unity Use advanced C# scripting to unlock the complete potential of Unity 5 Use Version Control to Effectively Manage and Scale your workflow Who This Book Is For If you are a Unity developer who now wants to develop and deploy interesting games by leveraging the new features of Unity 5.x, then this is the book for you. Basic knowledge of C# programming is assumed. What You Will Learn Explore hands-on tasks and real-world scenarios to make a Unity horror adventure game Create enemy characters that act intelligently and make reasoned decisions Use data files to save and restore game data in a way that is platform-agnostic Get started with VR development Use Navigation Meshes, Occlusion Culling, and the Profiler tools Work confidently with GameObjects, Rotations, and Transformations Understand specific gameplay features such as AI enemies, inventory systems, and level design In Detail Do you want to take the leap from being an everyday Unity developer to being a pro game developer? Then look no further! This book is your one stop solution to creating mesmerizing games with lifelike features and amazing gameplay. This book takes an in-depth focus on a practical project with Unity, building a first-person game with many features. You'll dive deep into the architecture of a Unity game, creating expansive worlds, interesting render effects, and other features to make your games special. You will create individual game components, use efficient animation techniques, and implement collision and physics effectively. Specifically, we'll explore optimal techniques for importing game assets, such as meshes and textures; tips and tricks for effective level design; how to animate and script NPCs; how to configure and deploy to mobile devices; how to prepare for VR development; and how to work with version control, and more. By the end of this book, you'll have developed sufficient competency in Unity development to produce fun games with confidence. Style and approach This book takes a step-by-step, practical tutorial approach. You will create an advanced level Unity game with an emphasis on leveraging the advanced Unity 5 features. You will make the most of the Unity 5 advanced features while you develop the game in its entirety.

Mastering Visual Studio 2017

A guide to mastering Visual Studio 2017 About This Book Focus on coding with the new, improved, and powerful tools of VS 2017 Master improved debugging and unit testing support capabilities Accelerate cloud development with the built-in Azure tools Who This Book Is For .NET Developers who would like to master the new features of VS 2017, and would like to delve into newer areas such as cloud computing, would benefit from this book. Basic knowledge of previous versions of Visual Studio is assumed. What You Will Learn Learn what's new in the Visual Studio 2017 IDE, C# 7.0, and how it will help developers to improve their productivity Learn the workloads and components of the new installation wizard and how to use the online and offline installer Build stunning Windows apps using Windows Presentation Foundation (WPF) and Universal Windows Platform (UWP) tools Get familiar with .NET Core and learn how to build apps targeting this new framework Explore everything about NuGet packages Debug and test your applications using Visual Studio 2017 Accelerate cloud development with Microsoft Azure Integrate Visual Studio with most popular source control repositories, such as TFS and GitHub In Detail Visual Studio 2017 is the all-new IDE released by Microsoft for developers, targeting Microsoft and other platforms to build stunning Windows and web apps. Learning how to effectively use this technology can enhance your productivity while simplifying your most common tasks, allowing you more time to focus on your project. With this book, you will learn not only what VS2017 offers, but also what it takes to put it to work for your projects. Visual Studio 2017 is packed with improvements that increase productivity, and this book will get you started with the new features introduced in Visual Studio 2017 IDE and C# 7.0. Next, you will learn to use XAML tools to build classic WPF apps, and UWP tools to build apps targeting Windows 10. Later, you will learn about .NET Core and then explore NuGet, the package manager for the Microsoft development platform. Then, you will familiarize yourself with the debugging and live unit testing techniques that comes with the IDE. Finally, you'll adapt Microsoft's implementation of cloud computing with Azure, and the Visual Studio integration with Source Control repositories. Style and approach This comprehensive guide covers the advanced features of Visual Studio 2017, and communicates them through a practical approach to

explore the underlying concepts of how, when, and why to use it.

Mastering Oculus Rift Development

Explore the new frontier of virtual reality with the Oculus Rift and bring the VR revolution to your own projects About This Book Create immersive 3D games especially designed for the Oculus Rift platform Build complex realistic virtual reality (VR) games with the Unity Engine Create striking VR environments with advanced graphical techniques Who This Book Is For This book is for aspiring indie developers and VR enthusiasts who want to bring their ideas into virtual reality with a new platform that provides an unprecedented level of realism and immersion. What You Will Learn Increase immersion with 3D audio and intuitive interfaces Create group VR experiences using multi-player networking Design fun and engaging mechanics that utilize VR principles Explore the best ways to navigate and interact using the Oculus Rift Design intuitive ways to navigate and interact with scenes in VR Add stunning realism to a scene with three-dimensional audio Invent mechanics and features that take full advantage of VR hardware In Detail Virtual reality (VR) is changing the world of gaming and entertainment as we know it. VR headsets such as the Oculus Rift immerse players in a virtual world by tracking their head movements and simulating depth, giving them the feeling that they are actually present in the environment. We will first use the Oculus SDK in the book and will then move on to the widely popular Unity Engine, showing you how you can add that extra edge to your VR games using the power of Unity. In this book, you'll learn how to take advantage of this new medium by designing around each of its unique features. This book will demonstrate the Unity 5 game engine, one of most widely-used engines for VR development, and will take you through a comprehensive project that covers everything necessary to create and publish a complete VR experience for the Oculus Rift. You will also be able to identify the common perils and pitfalls of VR development to ensure that your audience has the most comfortable experience possible. By the end of the book, you will be able to create an advanced VR game for the Oculus Rift, and you'll have everything you need to bring your ideas into a new reality. Style and approach This book takes a step-by-step tutorial approach with illustrative examples to help you implement the projects on your own. The book lets you first get to grips with the Oculus SDK and then moves on to the Unity Engine to add realistic graphics and features in your games.

