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Learning Virtual Reality Developing Virtual Reality Applications Complete Virtual Reality and Augmented Reality Development with Unity Augmented Reality for Developers Mastering Oculus Rift Development Virtual Reality VR Developer Gems Unity 2018 By Example Unreal Engine 4 Virtual Reality Projects Getting Started with React VR Unity® Virtual Reality Development with VRTK4 Designing Virtual Reality Systems Unreal Engine Virtual Reality Quick Start Guide Unity 2020 Virtual Reality Projects Unreal Engine VR Cookbook Unity Virtual Reality Projects Virtual, Augmented and Mixed Reality: Designing and Developing Augmented and Virtual Environments No-code Virtual Reality Development Using Unity and Playmaker Virtual Reality Blueprints Mastering Augmented Reality Development with Unity Unity Virtual Reality Projects When VR Serious Games Meet Special Needs Education Modern Development and Challenges in Virtual Reality Media Innovations AR and VR Augmented Reality Game Development Building Virtual Reality with Unity and Steam VR Virtual, Augmented and Mixed Reality: Designing and Developing Augmented and Virtual Environments Unity Virtual Reality Projects Augmented Reality for Android Application Development New Trends in Interaction, Virtual Reality and Modeling Getting Started with React VR Unity Virtual Reality Projects Designing Virtual Reality Systems The Re-Emergence of Virtual Reality Understanding Augmented Reality The Extended Reality Blueprint The Monster Fun Book of Patterns for Developing Virtual Reality Applications Driving in Virtual Reality Beginning Windows Mixed Reality Programming Transforming Education with Virtual Reality

Learning Virtual Reality

2015-10-26

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

Developing Virtual Reality Applications

2009-06-02

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

Complete Virtual Reality and Augmented Reality Development with Unity

2019-04-17

this learning path makes you an expert developer of ar and vr applications by teaching you everything from the basic principles of ar application development to developing immersive and fun vr applications using unity 3d and unity 2018

Augmented Reality for Developers

2017-10-09

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 artookkit 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

Mastering Oculus Rift Development

2017-02-06

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

Virtual Reality

1995-01-13

despite widespread interest in virtual reality research and development efforts in synthetic environments se â the field encompassing virtual environments teleoperation and hybridsâ 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

VR Developer Gems

2019-06-07

this book takes the practicality of other gems series such as graphics gems and game programming gems and provide a quick reference for novice and expert programmers alike to swiftly track down a solution to a task needed for their vr project reading the book from cover to cover is not the expected use case but being familiar with the territory from the introduction and then jumping to the needed explanations is how the book will mostly be used each chapter other than introduction will contain between 5 to 10 tips each of which is a self contained explanation with implementation detail generally demonstrated as pseudo code or in cases where it makes sense actual code key features sections written by veteran virtual reality researchers and developers usable code snipits that readers can put to immediate use in their own projects tips of value both to readers entering the field as well as those looking for solutions that expand their repertoire

Unity 2018 By Example

2018-07-31

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

Unreal Engine 4 Virtual Reality Projects

2019-04-30

the key problem with vr development is understanding how to set up a project and running it on your desktop or mobile vr device with this book you will not only learn the specifics of virtual reality development in unreal but also build immersive and fun vr projects that can be experienced on your vr devices

Getting Started with React VR

2017-11-30

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 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

Unity® Virtual Reality Development with VRTK4

2022-03-31

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

Designing Virtual Reality Systems

2007-01-04

developing and maintaining a vr system is a very difficult task requiring in depth knowledge in many disciplines the difficulty lies in the complexity of having to simultaneously consider many system goals some of which are conflicting this book is organized so that it follows a spiral development process for each stage describing the problem and possible solutions for each stage much more hands on than other introductory books concrete examples and practical solutions to the technical challenges in building a vr system are provided part 1 covers the very basics in building a vr system and explains various technical issues in object modeling and scene organization part 2 deals with 3d multimodal interaction designing for usable and natural interaction and creating realistic object simulation primarily written for first level graduates advanced undergraduates and it professionals will also find this a valuable guide

