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Computer Graphics - James D. Foley 1996
A guide to the concepts and applications of computer graphics covers such topics as interaction techniques, dialogue design, and user interface software.
Eye Tracking Methodology - Andrew Duchowski 2007-09-14
Despite the availability of cheap, fast, accurate and usable eye trackers, there is little information available on how to develop, implement and use these systems. This 2nd edition of the successful guide contains significant additional material on the topic and aims to fill that gap in the market by providing an accessible and comprehensive introduction. Additional key features of the 2nd edition include: Technical description of new (state-of-the-art) eye tracking technology; a complete whole new section describing experimental methodology including experimental design, empirical guidelines, and five case studies; and survey material regarding recent research publications.
Computer Graphics - Jonas Gomes 2012-04-24
Computer Graphics: Theory and Practice provides a complete and integrated introduction to this area. The book only requires basic knowledge of calculus and linear algebra, making it an accessible introductory text for students. It focuses on conceptual aspects of computer graphics, covering fundamental mathematical theories and

models and the inherent problems in implementing them. In so doing, the book introduces readers to the core challenges of the field and provides suggestions for further reading and studying on various topics. For each conceptual problem described, solution strategies are compared and presented in algorithmic form. This book, along with its companion Design and Implementation of 3D Graphics Systems, gives readers a full understanding of the principles and practices of implementing 3D graphics systems.
The Theory and Practice of Motion Design - R. Brian Stone 2018-06-19
This collection offers an expansive, multiplatform exploration of the rapidly-expanding area of motion design and motion graphics, taking into account both theoretical questions and creative professional practice. Spanning interaction design, product interfaces, kinetic data visualizations, typography, TV and film title design, brand building, narrative storytelling, history, exhibits and environments, editors R. Brian Stone and Leah Wahlin offer an interdisciplinary range of academic essays and professional interviews that together form a dialogue between motion design theory and professional practice. Written for both those critically engaged with motion design as well as those working or aspiring to work professionally in the field, the book

features a range of international contributors and interviews with some of the best-known designers in the field, including Kyle Cooper, Karin Fong, and Daniel Alenquer. The Theory and Practice of Motion Design seeks to illuminate the diverse, interdisciplinary field of motion design by offering a structured examination of how motion design has evolved, what forces define our current understanding and implementation of motion design, and how we can plan for and imagine the future of motion design as it unfolds.

Creating Augmented and Virtual Realities - Erin Pangilinan 2019-03-18 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

The World Book Encyclopedia - 2002
An encyclopedia designed especially to meet the needs of elementary, junior high, and senior high school students.

User and Task Analysis for Interface Design - JoAnn T. Hackos 1998-02-23
"Hackos and Redish wisely offer us the three things we most need about user and task analysis: practical advice, practical advice, and practical advice." -Ben Shneiderman, University of Maryland "This book is well written, thorough, and loaded with techniques, examples, and resources that bring analysis to everyone." -Marcia L. Conner, Director of Usability & Learnability PeopleSoft, Inc. User and Task Analysis for Interface Design helps you design a great user interface by focusing on the most important step in the process -the first one. You learn to go out and observe your users at work, whether they are employees of your company or people in customer organizations. You learn to find out what your users really need, not by asking them what they want, but by going through a process of understanding what they are trying to accomplish. JoAnn Hackos and Janice (Ginny) Redish, internationally known experts in usable design, take you through a step-by-step process to conduct a user and task analysis. You learn: * How interface designers use user and task analysis to build successful interfaces * Why knowledge of users, their tasks, and their environments is critical to successful design * How to prepare and set up your site visits * How to select and train your user and task analysis team * What observations to make, questions to ask, and questions to avoid * How to record and report what you have learned to your development team members * How to turn the information you've gathered into design ideas * How to create paper prototypes of your interface design * How to conduct usability tests with your prototypes to find out if you're on the right track. This book includes many examples of design successes and challenges for products of every kind.

Augmented Reality - Dieter Schmalstieg 2016-06-01
Augmented reality (AR) is one of today's most fascinating and future-oriented areas of computer science and technology. By overlaying computer-generated information on views of the real world, AR amplifies human perception and cognition in remarkable new ways. Do you like the virtual first-down line in football games on TV? That's AR. And AR apps are rapidly coming to billions of smartphones, too. Working in AR requires knowledge from diverse disciplines, including computer vision, computer graphics, and human-computer interaction (HCI). Augmented Reality: Principles and Practice integrates all this knowledge into a single-source reference, presenting the most significant AR work with

scrupulous accuracy. Dieter Schmalstieg, a pioneer of both AR foundation and application, is drawing from his two decades of AR experience to clearly present the field. Together with mobile AR pioneer and research colleague Tobias Höllerer, the authors address all aspects of the field, illuminating AR from both technical and HCI perspectives. The authors review AR's technical foundations, including display and tracking technologies, show how AR emerges from the symbiosis of computer vision and computer graphics, introduce AR-specific visualization and 3D interaction techniques, and showcase applications from diverse industries. They conclude with an outlook on trends and emerging technologies, including practical pointers for beginning practitioners. This book is an indispensable resource for everyone interested in AR, including software and app developers, engineers, students and instructors, researchers, and hobbyists. For use in educational environments, the authors will provide a companion website containing slides, code examples, and other source materials.

