

# Preface

Augmented Reality (AR) refers to a live view of physical real world environment whose elements are merged with augmented computer-generated images creating a mixed reality. The augmentation is typically done in real time and in semantic context with environmental elements. By using the latest AR techniques and technologies, the information about the surrounding real world becomes interactive and digitally usable.

The objective of this Handbook is to provide comprehensive guidelines on the current and future trends in augmented reality technologies and applications. This Handbook is carefully edited book – contributors are worldwide experts in the field of augmented reality and its applications. The Handbook Advisory Board, comprised of 11 researchers and practitioners from academia and industry, helped in reshaping the Handbook and selecting the right topics and creative and knowledgeable contributors.

The Handbook comprises of two parts, which consist of 33 chapters. The first part on *Technologies* includes articles dealing with fundamentals of augmented reality, augmented reality technologies, visualization techniques, head-mounted projection displays, evaluation of AR systems, mobile AR systems, and other innovative AR concepts.

The second part on *Applications* includes various articles on AR applications including applications in psychology, medical education, edutainment, reality games, rehabilitation engineering, automotive safety, product development and manufacturing, military applications, exhibition and entertainment, geographic information systems, and others.

With the dramatic growth of augmented reality and its applications, this Handbook can be the definitive resource for persons working in this field as researchers, scientists, programmers, engineers, and users. The book is intended for a wide variety of people including academicians, designers, developers, educators, engineers, practitioners, researchers, and graduate students. This book can also be beneficial for business managers, entrepreneurs, and investors. The book can have a great potential to be adopted as a textbook in current and new courses on Augmented Reality.

The main features of this Handbook can be summarized as:

1. The Handbook describes and evaluates the current state-of-the-art in the field of augmented reality.
2. The book presents current trends and concepts of augmented reality, technologies and techniques, AR devices, interfaces, tools, and systems applied in AR, as well as current and future applications.
3. Contributors to the Handbook are the leading researchers from academia and practitioners from industry.

We would like to thank the authors for their contributions. Without their expertise and effort this Handbook would never come to fruition. Springer editors and staff also deserve our sincere recognition for their support throughout the project.

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