

Basics of Virtual Reality

From the Discovery of Perspective to VR Glasses

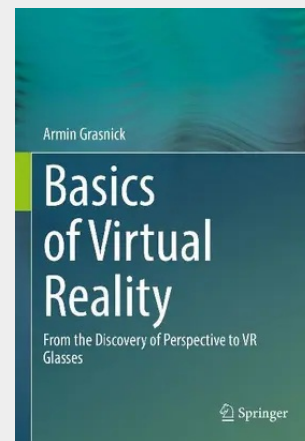
Today, the reality we know can be recorded and reproduced true to reality using technical processes. Space and time are recreated virtually as a copy in artificial reality. However, the reproduction of virtual reality is not limited to a mere copy of what exists. A visitor to the virtual space does not have to be content with the pixelated image of the old familiar, but can encounter unreal phenomena in the illusory world that never existed in real life or are even physically impossible. This enables an expansion of the recorded reality and allows the perception of surprisingly new perspectives.

A perspective denotes the perception of a fact from a certain point of view and corresponds to the way of looking at things. But a perspective is also the observation of a scene from a viewing position. From different perspectives the illusion of reality arises during the reproduction by observation. This vision is not based on imagination or hallucination, but is the basic function of virtual reality.

This book describes the concepts, systems, and technologies used to create virtual reality from its ancient beginnings to the present, and provides a glimpse into a possible future.

This book is a translation of the original German 1st edition *Grundlagen der virtuellen Realität* by Armin Grasnick, 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.

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128,39 €

119,99 € (zzgl. MwSt.)

Lieferfrist: bis zu 10 Tage

Artikelnummer: 9783662642009

Medium: Buch

ISBN: 978-3-662-64200-9

Verlag: Springer

Erscheinungstermin: 05.01.2022

Sprache(n): Englisch

Auflage: 1. Auflage 2021

Produktform: Gebunden

Gewicht: 890 g

Seiten: 409

Format (B x H): 173 x 246 mm