Graphics Shaders - Mike Bailey 2012-05-22
Programmable graphics shaders, programs that can be downloaded to a graphics processor (GPU) to carry out operations outside the fixed-function pipeline of earlier standards, have become a key feature of computer graphics. This book is designed to open computer graphics shader programming to the student, whether in a traditional class or on their own. It is intended to complement texts based on fixed-function graphics APIs, specifically OpenGL. It introduces shader programming in general, and specifically the GLSL shader language. It also introduces a flexible, easy-to-use tool, glman, that helps you develop, test, and tune shaders outside an application that would use them.

Atom Probe Tomography - Williams Lefebvre 2016-05-30
Atom Probe Tomography is aimed at beginners and researchers interested in expanding their expertise in this area. It provides the theoretical background and practical information necessary to investigate how materials work using atom probe microscopy techniques, and includes detailed explanations of the fundamentals, the instrumentation, contemporary specimen preparation techniques, and

experimental details, as well as an overview of the results that can be obtained. The book emphasizes processes for assessing data quality and the proper implementation of advanced data mining algorithms. For those more experienced in the technique, this book will serve as a single comprehensive source of indispensable reference information, tables, and techniques. Both beginner and expert will value the way the book is set out in the context of materials science and engineering. In addition, its references to key research outcomes based upon the training program held at the University of Rouen-one of the leading scientific research centers exploring the various aspects of the instrument-will further enhance understanding and the learning process. Provides an introduction to the capabilities and limitations of atom probe tomography when analyzing materials Written for both experienced researchers and new users Includes exercises, along with corrections, for users to practice the techniques discussed Contains coverage of more advanced and less widespread techniques, such as correlative APT and STEM microscopy

Encyclopedia of Human Computer Interaction - Ghaoui, Claude 2005-12-31
Esta enciclopedia presenta numerosas experiencias y discernimientos de profesionales de todo el mundo sobre discusiones y perspectivas de la la interacción hombre-computadoras

Planning Practice - Jessica Ferm 2018-06-13
Planning Practice: Critical Perspectives from the UK provides the only comprehensive overview of contemporary planning practice in the UK. Drawing on contributions from leading researchers in the field, it examines the tools, contexts and outcomes of planning practice. Part I examines planning processes and tools, and the extent to which theory and practice diverge, covering plan-making, Development Management, planning gain, public engagement and place-making. Part II examines the changing contexts within which planning practice takes place, including privatisation and deregulation, devolution and multi-level governance, increased ethnic and social diversity, growing environmental concerns and the changing nature of commercial real

estate. Part III focuses on how planning practice produces outcomes for the built environment in relation to housing, infrastructure, economic progress, public transport and regeneration. The book considers what it means to be a reflective practitioner in the modern planning system, the constraints and opportunities that planners face in their daily work, and the ethical and political challenges they must confront.

Practical Augmented Reality - Steve Aukstakalnis 2016-09-08
The most comprehensive and up-to-date guide to the technologies, applications and human factors considerations of Augmented Reality (AR) and Virtual Reality (VR) systems and wearable computing devices. Practical Augmented Reality is ideal for practitioners and students concerned with any application, from gaming to medicine. It brings together comprehensive coverage of both theory and practice, emphasizing leading-edge displays, sensors, and DIY tools that are already available commercially or will be soon. Beginning with a Foreword by NASA research scientist Victor Luo, this guide begins by explaining the mechanics of human sight, hearing and touch, showing how these perceptual mechanisms (and their performance ranges) directly dictate the design and use of wearable displays, 3-D audio systems, and tactile/force feedback devices. Steve Aukstakalnis presents revealing case studies of real-world applications from gaming, entertainment, science, engineering, aeronautics and aerospace, defense, medicine, telerobotics, architecture, law enforcement, and geophysics. Readers will find clear, easy-to-understand explanations, photos, and illustrations of devices including the Atheer AiR, HTC Vive, DAQRI Smart Helmet, Oculus (Facebook) CV1, Sony PlayStation VR, Vuzix M300, Google Glass, and many more. Functional diagrams and photographs clearly explain how these devices operate, and link directly to relevant theoretical and practical content. Practical Augmented Reality thoroughly considers the human factors of these systems, including sensory and motor physiology constraints, monocular and binocular depth cues, elements contributing to visually-induced motion sickness and nausea, and vergence–accommodation conflicts. It concludes by assessing both the legal and societal implications of new

and emerging AR, VR, and wearable technologies as well as provides a look next generation systems.

