

Learning Virtual Reality Developing Immersive Experiences And Applications For Desktop Web And Le

Developing Virtual Reality Applications *Complete Virtual Reality and Augmented Reality Development with Unity* Learning Virtual Reality **Learning Virtual Reality** *Getting Started with React VR Augmented Reality Game Development* Creating Augmented and Virtual Realities **Unreal Engine Vr Cookbook** **New Perspectives on Virtual and Augmented Reality** **Unity 2020 Virtual Reality Projects** **Unity® Virtual Reality Development with VRTK4** **Augmented Reality for Developers** *Designing, Deploying, and Evaluating Virtual and Augmented Reality in Education* *State of the Art Virtual Reality and Augmented Reality Knowhow* Unreal Engine Virtual Reality Quick Start Guide **Virtual & Augmented Reality For Dummies** *Unity 2018 By Example Creating Augmented and Virtual Realities* Virtual Reality, Empathy and Ethics *Unity Virtual Reality Projects* **Developing Virtual Reality Applications** **Augmented Reality for Android Application Development** *Augmented Reality and Virtual Reality Curriculum Development and Online Instruction for the 21st Century* *Extended Reality in Practice* **Virtual Reality** Mastering Oculus Rift Development Augmented Reality for Enhanced Learning Environments Augmented Reality, Virtual Reality, and Computer Graphics **Virtual Reality & Augmented Reality in Industry** **The Re-Emergence of Virtual Reality** *Current and Prospective Applications of Virtual Reality in Higher Education* Virtual Reality New Trends in Interaction, Virtual Reality and Modeling **Virtual Reality Blueprints** **Augmented Reality, Virtual Reality, and Computer Graphics** **Determinants of Diffusion of Virtual Reality** Understanding Virtual Reality *Virtual Reality* **Virtual Reality: Concepts and Technologies**

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Virtual & Augmented Reality For Dummies Jul 14 2021 An easy-to-understand primer on Virtual Reality and Augmented Reality Virtual Reality (VR) and Augmented Reality (AR) are driving the next technological revolution. If you want to get in on the action, this book helps you understand what these technologies are, their history, how they're being used, and how they'll affect consumers both personally and professionally in the very near future. With VR and AR poised to become mainstream within the next few years, an accessible book to bring users up to speed on the subject is sorely needed—and that's where this handy reference comes in! Rather than focusing on a specific piece of hardware (HTC Vive, Oculus Rift, iOS ARKit) or software (Unity, Unreal Engine), **Virtual & Augmented Reality For Dummies** offers a broad look at both VR and AR, giving you a bird's eye view of what you can expect as they continue to take the world by storm. * Keeps you up-to-date on the pulse of this fast-changing technology * Explores the many ways AR/VR are being used in fields such as healthcare, education, and entertainment * Includes interviews with designers, developers, and technologists currently working in the fields of VR and AR Perfect for both potential content creators and content consumers, this book will change the way you approach and contribute to these emerging technologies.

Virtual Reality Jan 28 2020 A comprehensive overview of developments in augmented reality, virtual reality, and mixed reality—and how they could affect every part of our lives. After years of hype, extended reality—augmented reality (AR), virtual reality (VR), and mixed reality (MR)—has entered the mainstream. Commercially available, relatively inexpensive VR headsets transport wearers to other realities—fantasy worlds, faraway countries, sporting events—in ways that even the most ultra-high-definition screen cannot. AR glasses receive data in visual and auditory forms that are more useful than any laptop or smartphone can deliver. Immersive MR environments blend physical and virtual reality to create a new reality. In this volume in the MIT Press Essential Knowledge series, technology writer Samuel Greengard offers an accessible overview of developments in extended reality, explaining the technology, considering the social and psychological ramifications, and discussing possible future directions. Greengard describes the history and technological development of augmented and virtual realities, including the latest research in the field, and surveys the various shapes and forms of VR, AR, and MR, including head-mounted displays, mobile systems, and goggles. He examines the way these technologies are shaping and reshaping some professions and industries, and explores how extended reality affects psychology, morality, law, and social constructs. It's not a question of whether extended reality will become a standard part of our world, he argues, but how, when, and where these technologies will take hold. Will extended reality help create a better world? Will it benefit society as a whole? Or will it merely provide financial windfalls for a select few? Greengard's account equips us to ask the right questions about a transformative technology.

Augmented Reality for Android Application Development Jan 08 2021 A step-by-step tutorial-based guide aimed at giving you hands-on practical experience to develop AR applications for Android. **Augmented Reality for Android Application Development** is for Android mobile application developers who are familiar with Android Development Tools and deployment, JMonkeyEngine, and the Vuforia SDK.

