



IEEE Symposium on 3D User Interfaces 2007

Charlotte, North Carolina, USA

March 10 - 11, 2007

Proceedings



SPONSORED BY IEEE COMPUTER SOCIETY VISUALIZATION AND GRAPHICS TECHNICAL COMMITTEE

Contents

Message from the Symposium Chairs.....	v
IEEE Computer Society Visualization and Graphics Technical Committee	vi
Symposium Committee.....	vii
Program Committee.....	vii
Reviewers.....	viii

Papers

Session 1: 3D Movement

The Visual Appearance of User’s Avatar Can Influence the Manipulation of Both Real Devices and Virtual Objects	1
Abdelmajid Kadri, Anatole Lécuyer, Jean-Marie Burkhardt, Simon Richir	
An Exploration of Interaction-Display Offset in Surround Screen Virtual Environments	9
Dmitri K. Lemmerman, Joseph J. LaViola Jr.	
Exploring 3D Interaction in Alternate Control-Display Space Mappings	17
Jeroen Keijser, Sheelagh Carpendale, Mark Hancock, Tobias Isenberg	

Session 2: Sequences & Gestures

An Empirical Comparison of Task Sequences for Immersive Virtual Environments	25
Ryan P. McMahan, Doug A. Bowman	
Design and Development of a Pose-Based Command Language for Triage Training in Virtual Reality	33
Andrei Sherstyuk, Dale Vincent, Jack Jin Hwa Lui, Kathleen Kihmm Connolly, Kin Lik Wang, Stanley Saiki, Thomas Caudell	
Optical Sight Metaphor for Virtual Environments [Technote].....	41
Andrei Sherstyuk, Jarrell Pair, Anton Treskunov	
AutoEval mkII - Interaction Design for a VR Design Review System [Technote].....	45
Martin Naef, John Payne	

Session 3: Devices

An Exploration of Non-Isomorphic 3D Rotation in Surround Screen Virtual Environments.....	49
Joseph LaViola, Michael Katzourin	
Cross-section Projector: Interactive and Intuitive Presentation of 3D Volume Data using a Handheld Screen	55
Koichi Hirota, Yuya Saeki	
A Family of New Ergonomic Harness Mechanisms for Full-Body Natural Constrained Motions in Virtual Environments	63
Roger Kaufman	

Session 4: Mixed & Augmented Reality

Cascading Hand and Eye Movement for Augmented Reality Videoconferencing	71
István Barakonyi, Helmut Prendinger, Dieter Schmalstieg, Mitsuru Ishizuka	
Balloon Selection: A Multi-Finger Technique for Accurate Low-Fatigue 3D Selections	79
Hrvoje Benko, Steven Feiner	
Usability of Hybrid, Physical and Virtual Objects for Basic Manipulation Tasks in Virtual Environments	87
Frank-Lothar Krause , Johann Habakuk Israel, Jens Neumann, Tobias Feldmann-Wüstefeld	

Character Interaction System with Autostereoscopic Display and Range Sensor [Technote].....	95
Miho Kobayashi, Michio Oikawa, Takafumi Koike, Kei Utsugi, Masami Yamasaki, Satoshi Kitagawa	

Session 5: 3D Selection

Virtual Pads: Decoupling Motor Space and Visual Space for Flexible Manipulation of 2D Windows within VEs	99
Carlos Andujar, Ferran Argelaguet	
Two Handed Selection Techniques for Volumetric Data.....	107
Amy Ulinski, Catherine Zambaka, Zachary Wartell, Paula Goolkasian, Larry Hodges	
Exploring the Effects of Environment Density and Target Visibility on Object Selection in 3D Virtual Environments.....	115
Lode Vanackem, Tovi Grossman, Karin Coninx	

Session 6: Forces

Tactile Feedback at the Finger Tips for Improved Direct Interaction in Immersive Environments.....	123
Robert Scheibe, Mathias Moehring, Bernd Froehlich	
Real-time Interactions and Synchronization of Voxel-based Collaborative Virtual Environments	131
Eric Acosta, Alan Liu	
Immersive Flight for Surveillance Applications [Technote]	139
Xavier Righetti, Sylvain Cardin, Daniel Thalmann, Frederic Vexo	
“Tokens and Board” User Interface Based on a Force-Torque Sensing Technique [Technote].....	143
Bundit Panchaphongsaphak, Robert Riener	

Session 7: 3D Navigation & Entertainment

Comparison of Travel Techniques in a Complex, Multi-Level 3D Environment.....	147
Evan Suma, Sabarish Babu, Larry Hodges	
An Avatar-Based Approach to 3D User Interface Design for Children.....	155
Tian Wang, Xizhi Li, Jiaoying Shi	
Pointman - A Device-Based Control for Realistic Tactical Movement [Technote].....	163
James Templeman, Linda Sibert, Robert Page, Patricia Denbrook	
Seven League Boots: A New Metaphor for Augmented Locomotion through Moderately Large Scale Immersive Virtual Environments [Technote]	167
Victoria Interrante, Brian Ries, Lee Anderson	

Author Index.....	Inside Back Cover
--------------------------	--------------------------