Interaction Design for 3D User Interfaces - Francisco R. Ortega 2016-01-06
In this new era of computing, where the iPhone, iPad, Xbox Kinect, and similar devices have changed the way to interact with computers, many questions have risen about how modern input devices can be used for a more intuitive user interaction. Interaction Design for 3D User Interfaces: The World of Modern Input Devices for Research, Applications, a

Magnetic Communications: From Theory to Practice - Fei Hu 2018-07-24
This book covers comprehensively the theories and practical design of magnetic communications. It emphasizes the differences between it and RF communications. It first provides the models and signal propagation principles of magnetic communication systems. Then it describes the hardware architecture of the system, including transmitter, MODEM, inductors, coils, etc. Then, it discusses the corresponding communication software design principles and cases. Finally, it presents several types of practical implementations and applications.

Introduction to Computer Graphics with OpenGL ES - JungHyun Han 2018-05-23
OpenGL ES is the standard graphics API used for mobile and embedded systems. Despite its widespread use, there is a lack of material that addresses the balance of both theory and practice in OpenGL ES. JungHyun Han's Introduction to Computer Graphics with OpenGL ES achieves this perfect balance. Han's depiction of theory and practice illustrates how 3D graphics fundamentals are implemented. Theoretical or mathematical details around real-time graphics are also presented in a way that allows readers to quickly move on to practical programming. Additionally, this book presents OpenGL ES and shader code on many topics. Industry professionals, as well as, students in Computer Graphics and Game Programming courses will find this book of importance. Key Features: Presents key graphics algorithms that are commonly employed

by state-of-the-art game engines and 3D user interfaces Provides a hands-on look at real-time graphics by illustrating OpenGL ES and shader code on various topics Depicts troublesome concepts using elaborate 3D illustrations so that they can be easily absorbed Includes problem sets, solutions manual, and lecture notes for those wishing to use this book as a course text.

Search User Interfaces - Marti A. Hearst 2009-09-21
The truly world-wide reach of the Web has brought with it a new realisation of the enormous importance of usability and user interface design. In the last ten years, much has become understood about what works in search interfaces from a usability perspective, and what does not. Researchers and practitioners have developed a wide range of innovative interface ideas, but only the most broadly acceptable make their way into major web search engines. This book summarizes these developments, presenting the state of the art of search interface design, both in academic research and in deployment in commercial systems. Many books describe the algorithms behind search engines and information retrieval systems, but the unique focus of this book is specifically on the user interface. It will be welcomed by industry professionals who design systems that use search interfaces as well as graduate students and academic researchers who investigate information systems.

3D User Interfaces - Doug Bowman 2004-07-26
Here's what three pioneers in computer graphics and human-computer interaction have to say about this book: "What a tour de force—everything one would want—comprehensive, encyclopedic, and authoritative." —Jim Foley "At last, a book on this important, emerging area. It will be an indispensable reference for the practitioner, researcher, and student interested in 3D user interfaces." —Andy van Dam "Finally, the book we need to bridge the dream of 3D graphics with the user-centered reality of interface design. A thoughtful and practical guide for researchers and product developers. Thorough review, great examples." —Ben Shneiderman As 3D technology becomes available for a wide range of applications, its successful deployment will require well-designed user interfaces (UIs). Specifically, software and hardware developers will need to understand the interaction principles and techniques peculiar to a 3D environment. This understanding, of course, builds on usability experience with 2D UIs. But it also involves new and unique challenges and opportunities. Discussing all relevant aspects of interaction, enhanced by instructive examples and guidelines, 3D User Interfaces comprises a single source for the latest theory and practice of 3D UIs. Many people already have seen 3D UIs in computer-aided design, radiation therapy, surgical simulation, data visualization, and virtual-reality entertainment. The next generation of computer games, mobile devices, and desktop applications also will feature 3D interaction. The authors of this book, each at the forefront of research and development in the young and dynamic field of 3D UIs, show how to produce usable 3D applications that deliver on their enormous promise. Coverage includes: The psychology and human factors of various 3D interaction tasks Different approaches for evaluating 3D UIs Results from empirical studies of 3D interaction techniques Principles for choosing appropriate input and output devices for 3D systems Details and tips on implementing common 3D interaction techniques Guidelines for selecting the most effective interaction techniques for common 3D tasks Case studies of 3D UIs in real-world applications To help you keep pace with this fast-evolving field, the book's Web site, www.3dui.org, will offer information and links to the latest 3D UI research and applications.