Unreal Engine Virtual Reality Quick Start Guide

2019-02-27

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

Unity 2020 Virtual Reality Projects

2020-07-30

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 featuresdiscover step by step instructions and best practices to begin your vr development journeyexplore unity features such as urp rendering xr interaction toolkit and probuilderbuild 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 learnunderstand the current state of virtual reality and vr consumer productsget started with unity by building a simple diorama scene using unity editor and imported assetsconfigure your unity vr projects to run on vr platforms such as oculus steamvr and windows immersive mrdesign and build a vr storytelling animation with a soundtrack and timelinesimplement an audio fireball game using game physics and particle systemsuse various software patterns to design unity events and interactable componentsdiscover best practices for lighting rendering and post processingwho 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

Unreal Engine VR Cookbook

2017

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

Unity Virtual Reality Projects

2015-09-01

the two volume set lncs 8525 8526 constitutes the refereed proceedings of the 6th international conference on virtual augmented and mixed reality vamr 2014 held as part of the 16th international conference on human computer interaction hci 2014 in heraklion crete greece in june 2014 jointly with 13 other thematically similar conferences the total of 1476 papers and 220 posters presented at the hcii 2014 conferences were carefully reviewed and selected from 4766 submissions these papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems the papers thoroughly cover the entire field of human computer interaction addressing major advances in knowledge and effective use of computers in a variety of application areas the total of 82 contributions included in the vamr proceedings were carefully reviewed and selected for inclusion in this two volume set the 39 papers included in this volume are organized in the following topical sections interaction devices displays and techniques in vamr designing virtual and augmented environments avatars and virtual characters developing virtual and augmented environments

Virtual, Augmented and Mixed Reality: Designing and Developing Augmented and Virtual Environments

2014-06-06

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

No-code Virtual Reality Development Using Unity and Playmaker

2017

a comprehensive guide to building augmented reality applications with unity 3d key features apply the fundamental principles of 3d design to create engaging and interactive augmented reality experiences learn how to use unity to work with a variety of ar frameworks and tools gain the competitive edge by learning how to use apis to build cutting edge ar applications description mastering augmented reality development with unity is a comprehensive guide that will take you from beginner to expert in ar development whether you are a beginner or an experienced developer this book is the perfect resource for learning to create amazing ar experiences the book begins with an introduction to ar covering its core principles and potential applications you will learn how to visualize ar environments and create visually stunning experiences next the book explores the various tools and development platforms available for ar with a focus on unity 3d as the industry standard platform you will be guided through creating custom ar components and refreshing your c programming skills within unity the book covers practical applications of ar development including building 3d mobile apps marker based ar apps using vuforia and marker less ar apps with ar kit and ar core you will also learn about world scale ar development with niantic lightship the latter part of the book focuses on best practices in ar application design ensuring intuitive and user friendly experiences additionally readers will learn techniques for optimizing ar app performance by the end of the book you will be able to build ar applications with unity 3d with ease what you will learn use unity 3d to develop build and run mobile 3d applications use different ar frameworks to integrate augmented reality into 3d scenes combine networking and cutting edge technologies to develop dynamic and interactive ar applications learn how to use the best practices of ar design to create captivating experiences optimize application performance for a truly seamless and immersive user experience who this book is for this book is for anyone who has a basic understanding of programming and is interested in learning to build ar applications using unity 3d table of

contents 1 getting started with augmented reality 2 visualizing ar environment and components 3 exploring tools and development platforms 4 up and running with unity 3d 5 creating your first custom component 6 refreshing c concepts with unity 7 trying out first 3d mobile app development 8 building marker based ar apps with vuforia 9 developing marker based dynamic ar apps 10 marker less ar apps with ar kit and ar core 11 world scale ar app with niantic lightship 12 best practices in augmented reality application design 13 ar app performance optimization

