Preface

Virtual Reality (VR) is a multidisciplinary area of research aimed at interactive human computer mediated simulations of artificial environments. An important aspect of VR-based systems is the stimulation of the human senses - usually sight, sound, and touch - such that a user feels a sense of presence in the virtual environment. Sometimes it is important to combine real and virtual objects in the same real or virtual environment. This approach is often referred to as Augmented Reality (AR), when virtual objects are integrated into a real environment. Research in VR and AR encompasses a wide range of fundamental topics, including: 3D interaction, presence, telepresence and tele-existence, VR modeling, multi-model systems, and human factors. Typical VR applications include simulation, training, scientific visualization, and entertainment, whereas typical AR applications include computer-aided manufacturing or maintenance, and computer-aided surgery or medicine.

During the week of June 9–14, 2013 the Schloss Dagstuhl Leibniz Center for Informatics held a second seminar in the area of Virtual Reality. The main goal of the seminar was to bring together leading international experts and promising young researchers to discuss current VR and AR challenges and future directions. The organization built on the experiences from the previous seminar "Virtual Realities 2008." The format included sessions with standard presentations as well as parallel breakout sessions devoted to "hot-topics" in VR and AR research. Plenary sessions were also scheduled to allow the working groups to report and discuss their findings.

This book comprises a collection of research and position papers presented at this seminar. All papers were subject to a peer-review process by at least two reviewers per manuscript. The manuscripts selected for this book have been structured into the four chapters: VR environments, Interaction and User Experience, Virtual Humans, and Tele-existence.

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