Understanding Virtual Reality - William R. Sherman 2003
Of interest to developers of virtual reality applications and others interested in potential uses for virtual reality, this book presents a selection of useful VR applications and gives readers guidance on how VR might be applied.

Understanding Virtual Reality - William R. Sherman 2018-11-08
Understanding Virtual Reality: Interface, Application, and Design, Second Edition, arrives at a time when the technologies behind virtual reality have advanced dramatically in their development and deployment, providing meaningful and productive virtual reality applications. The aim of this book is to help users take advantage of ways they can identify and

prepare for the applications of VR in their field, whatever it may be. The included information counters both exaggerated claims for VR, citing dozens of real-world examples. 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 application design and implementation, including hardware requirements, system integration, interaction techniques and usability. Features substantive, illuminating coverage designed for technical or business readers and the classroom Examines VR's constituent technologies, drawn from visualization, representation, graphics, human-computer interaction and other fields Provides (via a companion website) additional case studies, tutorials, instructional materials and a link to an open-source VR programming system Includes updated perception material and new sections on game engines, optical tracking, VR visual interface software and a new glossary with pictures

The Essential Guide to Game Audio - Steve Horowitz 2014-03-05
The Essential Guide to Game Audio: The Theory and Practice of Sound for Games is a first of its kind textbook and must-have reference guide for everything you ever wanted to know about sound for games. This book provides a basic overview of game audio, how it has developed over time, and how you can make a career in this industry. Each chapter gives you the background and context you will need to understand the unique workflow associated with interactive media. The practical, easy to understand interactive examples provide hands-on experience applying the concepts in real world situations.

3D Audio - Justin Paterson 2021-07-25
3D Audio offers a detailed perspective of this rapidly developing arena. Written by many of the world's leading researchers and practitioners, it draws from science, technologies, and creative practice to provide insight into cutting-edge research in 3D audio. Through exploring the intersection of these fields, the reader will gain insight into a number of research areas and professional practice in 3D sonic space. As such, the book acts both as a primer that enables readers to gain an understanding of various aspects of 3D audio, and can inform students and audio enthusiasts, but its deep treatment of a diverse range of topics will also inform professional practitioners and academics beyond their core specialisms. The chapters cover areas such as an Ambisonics, binaural technologies and approaches, psychoacoustics, 3D audio recording, composition for 3D space, 3D audio in live sound, broadcast, and movies – and more. Overall, this book offers a definitive insight into an emerging sound world that is increasingly becoming part of our everyday lives.

Principles of Computer Graphics - Shalini Govil-Pai 2006-08-02
Helps readers to develop their own professional quality computer graphics. Hands-on examples developed in OpenGL illustrate key concepts.

The Materiality of Interaction - Mikael Wiberg 2018-02-16
A new approach to interaction design that moves beyond representation and metaphor to focus on the material manifestations of interaction. Smart watches, smart cars, the Internet of things, 3D printing: all signal a trend toward combining digital and analog materials in design. Interaction with these new hybrid forms is increasingly mediated through physical materials, and therefore interaction design is increasingly a material concern. In this book, Mikael Wiberg describes the shift in interaction design toward material interactions. He argues that the "material turn" in human-computer interaction has moved beyond a representation-driven paradigm, and he proposes "material-centered interaction design" as a new approach to interaction design and its materials. He calls for interaction design to abandon its narrow focus on what the computer can do and embrace a broader view of interaction design as a practice of imagining and designing interaction through material manifestations. A material-centered approach to interaction design enables a fundamental design method for working across digital, physical, and even immaterial materials in interaction design projects. Wiberg looks at the history of material configurations in computing and traces the shift from metaphors in the design of graphical user interfaces to materiality in tangible user interfaces. He examines interaction

through a material lens; suggests a new method and foundation for interaction design that accepts the digital as a design material and focuses on interaction itself as the form being designed; considers design across substrates; introduces the idea of "interactive compositions"; and argues that the focus on materiality transcends any distinction between the physical and digital.

Designing the Search Experience - Tony Russell-Rose 2013-01-02 Search is not just a box and ten blue links. Search is a journey: an exploration where what we encounter along the way changes what we seek. In this book, the authors weave together the theories of information seeking with the practice of user interface design.

