APGV 2010

Symposium on Applied Perception in Graphics and Visualization

applied perception in graphics and visualization

Conference Program

PREFACE

The Symposium on Applied Perception in Graphics and Visualization (APGV) is an emerging vital forum for the dissemination of the latest research at the intersection of computer graphics, visualization and perceptual science. This volume contains the proceedings of the seventh annual APGV, held in Los Angeles, USA on July 23 – July 24, 2010; the meeting was co-located with and sponsored by ACM SIGGRAPH. The general goals of the symposium are to use insights from perception to advance the design of methods for visual, auditory and multi-sensory representation, and to use computer graphics to enable perceptual research that would otherwise not be possible. In addition to providing a place to communicate new results, APGV fosters interaction in this interdisciplinary area, which helps to define new productive directions for research and application.

We received 48 paper submissions of exceptional quality for APGV this year, which illustrates the healthy state of the field. Each submission was reviewed by at least three members of the International Program Committee. Based on the review, we accepted 27 as full papers to be presented orally at the conference (23 as long papers, and 4 as short papers). There will also be 12 poster presentations at the conference highlighting late-breaking research.

The papers cover a wide range of topics. We have placed them in eight sessions:

• HDR and Illumination
• Displays and Visualization
• Depth Perception
• Attention and Vision
• Image Processing
• Faces
• Realistic Characters
• Distance, Size and Motion Perception

Only 21 of the 27 papers are in the proceedings. Under a new arrangement with ACM Transactions on Applied Perception (TAP), six papers, the ones selected as "best" by the program committee and chairs, underwent a second review for possible inclusion in a special issue of ACM TAP. They will appear in the ACM Digital Library as TAP papers at the same time the conference occurs. Those papers cannot appear in the proceedings in order to avoid double publication.

In addition to the reviewed contributions, we are honored to have a Keynote Speaker, Hany Farid (Department of Computer Science, Dartmouth College) whose talk is entitled 'Photo Forensics: Lighting and Shadows'. Professor Farid leads the Image Science Group, which uses a collaborative and interdisciplinary approach to image forensics, image analysis, vision science, computer vision, computational biology and medical imaging.

We are deeply grateful to Stephen Spencer, Chair of the ACM SIGGRAPH Publications Committee, whose diligence and effort brought these proceedings successfully together as a coherent whole. We thank the ACM publications board for supporting the idea of fast-tracking select publications directly into TAP, and the TAP editorial staff for working closely with us to insure that the papers were available in the Digital Library by the time of the symposium.

Finally, this volume represents a snapshot of a fast-moving interdisciplinary field at one moment in time. We wholeheartedly thank those members of the field who invested time and energy in the symposium by submitting their work, or by reviewing the submitted work. We saw the work over the course of the submission and review process, and proud of its quality and the resulting volume.

APGV 2010 Chairs

APGV 2010 Conference Chairs

Diego Gutierrez	Universidad de Zaragoza
Joe Kearney	University of Iowa

APGV 2010 Program Chairs

Martin S. Banks	University of California, Berkeley
Katerina Mania	Technical University of Crete

Friday, 23rd July 2010

08:00-09:00	Conference Registration - Coffee and Pastries
09:00-09:15	Opening Remarks
09:15-10:30	Session 1: HDR and Illumination

Chair: Greg Ward

Tania Pouli, Douglas Cunningham, Erik Reinhard
Statistical Regularities in Low and High Dymamic Range Images

Timo Kunkel, Erik Reinhard
A Reassessment of the Simultaneous Dynamic Range of the Human Visual System

Jorge Lopez-Moreno, Veronica Sundstedt , Francisco Sangorrin, Diego Gutierrez
Measuring the Perception of Light Inconsistencies

10:30-11:00	Coffee Break and Poster Set-up
11:00-12:15	Session 2: Displays and Visualization

Chair: Victoria Interrante

SungYe Kim, Insoo Woo, Ross Maciejewski, David Ebert, Timothy Ropp, Krystal Thomas
Evaluating Effectiveness of Illustrative Visualization of Schematic Diagrams for Maintenance Tasks

Anke Huckauf, Mario Urbina, Irina Böckelmann, Lutz Schega, Rüdiger Mecke, Jens Grubert, Fabian Doil, Johannes Tümler
Perceptual Issues in Optical-See-Through Displays

Vincent Couture, Michael Langer, Sébastien Roy
(Published in a special issue of ACM Transactions on Applied Perception)
Analysis of Disparity Distortions in Omnistereoscopic Displays

12:15-14:00	Lunch
14:00-15:00	Keynote Address: Prof. Hany Farid 'Photo Forensics: Lighting and Shadows'

Friday, 23rd July 2010

15:00-15:30	Poster Fast-Forward
15:30-16:45	Poster Session + Coffee Break
16:45-18:40	Session 3: Distance, Size and Motion Perception

Chair: Bernhard Riecke

Timofey Grechkin, Tien Dat Nguyen, Jodie Plumert, James Cremer, Joseph Kearney
(Published in a special issue of ACM Transactions on Applied Perception)
How does Presentation Method and Measurement Protocol Affect Distance Estimation in Real and Virtual Environments?

