



## Editorial

Gerard J. Kim, Korea Univesity, Korea  
Jim X. Chen, George Mason University, USA

### I. INTRODUCTION

Welcome to this special issue of *The International Journal of Virtual Reality*! We are pleased and excited to guest-edit this reactivated journal with a number of excellent invited papers from the prominent scholars of this fascinating research field. The theme of this issue is “Virtual reality in its revival,” reflecting the world-wide resurgence of the basic research and applications in virtual reality (VR). In this issue, you will find that virtual reality is continuously evolving with regards to the new technologies in sensing, display, communication, and support tools, gradually establishing successful cases in the industry and finding many new application areas.

### II. IN THIS ISSUE

The first paper “A Short History of The International Journal of Virtual Reality” is written by Prof. Richard Blade, who is the former Editor-in-Chief of the journal.

This main part of this issue begins with a review of future trends in the design and research of 3D interaction in virtual environments. The article is written by Dr. Bowman and his associates, and gives very good insight into the current status of the respective research field and where it should go based on his long experience and expertise. Then, the second paper deals with the visual display technology. In virtual reality, visual technology is very important because it is the most basic form of supplying the sense of immersion. The second paper and the third one covered area is human animation. Human animation is a critical component in building believable and sociable virtual environments. However, it has been a very difficult and tedious process to produce human like and dynamic avatars for VR. Prof. N. Thalmann and C. Knöpfle representing the two notable European institutions in human animation research, University of Geneva (MIRALab) and Fraunhofer Institute on Computer Graphics in Germany (Fhg-IGD), share their valuable experience and knowledge with us.

The second part of the journal highlights some of the successful applications of VR in various areas. We start with the paper contributed by Prof. M. Hirose of Tokyo University on his experience of reconstructing the ancient ruins of Ankor Watt in Cambodia using VR technology. Digital heritage is one of the best and natural applications of VR.

Computer aided design (CAD) has been a more traditional application area of VR. P. Richards et al. describe how CAD systems can benefit from using VR interfaces and semantic context. .

The third part of this invited issue covers new areas of virtual reality. A. Cheok et al present the potential of mixed reality systems for education and entertainment. Mixed reality systems’ operating arena is mostly in the real world, offers easy accessibility and natural interfaces, and thus overcomes inter-generational gap. Mixed reality systems and interfaces will also prove very useful in the upcoming ubiquitous computing environment. Speaking of the ubiquitous computing environment, the final two papers present the recent merging of VR or AR (Augmented Reality) with the mobile and hand-held devices. While VR/AR has been tried on mobile devices, a more in-depth study has been called for in terms of usability and effects. M. Billinghurst introduces his latest findings in the usability issues for hand-held AR, and Jane Hwang lays solid grounds for realizing hand-held VR.

The final paper “A Hierarchical 3D Data Rendering System Synchronized with HTML” is presented by Prof. Takemura’s group. They propose a new rendering system for large-scale 3D geometric data. This paper is selected from ICAT’2006 conference, which is held on Nov. 29-Deci.1, in Hangzhou, China. In total 12 papers are selected, in IJVR 5(3), there are 10 papers, and in IJVR 5(4) there is another paper.

We would like to thank all the invited authors for their tremendous contribution and patience in working with the editors. We also express our appreciation to Dr. Zhigeng Pan for his great effort and instrumentation in resurrecting this journal. It is our utmost hope that the journal will play an important role in promoting and advancing the field of virtual reality.