Creating Augmented and Virtual Realities May 12 2021 Despite popular forays into augmented and virtual reality in recent years, spatial computing still sits on the cusp of mainstream use. Developers, artists, and designers looking to enter this field today have few places to turn for expert guidance. In this book, Erin Pangilinan, Steve Lukas, and Vasanth Mohan examine the AR and VR

development pipeline and provide hands-on practice to help you hone your skills. Through step-by-step tutorials, you'll learn how to build practical applications and experiences grounded in theory and backed by industry use cases. In each section of the book, industry specialists, including Timoni West, Victor Prisacariu, and Nicolas Meuleau, join the authors to explain the technology behind spatial computing. In three parts, this book covers: Art and design: Explore spatial computing and design interactions, human-centered interaction and sensory design, and content creation tools for digital art Technical development: Examine differences between ARKit, ARCore, and spatial mapping-based systems; learn approaches to cross-platform development on head-mounted displays Use cases: Learn how data and machine learning visualization and AI work in spatial computing, training, sports, health, and other enterprise applications

Developing Virtual Reality Applications Feb 09 2021 Developing Virtual Reality Applications Foundations of Effective Design Alan B. Craig, William R. Sherman, Jeffrey D. Will Virtual Reality systems enable organizations to cut costs and time, maintain financial and organizational control over the development process, digitally evaluate products before having them created, and allow for greater creative exploration. In this book, VR developers Alan Craig, William Sherman, and Jeffrey Will examine a comprehensive collection of current, unique, and foundational VR applications in a multitude of fields, such as business, science, medicine, art, entertainment, and public safety among others. An insider's view of what works, what doesn't work, and why, *Developing Virtual Reality Applications* explores core technical information and background theory as well as the evolution of key applications from their genesis to their most current form. Developmental techniques are cross-referenced between different applications linking information to describe overall VR trends and fundamental best practices. This synergy, coupled with the most up to date research being conducted, provides a hands-on guide for building applications, and an enhanced, panoramic view of VR development. *Developing Virtual Reality Applications* is an indispensable one-stop reference for anyone working in this burgeoning field. Dozens of detailed application descriptions provide practical ideas for VR development in ALL areas of interest! Development techniques are cross referenced between different application areas, providing fundamental best practices! Includes a media-rich companion website with hours of footage from application demonstrations! William R. Sherman is the Technical Director of the Center for Advanced Visualization, Computation and Modeling (CAVCaM) at the Desert Research Institute (DRI) in Reno, NV. He is responsible for both the hardware and software implementations that provide the infrastructure for immersive and other visualization technologies at DRI. In addition to his DRI responsibilities, Bill teaches a course on virtual reality for the Computer Science and Engineering department at the University of Nevada, Reno. Dr. Jeff Will is an Associate Professor at Valparaiso University. He received his Ph.D. in electrical engineering at the University of Illinois at Urbana-Champaign. In 2002, he was named the Fredrick F. Jenny Professor of Emerging Technology in Engineering. He established the college's Scientific Visualization Laboratory, where he has directed students in major research projects and taught VR technology and programming courses to undergraduates as well as aided faculty from other disciplines to integrate VR into their curricula. Dr. Alan B. Craig is the Associate Director for Human-Computer Interaction at the Institute for Computing in Humanities, Arts, and Social Science (I-CHASS) at the National Center for Supercomputing Applications (NCSA) at the University of Illinois at Urbana-Champaign. Alan has been with NCSA since 1987. Alan holds a B.S. in Chemistry / Secondary Ed., an M.S. in Computer Science, and a Ph.D. in Information Science, all from the University of Illinois at Urbana-Champaign.

Virtual Reality, Empathy and Ethics Apr 11 2021 This book examines the ethics of virtual reality (VR) technologies. New forms of virtual reality are emerging in society, not just from low-cost gaming headsets, or augmented reality apps on phones, but from simulated "deep fake" images and videos on social media. This book subjects the new VR technological landscape to ethical scrutiny: assessing the benefits, risks and regulatory practices that shape it. Though often associated with gaming, education and therapy, VR can also be used for moral enhancement. Journalists, artists, philanthropic and non-governmental organisations are using VR films, games and installations to stimulate user empathy to marginalised peoples through a combination of immersion, embodiment and persuasion. This book critically assesses the use of VR for empathy arousal and pro-social behaviour change, culminating in the development of a VR "ethical tool" – a device to facilitate reflective ethical judgement. Drawing upon the pragmatist philosophy of John Dewey, virtual reality is reshaped as "dramatic rehearsal". This book explains how a combination of immersive environment-building, moral imagination, choice architecture and reflective engagement can stimulate a future-focused and empathic ethics for users of the technology.

Unreal Engine Vr Cookbook Mar 22 2022 For game developers and visualization specialists, VR is the next amazing frontier to conquer -- and Unreal Engine 4 is the perfect platform to conquer it with. Authorized and reviewed by Epic Games, *Unreal Engine VR Cookbook: Developing Virtual Reality with UE* is your comprehensive guide to building stunning experiences on any Unreal 4-compatible VR hardware. World-renowned VR developer and instructor Mitch McCaffrey offers tested "recipes" for performing each common VR task and overcoming many complex development challenges. McCaffrey's recipes contain step-by-step instructions, while also empowering you with concise explanations of the underlying theory and math. You'll get immediate results, as you gain as much knowledge of the "big picture" as you desire. McCaffrey covers everything from development terminology to best practices, and offers specific guidance for using Unreal Engine 4 VR with Oculus Rift, Vive, GearVR, AndroidVR, Steam, and other environments. He discusses both seated and standing VR, trace interactions, teleportation, UMG and 3D menus, inverse kinematics, motion control, comfort mode, VR optimization, and more. He also presents a full VR rollercoaster project, including expert techniques for avoiding motion sickness. If you want to master VR on Unreal Engine 4, this is the book you need.