Virtual Reality Blueprints

2018-02-27

explore the latest features of unity 2018 to create immersive vr projects for oculus rift htc vive daydream and gear vr key features a project based guide to teach you how to develop immersive and fun vr applications using unity 3d build experiences with interactable objects physics ui animations c scripting and other unity features explore the world of vr by building experiences such as diorama first person characters 360 degree projections social vr audio fireball game and vr storytelling book description unity has become the leading platform for building virtual reality games applications and experiences for this new generation of consumer vr devices unity virtual reality projects walks you through a series of hands on tutorials and in depth discussions on using the unity game engine to develop vr applications with its practical and project based approach this book will get you up to speed with the specifics of vr development in unity you will learn how to use unity to develop vr applications that can be experienced with devices such as oculus daydream and vive among the many topics and projects you will explore gaze based versus hand controller input world space ui canvases locomotion and teleportation software design patterns 360 degree media timeline animation and multiplayer networking you will learn about the unity 3d game engine via the interactive unity editor and you will also learn about c programming by the end of the book you will be fully equipped to develop rich interactive vr experiences using unity what you will learn create 3d scenes with unity and other 3d tools while learning about world space and scale build and run vr applications for specific headsets including oculus vive and daydream interact with virtual objects using eye gaze hand controllers and user input events move around your vr scenes using locomotion and teleportation implement an audio fireball game using physics and particle systems implement an art gallery tour with teleportation and data info 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 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

Mastering Augmented Reality Development with Unity

2023-08-11

this book presents selected research and development on virtual reality vr and serious games sg applications to assist children with autism spectrum disorder asd in their learning of different skills children with asd have challenges to learn skills of learning living and working due to their cognitive and behavioral limitations the authors and their research teams of this book have many years research experience developing innovative and interactive vr and sg technology for the special needs education more specifically several vr serious games are designed to train children with asd on learning skill life skill and job skill such games are often developed based on the needs of special education and used by special needs schools in singapore this book is a useful resource for students scholars and designers of learning material who want to embrace vr and sg for children with asd

Unity Virtual Reality Projects

2018-05-23

virtual reality vr is one of the technologies with the highest expectations for future growth by creating realistic images and objects a vr environment gives the user the impression that they are completely engrossed in their surroundings vr applications that go beyond leisure tourism and marketing are now in high demand and thus the technology must be user friendly and economical the major technology firms are already striving to create headsets that do not require cables and that allow for high definition viewing artificial intelligence is being used to control vr headsets that have far more powerful cpus the new standard will also offer some intriguing capabilities like the ability to connect huge user communities and additional gadgets customers will be able to get photos in real time in corporate settings almost as if they were seeing them with their own eyes this book presents a comprehensive overview of vr applications in medicine electric vehicles aviation architecture and more

When VR Serious Games Meet Special Needs Education

2021-05-04

augmented and virtual reality are media innovations with specific characteristics they create immersion in the user as the user is immersed in the medium and its 360 environment to successfully develop content and applications for ar and vr psychological effects the specifics of the 360 environment the story and the way the media is used must be aligned with the needs and experiences of the user content producers face novel challenges in content development method selection teamwork and the overall production process of ar and vr experiences the book introduces readers to the

characteristics of immersive media and provides scientific evidence and practical tips to help them produce high quality user centric content for immersive media the scientifically derived success factors in the form of checklists are a guide and an ideal basis for standardizing the production process and further developing one s own projects this book is a translation of the original german 1st edition medieninnovationen ar und vr by elle langer published by springer verlag gmbh germany part of springer nature in 2020 the translation was done with the help of artificial intelligence machine translation by the service deepl com a subsequent human revision was done primarily in terms of content so that the book will read stylistically differently from a conventional translation springer nature works continuously to further the development of tools for the production of books and on the related technologies to support the authors

Modern Development and Challenges in Virtual Reality

2023-10-18

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 sqllite4unity3d 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

Media Innovations AR and VR

2023-01-23

the golden age of virtual reality is here take the first step into v r programming and development with jeff w murraybuilding virtual reality with unity and steamvr murray explores some of the topical issues surrounding virtual reality including v r sickness telepresence performance issues and practical ways to diminish these detrimental effects to make a more comprehensive experience building virtual reality also grants readers a hands on approach with the unity game engine and programming the example projects and sample c code found in the text are compatible with all steamvr supported virtual reality head mounted displays that are currently available this text is the essential survival guide to vr and vr development for any reader author bio jeff w murray has written two books game development for ios with unity3d c game programming cookbook for unity3d both published by crc press in his game development career spanning over 14 years he has worked with some of the world murray key features discusses some of the key issues facing virtual reality and provides helpful tips for making better v r experiences develop v r applications with practical examples geared to work with both the oculus rift and htc vive as well as open source virtual reality osvr headsets like the hdk find out how to build both standing and seated experiences tips on optimizing performance with the unity profilers explore examples specifically for htc vive controllers and picking up and throwing physics objects including haptic feedback discover how to build user interfaces for virtual reality as well as discussing some best practices for v r based user interface design written by a games industry veteran who has been a v r developer since the first oculus development kit

