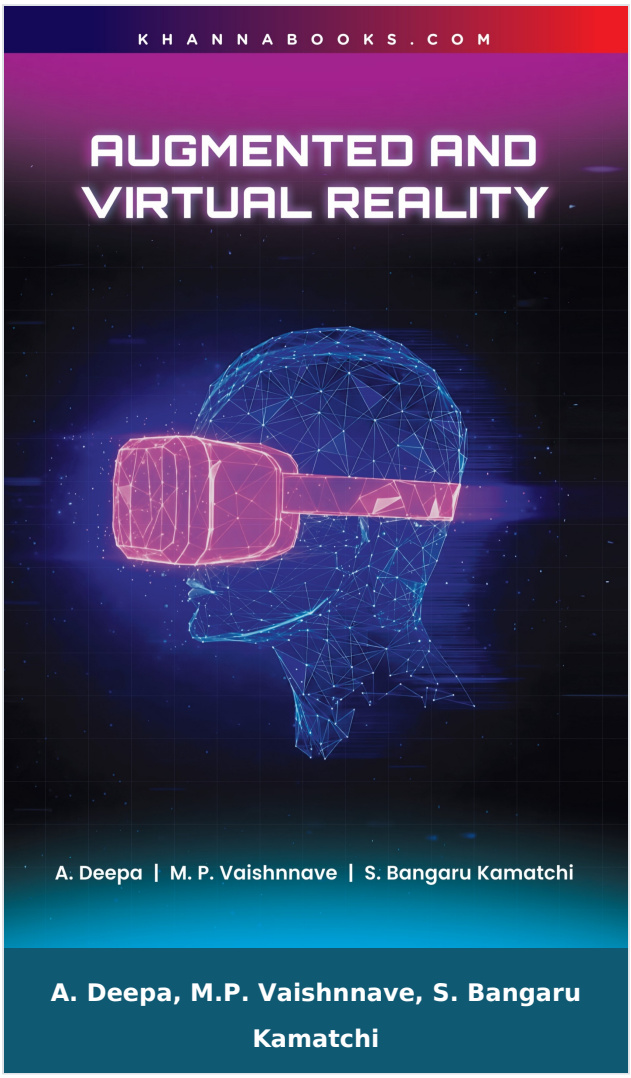

Augmented and Virtual Reality

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Product Description

This book serves as a comprehensive guide to mastering the rapidly evolving world of Augmented Reality (AR) and Virtual Reality (VR), technologies that are fundamentally reshaping human-computer interaction. Designed to bridge the gap between theoretical knowledge and practical implementation, the core purpose of this text is to equip readers with the foundational concepts and hands-on expertise necessary to design, develop, and deploy functional AR/VR applications.

The journey begins with an exploration of the historical evolution, scope, and key distinctions of AR/VR, including the critical concepts of Immersion vs. Presence. It quickly progresses to essential design principles, focusing heavily on User Experience (UX), graphical metaphors, and prototyping within immersive environments. The practical value of this book is demonstrated through detailed instructional units on Unity, the industry-leading development platform, and its integration with the powerful AR toolset, Vuforia. Readers will gain proficiency in scripting, handling Unity Physics (Colliders and Rigidbodies), and creating interactive 3D experiences, culminating in a case study on real-time application development.

This resource is ideally intended for students, developers, designers, and enthusiasts seeking a strong, structured foothold in the AR/VR domain. It is an essential tool for those looking to harness these transformative technologies for applications across gaming, healthcare, education, and manufacturing.

Salient Features:

• Foundational Concepts: Covers the historical evolution, definitions, and scope of AR/VR, including multimodal displays and the key differentiation between Strong vs. Weak AR and Immersion vs. Presence.

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• Interaction Design: Dedicated focus on User Experience (UX) guidelines, perception, and cognition. It details how to design for user needs, apply Affordances, and perform prototype evaluation in AR/VR environments.

• Unity Development: Provides a comprehensive overview of the Unity platform, covering its interface, navigation, asset management, hierarchy, and fundamental scripting concepts using MonoBehaviours.

• Vuforia and AR: Explores the Vuforia development engine, detailing its features, setup process, and practical use for implementing Image Targeting and custom image recognition in AR applications.

• Scripting and Physics: Offers in-depth coverage of introductory and advanced scripting, focusing on manipulating components and programming interactions. It also introduces essential concepts of Unity Physics.

• Advanced Interactivity: Explains crucial implementation details like creating Trigger Events, using Colliders and Rigidbodies, and navigating world space for both objects and the user in the virtual environment.

• Real-World Applications: A final unit presents a Case Study on building a complete, real-time application using AR and VR, with applications demonstrated across fields like Education, Healthcare, and Retail.

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Table Of Contents

- Introduction to Augmented Reality and Virtual Reality
- Interaction for AR/VR Environments Design
- Introduction to Unity
- Introduction to Vuforia and Physics in Unity
- Expanding on Scripting and Interactions
- Sample Question Paper

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