Determinants of Diffusion of Virtual Reality Sep 23 2019 Diploma Thesis from the year 2015 in the subject Economics - Innovation economics, grade: 2.0, Technical University of Berlin (Chair of Technology and Management), language: English, abstract: The paper develops a definition of VR based on a theoretical construct and a diffusion scenario based on the theories of adoption and diffusion of innovations. Numerous important researchers, as well as the mass media are describing Virtual Reality as a milestone of technological development. The age of VR has just begun, and will change the way we communicate, consume and also we will work. It is reasonable to assume VR as the next dominant medium of the future. Predictions made on VR technology foresee an adoption within society and mass markets in future times, yet lack the ability to find specific determinants of a positive diffusion scenario. Every technological revolution, beginning with the invention of the hand axe, the wheel, train tracks, the telephone, television, all the way up to the computer; they all had a influence on society and its economy. The technological advances press a continuous demand for new answers to an outdated political and jurisdictional system. Thereby, society as a whole is forced to undergo reconstruction.

Unreal Engine Virtual Reality Quick Start Guide Aug 15 2021 Unreal Engine VR Quick Start Guide introduces designers to the guidelines and design processes necessary to build interactive VR experiences. Learn to use User Experience design techniques and Blueprint programming to create virtual reality gameplay for HTC Vive, Oculus Rift, PSVR, and Windows Mixed Reality headsets.

State of the Art Virtual Reality and Augmented Reality Knowhow Sep 16 2021 State-of-the-Art Virtual Reality and Augmented Reality Knowhow is a compilation of recent advancements in digital technologies embracing a wide arena of disciplines. Amazingly, this book presents less business cases of these emerging technologies, but rather showcases the scientific use of VR/AR in healthcare, building industry and education. VR and AR are known to be resource intensive, namely, in terms of hardware and wearables - this is covered in a chapter on head-mounted display (HMD). The research work presented in this book is of excellent standard presented in a very pragmatic way; readers will appreciate the depth and breadth of the methodologies and discussions about the findings. We hope it serves as a springboard for future research and development in VR/AR and stands as a lighthouse for the scientific community.

Creating Augmented and Virtual Realities Apr 23 2022 Despite popular forays into augmented and virtual reality in recent years, spatial computing still sits on the cusp of mainstream use. Developers, artists, and designers looking to enter this field today have few places to turn for expert guidance. In this book, Erin Pangilinan, Steve Lukas, and Vasanth Mohan examine the AR and VR development pipeline and provide hands-on practice to help you hone your skills. Through step-by-step tutorials, you'll learn how to build practical applications and experiences grounded in theory and backed by industry use cases. In each section of the book, industry specialists, including Timoni West, Victor Prisacariu, and Nicolas Meuleau, join the authors to explain the technology behind spatial computing. In three parts, this book covers: Art and design: Explore spatial computing and design interactions, human-centered interaction and sensory design, and content creation tools for digital art Technical development: Examine differences between ARKit, ARCore, and spatial mapping-based systems; learn approaches to cross-platform development on head-mounted displays Use cases: Learn how data and machine learning visualization and AI work in spatial computing, training, sports, health, and other enterprise applications

Designing, Deploying, and Evaluating Virtual and Augmented Reality in Education Oct 17 2021 Augmented reality (AR) and virtual reality (VR) provide flexibility in education and have become widely used for the promotion of multimedia learning. This use coincides with mobile devices becoming prevalent, VR devices becoming more affordable, and the creation of user-friendly software that allows the development of AR/VR applications by non-experts. However, because the integration of AR and VR into education is a fairly new practice that is only in its initial stage, these processes and outcomes need to be improved. *Designing, Deploying, and Evaluating Virtual and Augmented Reality in Education* is an essential research book that presents current practices and procedures from different technology-implementation stages (design, deployment, and evaluation) to help educators use AR/VR applications in their own teaching practices. The book provides comprehensive information on AR and VR applications in different educational settings from various perspectives including but not limited to mobile learning, formal/informal learning, and integration strategies with practical and/or theoretical implications. Barriers and challenges to their implementation that are currently faced by educators are also addressed. This book is ideal for academicians, instructors, curriculum designers, policymakers, instructional designers, researchers, education professionals, practitioners, and students.

Mastering Oculus Rift Development Aug 03 2020 Explore the new frontier of virtual reality with the Oculus Rift About This Book* Create immersive 3D games especially designed for the Oculus Rift platform* Unleash the power of the Oculus VR SDK* 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're 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.

The Re-Emergence of Virtual Reality Mar 30 2020 In this short book, Evans interrogates the implications of VR's re-emergence into the media mainstream, critiquing the notion of a VR revolution by analysing the development and ownership of VR companies while also exploring the possibilities of immersion in VR and the importance of immersion in the interest and ownership of VR enterprises. He assesses how the ideologies and desires of both computer programmers and major Silicon Valley industries may influence how VR worlds are conceived and experienced by users while also exploring the mechanisms that create the immersive experience that underpins interest in the medium.

Virtual Reality Sep 04 2020 Despite widespread interest in virtual reality, research and development efforts in synthetic environments (SE) – the field encompassing virtual environments, teleoperation, and hybrids – have remained fragmented. Virtual Reality is the first integrated treatment of the topic, presenting current knowledge along with thought-provoking vignettes about a future where SE is commonplace. This volume discusses all aspects of creating a system that will allow human operators to see, hear, smell, taste, move about, give commands, respond to conditions, and manipulate objects effectively in a real or virtual environment. The committee of computer scientists, engineers, and psychologists on the leading edge of SE development explores the potential applications of SE in the areas of manufacturing, medicine, education, training, scientific visualization, and teleoperation in hazardous environments. The committee also offers recommendations for development of improved SE technology, needed studies of human behavior and

evaluation of SE systems, and government policy and infrastructure.