Augmented Reality Game Development

2017-01-20

here is the first of a two volume set lncs 8021 and 8022 that constitutes the refereed proceedings of the 5th international conference on virtual augmented and mixed reality vamr 2013 held as part of the 15th international conference on human computer interaction hcii 2013 held in las vegas usa in july 2013 jointly with 12 other thematically similar conferences the total of 1666 papers and 303 posters presented at the hcii 2013 conferences was carefully reviewed and selected from 5210 submissions these papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems the papers accepted for presentation thoroughly cover the entire field of human computer interaction addressing major advances in

knowledge and effective use of computers in a variety of application areas the total of 88 contributions included in the vamr proceedings were carefully reviewed and selected for inclusion in this two volume set the papers included in this volume are organized in the following topical sections developing augmented and virtual environments interaction in augmented and virtual environments human robot interaction in virtual environments and presence and tele presence healthcare and medical applications virtual and augmented environments for learning and education business industrial and military applications culture and entertainment applications

Building Virtual Reality with Unity and Steam VR

2017-06-14

explore the world of virtual reality by building immersive and fun vr projects using unity 3dabout 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 cardboardwho this book is forif 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 languagein detailwhat 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 approachthis 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

Virtual, Augmented and Mixed Reality: Designing and Developing Augmented and Virtual Environments

2013-06-12

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

Unity Virtual Reality Projects

2015-08-31

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

Augmented Reality for Android Application Development

2013-11-25

create amazing 360 and virtual reality content that runs directly in your browsers with javascript and react vr 2 0about 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 codewho this book is forthis 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 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 worldin detailthis 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 approacha step by step practical guide to help readers build their first vr application

New Trends in Interaction, Virtual Reality and Modeling

2013-10-10

explore the latest features of unity 2018 to create immersive vr projects for oculus rift htc vive daydream and gear vr about this book a project based guide to teach you how to develop immersive and fun vr applications using unity 3d build experiences with interactable objects physics ui animations c scripting and other unity features explore the world of vr by building experiences such as diorama first person characters 360 degree projections social vr audio fireball game and vr storytelling 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 other 3d tools while

learning about world space and scale build and run vr applications for specific headsets including oculus vive and daydream interact with virtual objects using eye gaze hand controllers and user input events move around your vr scenes using locomotion and teleportation implement an audio fireball game using physics and particle systems implement an art gallery tour with teleportation and data info design and build a vr storytelling animation with a soundtrack and timelines create social vr experiences with unity networking in detail unity has become the leading platform for building virtual reality games applications and experiences for this new generation of consumer vr devices unity virtual reality projects walks you through a series of hands on tutorials and in depth discussions on using the unity game engine with its practical and project based approach this book will get you up to speed with the specifics of virtual reality development in unity you will learn how to use unity to develop vr applications that can be experienced with devices such as oculus daydream and vive among the many topics and projects you will explore gaze based versus hand controller input world space ui canvases locomotion and teleportation software design patterns 360 degree media timeline animation and multiplayer networking you will learn the unity 3d game engine via the interactive unity editor as well as c programming by the end of the book you will be fully equipped to develop rich interactive virtual reality experiences using unity style and approach a practical step by step guide to building

Getting Started with React VR

2017-11-30

developing and maintaining a vr system is a very difficult task requiring in depth knowledge in many disciplines the difficulty lies in the complexity of having to simultaneously consider many system goals some of which are conflicting this book is organized so that it follows a spiral development process for each stage describing the problem and possible solutions for each stage much more hands on than other introductory books concrete examples and practical solutions to the technical challenges in building a vr system are provided part 1 covers the very basics in building a vr system and explains various technical issues in object modeling and scene organization part 2 deals with 3d multimodal interaction designing for usable and natural interaction and creating realistic object simulation primarily written for first level graduates advanced undergraduates and it professionals will also find this a valuable guide