Digital Transformation of Enterprise Architecture - Vivek Kale 2019-07-08 "In this book, Vivek Kale makes an important contribution to the theory and practice of enterprise architecture ... this book captures the breadth and depth of information that a modern enterprise architecture must address to effectively support an agile enterprise. This book should have a place in every practicing architect's library." —John D. McDowall, Author of Complex Enterprise Architecture Digital Transformation of Enterprise Architecture is the first book to propose Enterprise Architecture (EA) as the most important element (after Business Models) for digital transformation of enterprises. This book makes digital transformation more tangible by showing the rationale and typical technologies associated with it, and these technologies in turn reveal the essence of digital transformation. This book would be useful for analysts, designers and developers of future-ready agile application systems. This book proposes that it is the perennial quest for interoperability & portability, scalability, availability, etc., that has directed and driven the evolution of the IT/IS industry in the past 50 years. It is this very quest that has led to the emergence of technologies like service-oriented, cloud, and big data computing. In addition to the conventional attributes of EA like interoperability, scalability and availability, this book identifies additional attributes of mobility, ubiquity, security, analyticity, and usability. This pragmatic book: Identifies three parts effort for any digital transformation: Business Models, Enterprise Architectures and Enterprise Processes. Describes eight attributes of EA: interoperability, scalability, availability, mobility, ubiquity, security, analyticity, and usability. Explains the corresponding technologies of service-oriented, cloud, big data, context-aware, Internet of Things (IoT), blockchain, soft, and interactive computing. Briefs on auxiliary technologies like integration, virtualization, replication, spatio-temporal databases, embedded systems, cryptography, data mining, and interactive interfaces that are essential for digital transformation of enterprise architecture. Introduces interactive interfaces like voice, gaze, gesture and 3D interfaces. Provides an overview of blockchain computing, soft computing, and customer interaction systems. Digital Transformation of Enterprise Architecture proposes that to withstand the disruptive digital storms of the future, enterprises must bring about digital transformation, i.e. a transformation that affects an exponential change (amplification or attenuation) in any aspect of the constituent attributes of EA. It proposes that each of these technologies (service-oriented, cloud, big data, context-aware, IoT, blockchain, soft, and interactive computing) bring about digital transformation of the corresponding EA attribute viz. interoperability, scalability, availability, mobility, ubiquity, security, analyticity, and usability.

The Infinite Retina - Irena Cronin 2020-05-08 A compelling and insightful look at the future of Spatial Computing, and how this cutting-edge technology is changing the way we do business across seven primary industries, and what it means for humanity as a whole. Key Features Discover how Spatial Computing is changing the face of technology Get a roadmap for the disruptions caused by Spatial Computing and how it will affect seven major industries Gain insights about the past, present, and future of technology from the world's leading experts and innovators Book Description What is Spatial Computing and why is everyone from Tesla, Apple, and Facebook investing heavily in it? In The Infinite Retina, authors Irena Cronin and Robert Scoble attempt to answer that question by helping you understand where Spatial Computing—an augmented reality where