New Perspectives on Virtual and Augmented Reality Feb 21 2022 *New Perspectives on Virtual and Augmented Reality* discusses the possibilities of using virtual and augmented reality in the role of innovative pedagogy, where there is an urgent need to find ways to teach and support learning in a transformed learning environment. Technology creates opportunities to learn differently and presents challenges for education. Virtual reality solutions can be exciting, create interest in learning, make learning more accessible and make learning faster. This book analyses the capabilities of virtual, augmented and mixed reality by providing ideas on how to make learning more effective, how existing VR/AR solutions can be used as learning tools and how a learning process can be structured. The virtual reality (VR) solutions can be used successfully for educational purposes as their use can contribute to the construction of knowledge and the development of metacognitive processes. They also contribute to inclusive education by providing access to knowledge that would not otherwise be available. This book will be of great interest to academics, researchers and post-graduate students in the field of educational technology.

Augmented Reality for Enhanced Learning Environments Jul 02 2020 In an environment where some countries are coming out of the recession at different speeds and others remain in a gloomy economic environment, education plays a vital role in reducing the negative impact of the global economic problems. In this sense, new technologies help to generate human resources with a better quality of education. *Augmented Reality for Enhanced Learning Environments* provides emerging research on using new technologies to encourage education and improve learning quality through augmented reality. While highlighting issues such as global economic problems impacting schools and insufficient aid, this publication explores new technologies in emerging economies and effective means of knowledge and learning transfer. This book is a vital resource for teachers, students, and aid workers seeking current research on creating a new horizon in science and technology to strengthen the current system of learning.

Learning Virtual Reality Jul 26 2022 As virtual reality approaches mainstream consumer use, a vibrant development ecosystem has emerged in the past few years. This hands-on guide takes you through VR development essentials for desktop, mobile, and browser-based applications. You'll explore the three go-to platforms—OculusVR, Gear VR, and Cardboard VR—as well as several VR development environments, programming tools, and techniques. If you're an experienced programmer familiar with mobile development, this book will help you gain a working knowledge of VR development through clear and simple examples. Once you create a complete application in the final chapter, you'll have a jumpstart on the next major entertainment medium. Learn VR basics for UI design, 3D graphics, and stereo rendering Explore Unity3D, the current development choice among game engines Create native applications for desktop computers with the Oculus Rift Develop mobile applications for Samsung's Gear VR with the Android and Oculus Mobile SDKs Build browser-based applications with the WebVR Javascript API and WebGL Create simple and affordable mobile apps for any smartphone with Google's Cardboard VR Bring everything together to build a 360-degree panoramic photo viewer

Augmented Reality and Virtual Reality Dec 07 2020 This book presents a collection of the latest research in the area of immersive technologies, presented at the International Augmented and Virtual Reality Conference 2018 in Manchester, UK, and showcases how augmented reality (AR) and virtual reality (VR) are transforming the business landscape. Innovations in this field are seen as providing opportunities for businesses to offer their customers unique services and experiences. The papers gathered here advance the state of the art in AR/VR technologies and their applications in various industries such as healthcare, tourism, hospitality, events, fashion, entertainment, retail, education and gaming. The volume collects contributions by prominent computer and social sciences experts from around the globe. Addressing the most significant topics in the field of augmented and virtual reality and sharing the latest findings, it will be of interest to academics and practitioners alike.

Extended Reality in Practice Oct 05 2020 **WINNER AT THE BUSINESS BOOK AWARDS 2022 - SPECIALIST BUSINESS BOOK CATEGORY.** As one of the leading business trends today, extended reality (XR) promises to revolutionize the way consumers experience their encounters with brands and products of all kinds. Top brands from Pepsi and Uber to Boeing and the U.S. Army are creating immersive digital experiences that capture the interest and imaginations of their target markets. In *Extended Reality in Practice: 100+ Amazing Ways Virtual, Augmented and Mixed Reality are Changing Business and Society*, celebrated futurist, technologist, speaker, and author Bernard Marr delivers a robust and accessible explanation of how all kinds of firms are developing innovative XR solutions to business problems. You'll discover the new ways that companies are harnessing virtual, augmented, and mixed reality to improve consumers' perception of their brands. You'll also find out why there are likely to be no industries that will remain untouched by the use of XR, and why these technologies are popular across the commercial, governmental, and non-profit spectrums. Perfect for Chief Executive Officers, business owners, leaders, managers, and professionals working in business development, *Extended Reality in Practice* will also earn a place in the libraries of professionals working within innovation teams seeking an accessible resource on the possibilities and potential created by augmented, virtual, and mixed reality technologies. An insightful exploration of extended reality from a renowned thought leader, technologist, and futurist *Extended Reality in Practice: 100+ Amazing Ways Virtual, Augmented and Mixed Reality are Changing Business and Society* offers readers a front-row seat to one of the most exciting and impactful business trends to find traction in years. Celebrated futurist and author Bernard Marr walks you through the ins and outs of XR, or extended reality, and how it promises to revolutionize everything from the experience of walking through an airport or shopping mall to grabbing a burger at a fast-food restaurant. Discover insightful and illuminating case studies from businesses and organizations in a variety of industries, including Burger King, BMW, Boeing, and the U.S. Army, and see how they're turning virtual, mixed, and augmented reality experiences into big wins for their stakeholders. You'll also find out about how XR can help businesses tackle the problems of lackluster engagement and lukewarm customer loyalty with reinvigorated consumer experiences. Ideal for executives, founders, business leaders and owners, and professionals of all sorts, *Extended Reality in Practice* is an indispensable guide to an indispensable new technology. The book is the leading resource for anyone seeking a one-stop reference for augmented, virtual, and mixed reality tech and their limitless potential for enterprise.

