Virtual Reality and Virtual Environments in 10 Lectures

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Stanislav Stanković

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Stanislav Stanković
Helsinki, Finland

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ABSTRACT

The book is based on the material originally developed for the course on Virtual Reality, which the author was teaching at Tampere University of Technology, as well as a course on Virtual Environments that the author had prepared for the University for Advancing Studies at Tempe, Arizona.This original purpose has influenced the structure of this book as well as the depth to which we explore the presented concepts.

Therefore, our intention in this book is to give an introduction into the important issues regarding a series of related concepts of Virtual Reality, Augmented Reality, and Virtual Environments. We do not attempt to go into any of these issues in depth but rather outline general principles and discuss them in a sense broad enough to provide sufficient foundations for a further study. In other words, we aim to provide a set of keywords for readers in order to give them a good starting point from which he could go on and explore any of these issues in detail.

KEYWORDS

virtual reality, augmented reality, virtual environments, human computer interaction, user experience

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Preface

In the recent years, we are seeing resurgent interest in Virtual Reality as a concept. Virtual Reality, as we recognize it, is by now several decades old. It has its origin in the fascination with possibilities of human computer interaction brought on by the rapid advances in IT technology in the second half of the 20th century. In the first few decades, Virtual Reality was a very technology-driven field, aiming to explore the possibilities that new technology offered. Researchers and developers rushed to dream up new technologies, and create a variety of proof-of-concept projects, happily stepping over the rough edges of technology. The quality of actual user experience was too often overlooked.

In effect this field has been guided by very vague notions about its own purpose. This vagueness contributed to excitement in the general public as every onlooker was free to project his own expectations, regardless of their feasibility. Virtual Reality as a field had set itself very high yet very vague goals. Arguably, this led to disillusionment. Despite this, fascination remained.

Today Virtual Reality is a mature field. During the decades of its development the work that originated within it had a profound effect on many aspects of IT technology. Many original Virtual Reality concepts have become part of our daily lives, so much that we take them for granted. On the other hand, Virtual Reality in the imagination of people remains linked to Sci-Fi-fueled images of the near future, a sort of utopian concept that remains perennially unattainable.

In our opinion, too many of the books on this topic still cling to the old technology-first point of view, giving little regard to user experience. We intentionally take the other approach. This book tries to reassess the important aspects of Virtual Reality from a user-centric point of view. We find this to be of utmost importance. Without keeping in mind the user, the person that is supposed to make use of the technology, we risk repeating the same mistakes.

Stanislav Stanković
September 2015

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