humans and machines can interact in a physical space—came from, where it's going, and why it's so fundamentally different from the computers or mobile phones that came before. They present seven visions of the future and the industry verticals in which Spatial Computing has the most influence—Transportation; Technology, Media, and Telecommunications; Manufacturing; Retail; Healthcare; Finance; and Education. The book also shares insights about the past, present, and future from leading experts an other industry veterans and innovators, including Sebastian Thrun, Ken Bretschneider, and Hugo Swart. They dive into what they think will happen in Spatial Computing in the near and medium term, and also explore what it could mean for humanity in the long term. The Infinite Retina then leaves it up to you to decide whether Spatial Computing is truly where the future of technology is heading or whether it's just an exciting, but passing, phase. What you will learn Look back at historical paradigms that changed the face of technology Consider how Spatial Computing could be the new technology that changes our lives See how Virtual and Augmented Reality will change the way we do healthcare Learn how Spatial Computing technology will lead to fully automated transportation Think about how Spatial Computing will change the manufacturing industry Explore how finance and retail are going to be impacted through Spatial Computing devices Hear accounts from industry experts on what they expect Spatial Computing to bring to their sectors Who this book is for The Infinite Retina is for anyone interested in the future of technology and how Augmented Reality and Spatial Computing (among other developments) will affect both businesses and the individual.
Designing Immersive 3D Experiences - Renee Stevens 2021-06-30 Designing Immersive 3D Experiences can help any visual designer move into the fast-growing fields of 3D and extended reality (XR) design. Leading designer Ren e Stevens (Powered by Design) introduces a proven approach and an effective design thinking process you can use to create outstanding, immersive user experiences. Stevens guides you through creating your first XR project - and improving every project after that. Drawing on her experience building a major university's first course in Augmented Reality, she prepares visual designers to succeed with 3D and XR design in environments from mobile and web to wearables. Stevens begins by exploring what XR and 3D immersive design are, how they're evolving, and how you may already be using them. Next, she explores core concepts and technologies, from computer-human interaction to projection mapping and head-mounted displays. Then, you'll walk through projects from start to finish, learning how to: Perform upfront ideation for new XR/3D projects: set "why" goals, balance innovation with practicality, and keep it all human Build seamless and approachable user experiences and interfaces Prototype XR experiences Account for perception and other human factors Augment typography, color, audio, and voice Take your next steps with XR design, and more
Cloud Computing - Dan C. Marinescu 2013-05-30 Cloud Computing: Theory and Practice provides students and IT professionals with an in-depth analysis of the cloud from the ground up. Beginning with a discussion of parallel computing and architectures and distributed systems, the book turns to contemporary cloud infrastructures, how they are being deployed at leading companies such as Amazon, Google and Apple, and how they can be applied in fields such as healthcare, banking and science. The volume also examines how to successfully deploy a cloud application across the enterprise using virtualization, resource management and the right amount of networking support, including content delivery networks and storage area networks. Developers will find a complete introduction to application development provided on a variety of platforms. Learn about recent trends in cloud computing in critical areas such as: resource management, security, energy consumption, ethics, and complex systems Get a detailed hands-on set of practical recipes that help simplify the deployment of a cloud based system for practical use of computing clouds along with an in-depth discussion of several projects Understand the evolution of cloud computing and why the cloud computing paradigm has a better chance to succeed than previous efforts in large-scale distributed computing
Human-Computer Interaction - I. Scott MacKenzie 2012-12-31 Human-Computer Interaction: An Empirical Research Perspective is the

definitive guide to empirical research in HCI. The book begins with foundational topics including historical context, the human factor, interaction elements, and the fundamentals of science and research. From there, you'll progress to learning about the methods for conducting an experiment to evaluate a new computer interface or interaction technique. There are detailed discussions and how-to analyses on models of interaction, focusing on descriptive models and predictive models. Writing and publishing a research paper is explored with helpful tips for success. Throughout the book, you'll find hands-on exercises, checklists, and real-world examples. This is your must-have, comprehensive guide to empirical and experimental research in HCI—an essential addition to your HCI library. Master empirical and experimental research with this comprehensive, A-to-Z guide in a concise, hands-on reference Discover the practical and theoretical ins-and-outs of user studies Find exercises, takeaway points, and case studies throughout

Unity 2020 Virtual Reality Projects - Jonathan Linowes 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.

Visualizing Venice - Kristin L. Huffman 2017-10-04 Visualizing Venice presents the ways in which the use of innovative technology can provide new and fascinating stories about places and times within history. Written by those behind the Visualizing Venice project, this book explores the variety of disciplines and analytical methods generated by technologies such as 3D images and interoperable models, GIS mapping and historical cartography, databases, video animations, and applications for mobile devices and the web. The volume is one of the first collections of essays to integrate the theory and practice of visualization technologies with art, architectural, and urban history. The chapters demonstrate how new methodologies generated by technology can change and inform the way historians think and work,

and the potential that such methods have to revolutionize research, teaching, and public-facing communication. With over 30 images to support and illustrate the project's work, Visualizing Venice is ideal for academics, and postgraduates of digital history, digital humanities, and early modern Italy.

Brave NUI World - Daniel Wigdor 2011-04-05
Brave NUI World is the first practical guide for designing touch- and gesture-based user interfaces. Written by the team from Microsoft that developed the multi-touch, multi-user Surface® tabletop product, it introduces the reader to natural user interfaces (NUI). It gives readers the necessary tools and information to integrate touch and gesture practices into daily work, presenting scenarios, problem solving, metaphors, and techniques intended to avoid making mistakes. This book considers diverse user needs and context, real world successes and failures, and the future of NUI. It presents thirty scenarios, giving practitioners a multitude of considerations for making informed design decisions and helping to ensure that missteps are never made again. The book will be of value to game designers as well as practitioners, researchers, and students interested in learning about user experience design, user interface design, interaction design, software design, human computer interaction, human factors, information design, and information architecture. Provides easy-to-apply design guidance for the unique challenge of creating touch- and gesture-based user interfaces Considers diverse user needs and context, real world successes and failures, and a look into the future of NUI Presents thirty scenarios, giving practitioners a multitude of considerations for making informed design decisions and helping to ensure that missteps are never made again