Augmented Reality, Virtual Reality, and Computer Graphics Oct 25 2019 This book constitutes the refereed proceedings of the 8th International Conference on Augmented Reality, Virtual Reality, and Computer Graphics, AVR 2021, held in Italy, in September 2021. Due to COVID-19 pandemic the conference was held virtually. The 38 full and 14 short papers were carefully reviewed and selected from 69 submissions. The papers discuss key issues, approaches, ideas, open problems, innovative applications and trends in virtual reality, augmented reality, mixed reality, applications in cultural heritage, in medicine, in education, and in industry.

Learning Virtual Reality Aug 27 2022 Annotation Get an introduction to the technologies, tools, and techniques for programming virtual reality on the latest generation of desktop and mobile VR hardware. With this hands-on guide, you'll learn essential development and production concepts, including UI design, stereo rendering, 3D input, and programming VR applications for native desktop, mobile and the web. You don't have to be a game development wizard or have 3D graphics experience to get started. If you have basic programming skills and some familiarity with mobile development, this book will help you gain a working knowledge of virtual reality through clear and simple examples.

Augmented Reality Game Development May 24 2022 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.

Virtual Reality Jul 22 2019 Although the emergence of virtual reality (VR) goes back to the 1960s, with the recent availability of low-cost and high-accuracy systems it has become increasingly prevalent in a wide variety of areas; with uses ranging from training and education to rehabilitation and entertainment. Nowadays, there are many companies that have their own VR systems with various types of headsets and controllers. This has shaped how VR is being used today and how we interact with the latest generation VR systems. With the rapidly evolving dynamics gained through technological advancements, VR is projected to grow and transform the way humans do everyday tasks both in the workplace and in personal lives. In addition to the VR headsets, there are now augmented reality (AR) headsets that allow the user to see their real-world surroundings while also viewing computer generated imagery. This leads to an enhanced user experience. This book aims to provide a comprehensive update of the latest scientific research, mainly in VR and partly in AR, from the last five years. The content is themed around the application areas of training, education, robotics, health and well-being, and user experience.

Virtual Reality & Augmented Reality in Industry Apr 30 2020 "Virtual Reality & Augmented Reality in Industry" collects the proceedings of the 2nd Sino-German Workshop on the same topic held in Shanghai on April 16-17, 2009. The papers focus on the latest Virtual Reality (VR) / Augmented Reality (AR) technology and its application in industrial processes and presents readers with innovative methods, typical case studies and the latest information on VR/AR basic research results and industrial applications, such as 3D rendering, innovative human-machine design, VR/AR methodology and new tools for assisting in industry, virtual assembly, virtual factory, training and education, etc. The book is intended for computer scientists, IT engineers as well as researchers in Mechanical Engineering. Dr. Dengzhe Ma and Dr. Xiumin Fan are both professors at Shanghai Jiao Tong University, China; Dr.-Ing. Jürgen Gausemeier is a professor of Computer-Integrated Manufacturing at the Heinz Nixdorf Institute, University of Paderborn, Germany; Dipl.-Ing. Michael Grafe is a senior engineer in the Product Engineering Research Group at the Heinz Nixdorf Institute, University of Paderborn.

Curriculum Development and Online Instruction for the 21st Century Nov 06 2020 The world of education has undergone major changes within the last year that have pushed online instruction to the forefront of learning. Thanks to the COVID-19 pandemic, online learning has become paramount to the continued and uninterrupted teaching of students and has forced students and teachers alike to adjust to an online learning environment. Though some have already returned to the traditional classroom, or plan to very soon, others have begun to appreciate the value of online education – initiatives that had previously been discussed but never acted upon as they have been in the past year. With plenty of positive and negative aspects, online learning is a complex issue with numerous factors to consider. It is an issue that must be studied and examined in order to improve in the future. Curriculum Development and Online Instruction for the 21st Century examines the issues and difficulties of online teaching and learning, as well as potential solutions and best practices. This book includes an examination on the value of teaching fully via the internet as well as the challenges inherent in the training of teachers to teach in online environments. While addressing key elements of remote learning, such as keeping student data safe, as well as methods in which to engage students, this book covers topics that include assessment tools, teaching deaf students, web technology, and standardized curricula. Ideal for K-12 teachers, college faculty, curriculum developers, instructional designers, educational software developers, administrators, academicians, researchers, and students, this book provides a thorough overview of online education and the benefits and issues that accompany it.

Unity 2018 By Example Jun 13 2021 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#.

Understanding Virtual Reality Aug 23 2019 Understanding Virtual Reality arrives at a time when the technologies behind virtual reality have advanced to the point that it is possible to develop and deploy meaningful, productive virtual reality applications. The aim of this thorough, accessible exploration is to help you take advantage of this moment, equipping you with the understanding needed to identify and prepare for ways VR can be used in your field, whatever your field may be. By approaching VR as a communications medium, the authors have created a resource that will remain relevant even as the underlying technologies evolve. You get a history of VR, along with a good look at systems currently in use. However, the focus remains squarely on the application of VR and the many issues that arise in the application design and implementation, including hardware requirements, system integration, interaction techniques, and usability. This book also counters both exaggerated claims for VR and the view that would reduce it to entertainment, citing dozens of real-world examples from many different fields and presenting (in a series of appendices) four in-depth application case studies. * Substantive, illuminating coverage designed for technical and business readers and well-suited to the classroom. * Examines VR's constituent technologies, drawn from visualization, representation, graphics, human-computer interaction, and other fields, and explains how they are being united in cohesive VR systems. * Via a companion Web site, provides additional case studies, tutorials, instructional materials, and a link to an open-source VR programming system.