Unity Virtual Reality Projects

2018

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

Designing Virtual Reality Systems

2009-10-12

understanding augmented reality addresses the elements that are required to create augmented reality experiences the technology that supports augmented reality will come and go evolve and change the underlying principles for creating exciting useful augmented reality experiences are timeless augmented reality designed from a purely technological perspective will lead to an ar experience that is novel and fun for one time consumption but is no more than a toy imagine a filmmaking book that discussed cameras and special effects software but ignored cinematography and storytelling in order to create compelling augmented reality experiences that stand the test of time and cause the participant in the ar experience to focus on the content of the experience rather than the technology one must consider how to maximally exploit the affordances of the medium understanding augmented reality addresses core conceptual issues regarding the medium of augmented reality as well as the technology required to support compelling augmented reality by addressing ar as a medium at the conceptual level in addition to the technological level the reader will learn to conceive of ar applications that are not limited by today s technology at the same time ample examples are provided that show what is possible with current technology explore the different techniques technologies and approaches used in developing ar applications learn from the author s deep experience in virtual reality and augmented reality applications to succeed right off the bat and avoid many of the traps that catch new developers and users of augmented reality experiences some ar examples can be experienced from within the book using downloadable software

The Re-Emergence of Virtual Reality

2018-10-22

follow a tried and tested approach to integrating augmented and virtual reality into your business the extended reality blueprint focuses on design for non gaming or gaming adjacent applications in extended reality xr including augmented and virtual reality author annie eaton is a leading producer of immersive content in the xr space many of annie s clients come to her with the same questions often not knowing where to begin as they seek to implement extended reality solutions into their business this book presents the discovery and product development process through an immersive technology lens you will

walk through the xr production process and learn how to apply this technology directly within your organizations in a meaningful and effective way join leading businesses like delta air lines mars wrigley georgia pacific and jlg industries and learn how top companies are leveraging xr for greater market share engagement and profit learn about the latest applications of extended reality xr including augmented and virtual reality discover the steps of the xr product development process including how to find profitable uses of xr and decide on technology suites assemble effective teams of xr developers designers artists and other key members to bring your projects to fruition and success learn from the real world examples and lessons learned of businesses that have taken the leap into extended reality the extended reality blueprint delivers a concrete actionable process for brining extended reality into your organization and embracing this crucial technology to remain current

Understanding Augmented Reality

2013-04-26

this book collects course notes from several modules teaching aspects of virtual reality application development it is intended for novices and experienced programmers alike the philosophy is about patterns of practice consistent elements that are repeated throughout virtual reality applications the first chapters cover common programming patterns and practices intended to support those without prior scripting experience this will not transform the reader into an accomplished programmer but does provide sufficient background to proceed with prototyping virtual reality applications the latter chapters cover common patterns found in most virtual reality applications while the remainder of the book introduces opportunities to explore advanced topics the patterns are presented independently of any programming environment virtual reality engine or virtual reality hardware however each is accompanied by examples demonstrating how the pattern is applied using unity software and the c programming language this material is used in a laboratory equipped with htc vive head mounted displays

The Extended Reality Blueprint

2024-04-02

in the last decades there has been a substantial increase in the development of complex active safety systems for automotive vehicles these systems need to be tested for verification and validation to ensure that the system intervenes in the correct situations using the correct measures there are multiple methods available to perform such testing software in the loop and hardware in the loop testing offer effective driverless testing other methods increase the fidelity by including human drivers such as driving simulators and experiments performed at test tracks this thesis examines vehicle in the loop testing an innovative method where the driver of a real vehicle wears a head mounted display that