Envisioning Holograms - M. Pell 2017-11-07
Explore the approach, techniques, and mindshift needed to design truly breakthrough experiences for the Microsoft HoloLens and Windows Mixed Reality platform. Learn what's so different about working with holograms, how to think spatially, and where to start designing your own holographic projects. You'll move rapidly from initial concept to persuasive prototype—all without the need for expensive tools or a designer's skill set. Designing for mixed reality is a completely new experience for everyone involved, and takes some experimentation to get right. You won't nail your first mixed reality project by relying upon your previous mobile or web design expertise as a guide. Mixed reality requires a different kind of design thinking for its unique challenges. Breakthrough holographic design starts with envisioning—the act of visualizing what could be. By rapidly depicting a desired experience and trying out its real-world interactions, you can quickly turn your initial vision into a tangible example of innovative design. Envisioning Holograms digs into why holographic computing is the future, takes you through the mixed reality design process, and gets you ready to take advantage of its endless opportunities. Praise for the Book "Envisioning Holograms is a guidebook for designing our holographic future. You'll find the processes, techniques, and production tools needed to design immersive products that will change how we work, play and communicate." – Tony Parisi, Global Head of AR/VR for Unity. Industry legend. "Just as the pioneering work of E.S. Porter helped define a new language for cinematic storytelling at the dawn of motion pictures, Envisioning Holograms provides us with the missing vocabulary and grammar to help define a new design language for this world-changing medium of Mixed Reality." – Ori Inbar, Founder and Managing Partner for Super Ventures, an AR/VR fund. "An exceptional introduction to a new way of thinking about software. Envisioning Holograms is approachable to people just starting out, and also provides some excellent bits of insight to veterans that can help influence their creative process." – Lucas Rizzotto, award-winning creator of Mixed Reality experiences. "Envisioning Holograms is the perfect book for VR/AR/MR studios that are struggling with application design. It is filled with strategies to acquire ideas, develop and iterate through scenes, and find the best fit. I highly recommend this book to anyone wanting to create solid user experiences using 3D interfaces and spatial computing." – Rick King, authority on the latest trends in AR, VR, and MR development. What You'll Learn Understand what makes mixed reality a challenging

design space See how envisioning quickly and persuasively brings ideas to life Get to know your audience, medium, and palette Explore several innovative rapid envisioning techniques Identify the key elements of your own holographic experience Design an engaging holographic experience from start to finish Who This Book Is For While aimed at those designing for Microsoft HoloLens and the Windows Holographic tool kit, the techniques in the book are equally applicable to those designing for other holographic hardware. This book is for the designer who is new to thinking in 3D and wants to quickly learn best practices, and the developer who needs to do design work while building exciting new products for Microsoft HoloLens, and the marketer who has a great story to tell in this exciting new medium of mixed reality.

Mathematics for Machine Learning - Marc Peter Deisenroth 2020-04-23
The fundamental mathematical tools needed to understand machine learning include linear algebra, analytic geometry, matrix decompositions, vector calculus, optimization, probability and statistics. These topics are traditionally taught in disparate courses, making it hard for data science or computer science students, or professionals, to efficiently learn the mathematics. This self-contained textbook bridges the gap between mathematical and machine learning texts, introducing the mathematical concepts with a minimum of prerequisites. It uses these concepts to derive four central machine learning methods: linear regression, principal component analysis, Gaussian mixture models and support vector machines. For students and others with a mathematical background, these derivations provide a starting point to machine learning texts. For those learning the mathematics for the first time, the methods help build intuition and practical experience with applying mathematical concepts. Every chapter includes worked examples and exercises to test understanding. Programming tutorials are offered on the book's web site.

Hands-On System Programming with Linux - Kaiwan N Billimoria 2018-10-31
Get up and running with system programming concepts in Linux Key FeaturesAcquire insight on Linux system architecture and its programming interfacesGet to grips with core concepts such as process management, signalling and pthreadsPacked with industry best practices and dozens of code examplesBook Description The Linux OS and its embedded and server applications are critical components of today's software infrastructure in a decentralized, networked universe. The industry's demand for proficient Linux developers is only rising with time. Hands-On System Programming with Linux gives you a solid theoretical base and practical industry-relevant descriptions, and covers the Linux system programming domain. It delves into the art and science of Linux application programming— system architecture, process memory and management, signaling, timers, pthreads, and file IO. This book goes beyond the use API X to do Y approach; it explains the concepts and theories required to understand programming interfaces and design decisions, the tradeoffs made by experienced developers when using them, and the rationale behind them. Troubleshooting tips and techniques are included in the concluding chapter. By the end of this book, you will have gained essential conceptual design knowledge and hands-on experience working with Linux system programming interfaces. What you will learnExplore the theoretical underpinnings of Linux system architectureUnderstand why modern OSes use virtual memory and dynamic memory APIsGet to grips with dynamic memory issues and effectively debug themLearn key concepts and powerful system APIs related to process managementEffectively perform file IO and use signaling and timersDeeply understand multithreading concepts, pthreads APIs, synchronization and schedulingWho this book is for Hands-On System Programming with Linux is for Linux system engineers, programmers, or anyone who wants to go beyond using an API set to understanding the theoretical underpinnings and concepts behind powerful Linux system programming APIs. To get the most out of this book, you should be familiar with Linux at the user-level logging in, using shell via the command line interface, the ability to use tools such as find, grep, and sort. Working knowledge of the C programming language is required. No prior experience with Linux systems programming is assumed.