Augmented Reality, Virtual Reality, and Computer Graphics Jun 01 2020 The 2-volume set LNCS 12242 and 12243 constitutes the refereed proceedings of the 7th International Conference on Augmented Reality, Virtual Reality, and Computer Graphics, AVR 2020, held in Lecce, Italy, in September 2020.* The 45 full papers and 14 short papers presented were carefully reviewed and selected from 99 submissions. The papers discuss key issues, approaches, ideas, open problems, innovative applications and trends in virtual reality, augmented reality, mixed reality, 3D reconstruction visualization, and applications in the areas of cultural heritage, medicine, education, and industry. * The conference was held virtually due to the COVID-19 pandemic.

New Trends in Interaction, Virtual Reality and Modeling Dec 27 2019 The interaction between a user and a device forms the foundation of today's application design. Covering the following topics: A suite of five structural principles helping designers to structure their mockups; An agile method for exploiting desktop eye tracker equipment in combination with mobile devices; An approach to explore large-scale collections based on classification systems; A framework based on the use of modeling and components composition techniques to simplify the development of organizational collaborative systems; A low-cost virtual reality system that provides highly satisfying virtual experiences; Popular hardware and software tools and technologies for developing augmented and virtual reality applications; An implementation to handle connectivity between virtual reality applications and SensAble® Technology Phantom Haptic Devices; The results of a research study implementing a teaching technological strategy to help Down syndrome children develop their reading skills; Platform independent models decreasing the level of cohesion between communication technologies and software for ubiquitous computing; A method for applying gamification as a tool to improve the participation and motivation of people in performing different tasks. New Trends in Interaction, Virtual Reality and Modeling collects the best research from Interacción 2012 and MexIHC 2012, and presents the state-of-the-art in human-computer interaction, user interfaces, user experience and virtual reality. Written by researchers from leading universities, research institutes and industry, this volume forms a valuable source of reference for researchers in HCI and VR.

Developing Virtual Reality Applications Oct 29 2022 Virtual Reality systems enable organizations to cut costs and time, maintain financial and organizational control over the development process, digitally evaluate products before having them created, and allow for greater creative exploration. In this book, VR developers Alan Craig, William Sherman, and Jeffrey Will examine a comprehensive collection of current, unique, and foundational VR applications in a multitude of fields, such as business, science, medicine, art, entertainment, and public safety among others. An insider's view of what works, what doesn't work, and why, Developing Virtual Reality Applications explores core technical information and background theory as well as the evolution of key applications from their genesis to their most current form. Developmental techniques are cross-referenced between different applications linking information to describe overall VR trends and fundamental best practices. This synergy, coupled with the most up to date research being conducted, provides a hands-on guide for building applications, and an enhanced, panoramic view of VR development. Developing Virtual Reality Applications is an indispensable one-stop reference for anyone working in this burgeoning field. Dozens of detailed application descriptions provide practical ideas for VR development in ALL areas of interest! Development techniques are cross referenced between different application areas, providing fundamental best practices!

Unity® Virtual Reality Development with VRTK4 Dec 19 2021 Get hands-on practical knowledge of concepts and techniques for VR development using Unity® and VRTK version 4. This book is a step-by-step guide to learning VRTK 4 for developing immersive VR experiences. Unity is a powerful game engine for developing VR experiences. With its built-in support for all major VR headsets, it's the perfect tool for developers to realize their vision in VR. VRTK is a battle-tested VR solution for Unity; VRTK 4, in conjunction with Unity, has changed the dynamics of VR development. This book focuses on creating deep understanding of how advanced VR mechanics and techniques are built and utilized as a part of a VR framework. You will start off by setting up your devices for VR development and learn about the advantages of using VRTK 4 over alternate SDKs. You will learn to setup your very own custom VRTK Rig, find out how to setup various advanced VR mechanics and locomotion techniques, how to create several spatial UI objects, and how to setup Unity 2D UI controls. You will also cover advanced topics such as using angular and linear drives, setting up a VR

Simulator to work with a Xbox Controller, and realistic physics VR hands. By the end of this book, you will know how to create advanced VR mechanics that can be used within any VR experience, game, or App and deployed across several platforms and hardware. What You Will Learn Understand how to develop Immersive VR experiences Create a VR simulator to test your project Generate advanced Spatial UI that you can interact with physically using your hands Who This Book Is For?Unity game developers conversant with Unity's Editor. Basic knowledge of how Unity Prefabs function, how events work in general, and programming logic would be beneficial.