displays virtual targets this method combines the benefits of driving simulators with the benefits of using a real vehicle on a test track driving simulators offer repeatability safety and the possibility of complex interactions between actors in contrast the real vehicle provides the correct vehicle dynamics and motion feedback there is a need to know how the technology behind the method might influence the results from vehicle in the loop testing two techniques for vehicle in the loop systems are studied the first involves video see through head mounted displays where the focus of the research is on the effects of visual latency on driving behavior the results show that lateral driving behavior changes with added latency but longitudinal behavior appears unaffected the second system uses an opaque head mounted display in an entirely virtual world the research shows that this solution changes speed perception and results in a significant degradation in performance of tasks dependent on visual acuity this research presents results that are relevant to consider when developing vehicle in the loop platforms the results are also applicable when choosing scenarios for this test method dagens fordon innehåller fler och fler säkerhetssystem vissa av dessa system ger varningar i potentiellt kritiska trafiksituationer det finns också mer komplexa system som tillfälligt kan ta kontroll över fordonet för att förhindra en olycka eller åtminstone mildra effekterna komplexiteten hos dessa system innebär att man måste genomföra omfattande tester både för att se att systemen reagerar vid rätt tidpunkt men också för att se att valet av åtgärd är korrekt det finns många olika sätt att testa dessa system man börjar vanligtvis med simuleringar av programvara och hårdvara därefter kan systemet introduceras i ett fordon för att se vilka effekter systemet har när det interagerar med en riktig förare att utföra tester med förare ställer dock höga säkerhetskrav och det är ofta svårt att samordna komplexa trafiksituationer på en testbana traditionellt har körsimulatorer varit ett naturligt alternativ eftersom de kan utföra komplexa scenarier i en säker miljö denna avhandling undersöker en testmetod där man utrustar föraren med en virtual reality display genom att presentera omvärlden med hjälp av virtual reality så kan man genomföra scenarion som tidigare varit omöjliga på en testbana det kan dock finnas inbyggda begränsningar i virtual reality tekniken som kan påverka körbeteendet det är därför viktigt att hitta och kvantifiera dessa effekter för att kunna lita på resultaten från testmetoden att känna till dessa effekter på körbeteendet dessutom kan hjälpa till att avgöra vilka typer av scenarier som är lämpade för denna testmetod det är också viktig information för att avgöra var man bör fokusera den tekniska utvecklingen av testutrustningen

The Monster Fun Book of Patterns for Developing Virtual Reality Applications

2019-01-16

develop applications and experiences for microsoft s hololens 2 and other windows mixed reality devices this easy to follow guide removes the mystery behind creating amazing augmented reality and virtual reality experiences mixed

reality development tools and resources are provided beginning windows mixed reality programming 2nd edition clearly explains all the nuances of mixed reality software development you will learn how to create 3d objects and holograms interact with holograms using voice commands and hand gestures use spatial mapping and 3d spatial sound build with toolkits such as microsoft s mixed reality toolkit and unity s ar foundation and xr platform create intuitive user interfaces and make truly awe inspiring mixed reality experiences this newly revised edition also includes updated content for hololens 2 development including tutorials for new interactions such as hand tracking and eye tracking what you will learn prototype ideas quickly for the hololens 2 and windows mixed reality devices get started with unity the preferred tool for developing 3d experiences locate and import 3d models for your project or make your own use spatial sound voice commands gestures hand tracking and eye tracking build with microsoft s mixed reality toolkit and other toolkits to make apps the easy way publish to the windows store and make money from your app who this book is for programmers looking to quickly learn how to create experiences for hololens 2 also for programmers interested in building applications for the growing crop of virtual reality devices that support the windows mixed reality platform

Driving in Virtual Reality

2020-09-02

transforming education with virtual reality the book provides an in depth and comprehensive knowledge reviewof the use of virtual reality in the education industry and businesses virtual reality vr technology has thoroughly transformed education by providing engaging and immersive ways for students to experience their education and by offering visual learning creative development etc to enhance their studies moreover with increasing accessibility both students and educators can utilize it for effective teaching and learning by embracing this vr related technology teachers can transform traditional classrooms into lively ones businesses can also leverage vr for skilling up skilling and re skilling this book is divided into two parts part i discusses the opportunities challenges and application of vr technology and part ii focuses on reimagining education with the metaverse readers will find in this book a description of the relationship between virtual reality and student behavior a review of vr enabled tools and techniques for an immersive environment a discussion on vr in the context of vocational education by developing a conceptual framework and roadmap for its adoption an overview of the advantages disadvantages and mechanisms of vr through a detailed analysis showing a comparison of the strong and weak points of the technologies being used in education a look at the future of learning in the context of vr a description of the relevance of vr in emerging economies with the help of bibliometric analysis and discusses its future potential a review of metaverse as a new education avatar showcasing diverse educational experiences and how to reimagine teaching an explanation of the relevance of emerging digital technologies in upskilling employees in fashion retail to impart an immersive

experience for customers a proposed framework for mapping the use of vr for students with autistic spectrum disorder asd audience the book is designed for information technologists educational researchers teachers policymakers government officials and business managers

Beginning Windows Mixed Reality Programming

2021-09-29

Transforming Education with Virtual Reality

2024-01-30