The VR Book - Jason Jerald 2015-09-01
Virtual reality (VR) potentially provides our minds with direct access to digital media in a way that at first seems to have no limits.However, creating compelling VR experiences is an incredibly complex challenge.When VR is done well, the results are brilliant and pleasurable experiences that go beyond what we can do in the real world.When VR is done badly, not only is the system frustrating to use, but sickness can result.Reasons for bad VR are numerous; some failures come from the limitations of technology, but many come from a lack of understanding perception, interaction, design principles, and real users. This book discusses such issues, focusing upon the human element of VR rather than technical implementation, for if we do not get the human element correct, then no amount of technology will make VR anything more than an interesting tool confined to research laboratories. Even when VR principles are fully understood, first implementations are rarely novel and never ideal due to the complex nature of VR and the countless possibilities. However, the VR principles discussed within enable us to intelligently experiment with the rules and iteratively design towards innovative experiences.

UI is Communication - Everett N McKay 2013-05-24
User interface design is a challenging, multi-disciplinary activity that requires understanding a wide range of concepts and techniques that are often subjective and even conflicting. Imagine how much it would help if there were a single perspective that you could use to simplify these complex issues down to a small set of objective principles. In UI is Communication, Everett McKay explains how to design intuitive user interfaces by focusing on effective human communication. A user interface is ultimately a conversation between users and technology. Well-designed user interfaces use the language of UI to communicate to users efficiently and naturally. They also recognize that there is an emotional human being at the other end of the interaction, so good user interfaces strive to make an emotional connection. Applying what you learn from UI is Communication will remove much of the mystic, subjectiveness, and complexity from user interface design, and help you make better design decisions with confidence. It's the perfect introduction to user interface design. Approachable, practical communication-based guide to interaction and visual design that you can immediately apply to projects to make solid design decisions quickly and confidently Includes design makeovers so you can see the concepts in practice with real examples Communication-based design process ties everything from interaction to visual design together

Theories and Practice in Interaction Design - Sebastiano Bagnara 2006-06-20
Ad hoc and interdisciplinary, the field of interaction design claims no unified theory. Yet guidelines are needed. In essays by 26 major thinkers and designers, this book presents the rich mosaic of ideas which nourish the lively art of interaction design. The editors introduction is a critical survey of interaction design with a debt and contribut

Computer Graphics Through OpenGL® - Sumanta Guha 2018-12-19
COMPREHENSIVE COVERAGE OF SHADERS AND THE PROGRAMMABLE PIPELINE From geometric primitives to animation to 3D modeling to lighting, shading and texturing, Computer Graphics Through OpenGL®: From Theory to Experiments is a comprehensive introduction to computer graphics which uses an active learning style to teach key concepts. Equally emphasizing theory and practice, the book provides an understanding not only of the principles of 3D computer graphics, but also the use of the OpenGL® Application Programming Interface (API) to code 3D scenes and animation, including games and movies. The undergraduate core of the book takes the student from zero knowledge of computer graphics to a mastery of the fundamental concepts with the ability to code applications using fourth-generation OpenGL®. The remaining chapters explore more advanced topics, including the structure of curves and surfaces, applications of projective spaces and transformations and the implementation of graphics pipelines. This book can be used for introductory undergraduate computer graphics courses over one to two semesters. The careful exposition style attempting to explain each concept in the simplest terms possible should appeal to the self-study student as well. Features •

Covers the foundations of 3D computer graphics, including animation, visual techniques and 3D modeling • Comprehensive coverage of OpenGL® 4.x, including the GLSL and vertex, fragment, tessellation and geometry shaders • Includes 180 programs with 270 experiments based on them • Contains 750 exercises, 110 worked examples, and 700 four-color illustrations • Requires no previous knowledge of computer graphics • Balances theory with programming practice using a hands-on interactive approach to explain the underlying concepts