Virtual Reality Blueprints Nov 25 2019 Join the virtual reality revolution by creating immersive 3D games and applications with Cardboard VR, Gear VR, OculusVR, and HTC Vive Key Features Develop robust, immersive VR experiences that are easy on the eye. Code 3D games and applications using Unity 3D game engine. Learn the basic principles of virtual reality applications Book Description Are you new to virtual reality? Do you want to create exciting interactive VR applications? There's no need to be daunted by the thought of creating interactive VR applications, it's much easier than you think with this hands-on, project-based guide that will take you through VR development essentials for desktop and mobile-based games and applications. Explore the three top platforms-- Cardboard VR, Gear VR, and OculusVR --to design immersive experiences from scratch. You'll start by understanding the science-fiction roots of virtual reality and then build your first VR experience using Cardboard VR. You'll then delve into user interactions in virtual space for the Google Cardboard then move on to creating a virtual gallery with Gear VR. Then you will learn all about virtual movements, state machines, and spawning while you shoot zombies in the Oculus Rift headset. Next, you'll construct a Carnival Midway, complete with two common games to entertain players. Along the way, you will explore the best practices for VR development, review game design tips, discuss methods for combating motion sickness and identify alternate uses for VR applications What you will learn Use Unity assets to create object simulation. Implement simple touch controls in your application. Apply artificial intelligence to achieve player and character interaction. Add scripts for movement, tracking, grasping, and spawning. Create animated walkthroughs, use 360-degree media, and build engaging VR experiences. Deploy your games on multiple VR platforms. Who this book is for If you are a game developer and a VR enthusiast now looking to get stuck into the VR app development process by creating VR apps for different platforms, then this is the book for you. Familiarity with the Unity game engine and the C# language is key to getting the most from this book.

Complete Virtual Reality and Augmented Reality Development with Unity Sep 28 2022 Get close and comfortable with Unity and build applications that run on HoloLens, Daydream, and Oculus Rift Key Features Build fun augmented reality applications using ARKit, ARCore, and Vuforia Explore virtual reality by developing more than 10 engaging projects Learn how to integrate AR and VR concepts together in a single application Book Description Unity is the leading platform to develop mixed reality experiences because it provides a great pipeline for working with 3D assets. Using a practical and project-based approach, this Learning Path educates you about the specifics of AR and VR development using Unity 2018 and Unity 3D. You'll learn to integrate, animate, and overlay 3D objects on your camera feed, before moving on to implement sensor-based AR applications. You'll explore various concepts by creating an AR application using Vuforia for both macOS and Windows for Android and iOS devices. Next, you'll learn how to develop VR applications that can be experienced with devices, such as Oculus and Vive. You'll also explore various tools for VR development: gaze-based versus hand controller input, world space UI canvases, locomotion and teleportation, timeline animation, and multiplayer networking. You'll learn the Unity 3D game engine via the interactive Unity Editor and C# programming. By the end of this Learning Path, you'll be fully equipped to develop rich, interactive mixed reality experiences using Unity. This Learning Path includes content from the following Packt products: Unity Virtual Reality Projects - Second Edition by Jonathan Linowes Unity 2018 Augmented Reality Projects by Jesse Glover What you will learn Create 3D scenes to learn about world space and scale Move around your scenes using locomotion and teleportation Create filters or overlays that work with facial recognition software Interact with virtual objects using eye gaze, hand controllers, and user input events Design and build a VR storytelling animation with a soundtrack and timelines Create social VR experiences with Unity networking Who this book is for If you are a game developer familiar with 3D computer graphics and interested in building your own AR and VR games or applications, then this Learning Path is for you. Any prior experience in Unity and C# will be an advantage. In all, this course teaches you the tools and techniques to develop engaging mixed reality applications.

Getting Started with React VR Jun 25 2022 Create amazing 360 and virtual reality content that runs directly in your browsers with JavaScript and React VR 2.0 About This Book A practical guide to developing virtual reality experiences targeting web and mobile browsers Create customized 3D graphics for your virtual reality experiences with Three.js Explore the ReactVR library to create objects that seem real and see how they move in the Virtual world Import free models into VR and include those in your code Who This Book Is For This book is for web developers who want to use their existing skill set of HTML, CSS, and JavaScript to create virtual reality experiences. What You Will Learn Use Blender 2.79 to make virtual reality objects for Web VR. Import free models into VR and how to include those in your code Build a Virtual Museum with interactive art pieces Create your first VR App and customizing it Build animations by procedurally changing an object's position, using timers and Animated APIs Incorporate React Native code and JavaScript code in your VR world In Detail This book takes you on a journey to create intuitive and interactive Virtual Reality experiences by creating your first VR application using React VR 2.0.0. It starts by getting you up to speed with Virtual Reality (VR) and React VR components. It teaches you what Virtual Reality (VR) really is, why it works, how to describe 3D objects, the installation of Node.js (version 9.2.0) and WebVR browser. You will learn 3D polygon modeling, texturing, animating virtual objects and adding sound to your VR world. You will also discover ways to extend React VR with new features and native Three.js. You will learn how to include existing high-performance web code into your VR app. This book will also take you through upgrading and publishing your app. By the end of this book, you'll have a deep knowledge of Virtual Reality and a full-fledged working VR app to add to your profile! Style and approach A step-by-step practical guide to help readers build their first VR application.

Current and Prospective Applications of Virtual Reality in Higher Education Feb 27 2020 For the last decade, virtual reality has been utilized in diverse fields such as entertainment, medicine, and industry. Recently, virtual reality has been applied in educational settings in order to transform student learning and experiences through such methods as building prototypes using digital devices or exploring new cultures through immersive interactions. Teachers who can incorporate virtual reality into their classrooms can provide their students with more meaningful learning experiences and can witness higher engagement. Current and Prospective Applications of

Virtual Reality in Higher Education is a cutting-edge academic research book that provides comprehensive research on the integration of virtual reality in education programs and establishes foundations for course design, program development, and institutional strategic planning. The book covers an overall understanding and approach to virtual reality in education, specific applications of using virtual reality in higher education, and prospects and issues of virtual reality in the future. Highlighting a wide range of topics such as gamification, teacher training, and virtual reality, this book is ideal for teachers, instructional designers, curriculum developers, academicians, program developers, administrators, educational software developers, policymakers, researchers, education professionals, and students.

