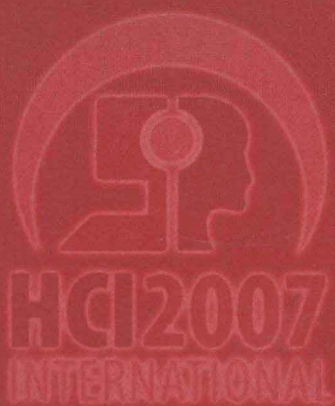


Randall Shumaker (Ed.)

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# Virtual Reality

Second International Conference, ICVR 2007  
Held as part of HCI International 2007  
Beijing, China, July 2007, Proceedings



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# Virtual Reality

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# Foreword

The 12th International Conference on Human-Computer Interaction, HCI International 2007, was held in Beijing, P.R. China, 22-27 July 2007, jointly with the Symposium on Human Interface (Japan) 2007, the 7th International Conference on Engineering Psychology and Cognitive Ergonomics, the 4th International Conference on Universal Access in Human-Computer Interaction, the 2nd International Conference on Virtual Reality, the 2nd International Conference on Usability and Internationalization, the 2nd International Conference on Online Communities and Social Computing, the 3rd International Conference on Augmented Cognition, and the 1st International Conference on Digital Human Modeling.

A total of 3403 individuals from academia, research institutes, industry and governmental agencies from 76 countries submitted contributions, and 1681 papers, judged to be of high scientific quality, were included in the program. These papers address the latest research and development efforts and highlight the human aspects of design and use of computing systems. The papers accepted for presentation thoroughly cover the entire field of Human-Computer Interaction, addressing major advances in knowledge and effective use of computers in a variety of application areas.

This volume, edited by Randall Shumaker, contains papers in the thematic area of Virtual Reality, addressing the following major topics:

- 3D Rendering and Visualization
- Interacting and Navigating in Virtual and Augmented Environments
- Industrial Applications of Virtual Reality
- Health, Cultural, Educational and Entertainment Applications

The remaining volumes of the HCI International 2007 proceedings are:

- Volume 1, LNCS 4550, Interaction Design and Usability, edited by Julie A. Jacko
- Volume 2, LNCS 4551, Interaction Platforms and Techniques, edited by Julie A. Jacko
- Volume 3, LNCS 4552, HCI Intelligent Multimodal Interaction Environments, edited by Julie A. Jacko
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- Volume 17, LNCS 4566, Ergonomics and Health Aspects of Work with Computers, edited by Marvin J. Dainoff

I would like to thank the Program Chairs and the members of the Program Boards of all Thematic Areas, listed below, for their contribution to the highest scientific quality and the overall success of the HCI International 2007 Conference.

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Constantine Stephanidis  
General Chair, HCI International 2007

# **HCI International 2009**

The 13th International Conference on Human-Computer Interaction, HCI International 2009, will be held jointly with the affiliated Conferences in San Diego, California, USA, in the Town and Country Resort & Convention Center, 19-24 July 2009. It will cover a broad spectrum of themes related to Human Computer Interaction, including theoretical issues, methods, tools, processes and case studies in HCI design, as well as novel interaction techniques, interfaces and applications. The proceedings will be published by Springer. For more information, please visit the Conference website: <http://www.hcii2009.org/>

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## **Preface**

I would like to thank all the reviewers and the contributors, who put so much effort into producing excellent papers from which to select. I would also like to particularly acknowledge Prof. Kay Stanney, Dr. Lawrence Rosenblum, Dr. Dylan Schmorrow and Dr. Bowen Loftin as long term colleagues and contributors to making this VR conference successful.

Randall Shumaker, Editor

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