ECGBL 2020 14th European Conference on Game-Based Learning

These proceedings represent the work of contributors to the 14th European Conference on Games Based Learning (ECGBL 2020), hosted by The University of Brighton on 24-25 September 2020. The Conference Chair is Panagiotis Fotaris and the Programme Chairs are Dr Katie Piatt and Dr Cate Grundy, all from University of Brighton, UK.

Intersubjectivity: Recent advances in theory, research, and practice

Master realistic animations and graphics, particle systems, game AI and physics, sprites and VR development with Unity 2017 About This Book* Create professional grade games with realistic animation and graphics, particle systems and game physics with Unity 2017* Unleash the power of C# scripting to create intelligent game AI and professional grade game workflows.* Create immersive VR games using the latest Unity 2017 VR SDK. Who This Book Is For If you are a Unity developer who now wants to develop and deploy interesting games by leveraging the new features of Unity 2017, then this is the book for you. Basic knowledge of C# programming is assumed. What You Will Learn* Explore hands-on tasks and real-world scenarios to make a Unity horror adventure game* Create enemy characters that act intelligently and make reasoned decisions* Use data files to save and restore game data in a way that is platform-agnostic* Get started with VR development* Use navigation meshes, occlusion culling, and Profiler tools* Work confidently with GameObjects, rotations, and transformations* Understand specific gameplay features such as AI enemies, inventory systems, and level design In Detail Do you want to make the leap from being an everyday Unity developer to being a pro game developer? Then look no further! This book is your one-stop solution to creating mesmerizing games with lifelike features and amazing gameplay. This book focuses in

some detail on a practical project with Unity, building a first-person game with many features. You'll delve into the architecture of a Unity game, creating expansive worlds, interesting render effects, and other features to make your games special. You will create individual game components, use efficient animation techniques, and implement collision and physics effectively. Specifically, we'll explore optimal techniques for importing game assets, such as meshes and textures; tips and tricks for effective level design; how to animate and script NPCs; how to configure and deploy to mobile devices; how to prepare for VR development; how to work with version control; and more. By the end of this book, you'll have developed sufficient competency in Unity development to produce fun games with confidence. Style and approach This book takes an easy-to-follow, step-by-step tutorial approach. You will create an advanced level Unity game with an emphasis on leveraging advanced Unity 2017 features while developing the game in its entirety.

Mastering Unity 2017 Game Development with C# - Second Edition

This book constitutes selected papers from the refereed proceedings of the 13th International Conference on Agents and Artificial Intelligence, ICAART 2021, which was held online during February 4–6, 2021. A total of 72 full and 99 short papers were carefully reviewed and selected for the conference from a total of 298 submissions; 17 selected full papers are included in this book. They were organized in topical sections named agents and artificial intelligence.

Agents and Artificial Intelligence

Building a conscious robot is a scientific and technological challenge. Debates about the possibility of conscious robots and the related positive outcomes and hazards for human beings are today no longer confined to philosophical circles. Robot consciousness is a research field aimed at a two-part goal: on the one hand, scholars working in robot consciousness take inspiration from biological consciousness to build robots that present forms of experiential and functional consciousness. On the other hand, scholars employ robots as tools to better understand biological consciousness. Thus, part one of the goal concerns the replication of aspects of biological consciousness in robots, by unifying a variety of approaches from AI and robotics, cognitive robotics, epigenetic and affective robotics, situated and embodied robotics, developmental robotics, anticipatory systems, and biomimetic robotics. Part two of the goal is pursued by employing robots to advance and mark progress in the study of consciousness in humans and animals. Notably, neuroscientists involved in the study of consciousness do not exclude the possibility that robots may be conscious. This eBook comprises a collection of thirteen manuscripts and an Editorial published by Frontiers in Robotics and Artificial Intelligence, under the section Humanoid Robotics, and Frontiers in Neurorobotics, on the topic “Consciousness in Humanoid Robots.” This compendium aims at collating the most recent theoretical studies, models, and case studies of machine consciousness that take the humanoid robot as a frame of reference. The content in the articles may be applied to many different kinds of robots, and to software agents as well.

Memristive Neuromorphics: Materials, Devices, Circuits, Architectures, Algorithms and their Co-Design

International talent management has become a critically important topic for scholarly discussion, in policy debates, and among the business community. Despite this, however, research into talent management tends to lack theoretical underpinnings, especially from an international, multidisciplinary, and comparative perspective. This Research Handbook fills this gap, bringing together a range of leading researchers, scholars, and thinkers to debate and advance the conceptualization and understanding of this multifaceted subject.

Consciousness in Humanoid Robots

Research Handbook of International Talent Management

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