Unity Virtual Reality Projects Mar 10 2021 Explore the world of Virtual Reality by building immersive and fun VR projects using Unity 3D About This Book • Learn the basic principles of virtual reality applications and get to know how they differ from games and desktop apps • Build various types of VR experiences, including diorama, first-person characters, riding on rails, 360 degree projections, and social VR • A project-based guide that teaches you to use Unity to develop VR applications, which can be experienced with devices such as the Oculus Rift or Google Cardboard Who This Book Is For If you're a non-programmer unfamiliar with 3D computer graphics, or experienced in both but new to virtual reality, and are interested in building your own VR games or applications then this book is for you. Any experience in Unity is an advantage. What You Will Learn • Create 3D scenes with Unity and Blender while learning about world space and scale • Build and run VR applications for consumer headsets including Oculus Rift and Google Cardboard • Build interactive environments with physics, gravity, animations, and lighting using the Unity engine • Experiment with various user interface (UI) techniques that you can use in your VR applications • Implement the first-person and third-person experiences that use only head motion gestures for input • Create animated walkthroughs, use 360-degree media, and build multi-user social VR experiences • Learn about the technology and psychology of VR including rendering, performance and VR motion sickness • Gain introductory and advanced experience in Unity programming with the C# language In Detail What is consumer "virtual reality"? Wearing a head-mounted display you view stereoscopic 3D scenes. You can look around by moving your head, and walk around using hand controls or motion sensors. You are engaged in a fully immersive experience. On the other hand, Unity is a powerful game development engine that provides a rich set of features such as visual lighting, materials, physics, audio, special effects, and animation for creating 2D and 3D games. Unity 5 has become the leading platform for building virtual reality games, applications and experiences for this new generation of consumer VR devices. Using a practical and project-based approach, this book will educate you about the specifics of virtual reality development in Unity. You will learn how to use Unity to develop VR applications which can be experienced with devices such as the Oculus Rift or Google Cardboard. We will then learn how to engage with virtual worlds from a third person and first person character point of view. Furthermore, you will explore the technical considerations especially important and possibly unique to VR. The projects in the book will demonstrate how to build a variety of VR experiences. You will be diving into the Unity 3D game engine via the interactive Unity Editor as well as C-Sharp programming. By the end of the book, you will be equipped to develop rich, interactive virtual reality experiences using Unity. So, let's get to it! Style and approach This book takes a practical, project-based approach to teach specifics of virtual reality development in Unity. Using a reader-friendly approach, this book will not only provide detailed step-by-step instructions but also discuss the broader context and applications covered within.

Augmented Reality for Developers Nov 18 2021 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.

Virtual Reality: Concepts and Technologies Jun 20 2019 A manual for both designers and users, comprehensively presenting the current state of experts' knowledge on virtual reality (VR) in computer science, mechanics, optics, acoustics, physiology, psychology, ergonomics, ethics, and related area. Designed as a reference book and design guide to help the reader develop a VR project, it presents the read

Unity 2020 Virtual Reality Projects Jan 20 2022 Explore the latest features of Unity and build VR experiences including first-person interactions, audio fireball games, 360-degree media, art gallery tours, and VR storytelling Key Features Discover step-by-step instructions and best practices to begin your VR development journey Explore Unity features such as URP rendering, XR Interaction Toolkit, and ProBuilder Build impressive VR-based apps and games that can be experienced using modern devices like Oculus Rift and

Oculus QuestBook Description This third edition of the Unity Virtual Reality (VR) development guide is updated to cover the latest features of Unity 2019.4 or later versions - the leading platform for building VR games, applications, and immersive experiences for contemporary VR devices. Enhanced with more focus on growing components, such as Universal Render Pipeline (URP), extended reality (XR) plugins, the XR Interaction Toolkit package, and the latest VR devices, this edition will help you to get up to date with the current state of VR. With its practical and project-based approach, this book covers the specifics of virtual reality development in Unity. You'll learn how to build VR apps that can be experienced with modern devices from Oculus, VIVE, and others. This virtual reality book presents lighting and rendering strategies to help you build cutting-edge graphics, and explains URP and rendering concepts that will enable you to achieve realism for your apps. You'll build real-world VR experiences using world space user interface canvases, locomotion and teleportation, 360-degree media, and timeline animation, as well as learn about important VR development concepts, best practices, and performance optimization and user experience strategies. By the end of this Unity book, you'll be fully equipped to use Unity to develop rich, interactive virtual reality experiences. What you will learn

Understand the current state of virtual reality and VR consumer products
Get started with Unity by building a simple diorama scene using Unity Editor and imported assets
Configure your Unity VR projects to run on VR platforms such as Oculus, SteamVR, and Windows immersive MR
Design and build a VR storytelling animation with a soundtrack and timelines
Implement an audio fireball game using game physics and particle systems
Use various software patterns to design Unity events and interactable components
Discover best practices for lighting, rendering, and post-processing

Who this book is for Whether you're a non-programmer unfamiliar with 3D computer graphics or experienced in both but new to virtual reality, if you're interested in building your own VR games or applications, this Unity book is for you. Any experience in Unity will be useful but is not necessary.