Christian Herdtweck, Christian Wallraven
Horizon Estimation: Perceptual and Computational Experiments

Ivelina V. Alexandrova, Paolina T. Teneva, Stephan de la Rosa, Uwe Kloos, Heinrich Buelthoff, Betty Mohler
Egocentric Distance Judgments in a Large Screen Display Immersive Virtual Environment

Michael Geuss, Jeanine Stefanucci, Sarah H. Creem-Regehr, William Thompson
Can I Pass?: Using Affordances to Measure Perceived Size in Virtual Environments

Xianshi Xie, Qiufeng Lin, Haojie Wu, Gayathri Narasimham, Timothy McNamara, John Rieser, Bobby Bodenheimer
A System for Exploring Large Virtual Environments That Combines Scaled Translational Gain and Interventions

19:30	Reception

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Saturday, 24th July 2010

08:15-08:45	Coffee and Pastries

08:45-09:55 — Session 4: Attention and Vision
Chair: Katerina Mania

Lopez Luro Francisco, Ramon Molla Vaya, Veronica Sundstedt
Exploring Peripheral LOD Change Detections during Interactive Gaming Tasks

Abdullah Bulbul, Cetin Koca, Tolga Capin, Ugur Gudukbay
Saliency for Animated Meshes with Material Properties

Alvin Raj, Ruth Rosenholtz
What Your Design Looks Like to Peripheral Vision

09:55-10:45 — Session 5: Image Processing
Chair: Diego Gutierrez

Yuzhen Niu, Feng Liu, Xueqing Li, Huiyun Bao, Michael Gleicher
Detection of Image Stretching

Tunc Aydin, Martin Cadik, Karol Myszkowski, Hans-Peter Seidel
(Published in a special issue of ACM Transactions on Applied Perception)
Visually Significant Edges

10:45-11:15	Coffee Break

11:15-12:30 — Session 6: Faces
Chair: Rachel McDonnell

Cosker Darren, Eva Krumhuber, Hilton Adrian
Perception of Linear and Nonlinear Motion Properties using a FACS Validated 3D Facial Model

Nadine Gummersbach, Volker Blanz
A Morphing-Based Analysis of the Perceptual Distance Metric of Human Faces

Elizabeth Carter, Lavanya Sharan, Laura Trutoiu, Iain Matthews, Jessica Hodgins
(Published in a special issue of ACM Transactions on Applied Perception)
Perceptually Motivated Guidelines for Voice Synchronization in Film

12:30-14:00	Lunch

Saturday, 24th July 2010

14:00-15:35 — Session 7: Realistic Characters
Chair: Sarah Creem Regehr

Jessica Hodgins, Sophie Joerg, Carol O'Sullivan, Sang Il Park, Moshe Mahler
(Published in a special issue of ACM Transactions on Applied Perception)
The Saliency of Anomalies in Animated Human Characters

Anne-Hélène Olivier, Richard Kulpa, Jan Ondrej, Armel Crétual, Julien Pettré
Interaction between Real and Virtual Humans during Walking: Perceptual Evaluation of a Simple Device

Rachel McDonnell, Carol O'Sullivan
Movements and Voices Affect Perceived Sex of Virtual Conversers

Sophie Joerg, Jessica Hodgins, Carol O'Sullivan
The Perception of Finger Motions

15:35-16:00	Coffee Break

16:00-17:40 — Session 8: Depth Perception
Chair: Marty Banks

Adam Bennett, Matthew Coxon, Katerina Mania
The Effect of Stereo and Context on Memory and Awareness States in Immersive Virtual Environments

Maarten Wijntjes, Sylvia Pont
(Published in a special issue of ACM Transactions on Applied Perception)
Pointing in Pictorial Space: Quantifying the Perceived Depth Structure in Mono and Stereo Images

Zeynep Cipiloglu, Abdullah Bulbul, Tolga Capin
A Framework for Enhancing Depth Perception in Computer Graphics

Gurjot Singh, J. Edward Swan II, Adam Jones, Stephen R. Ellis
Depth Judgment Measures and Occluding Surfaces in Near-Field Augmented Reality

POSTERS

Daniel Mestre, David Blumenthal, Ludivine Boivin, Jean-Marie Pergandi
Display formats for the evaluation of automotive dashboards physical dimensions

Bernhard Riecke, Daniel Feuereissen, John Rieser
Spatialized Sound Influences Biomechanical Self-Motion Illusion ("Vection")

Tien Dat Nguyen, Timofey Grechkin, James Cremer, Joseph Kearney, Jodie Plumert
Effect of Measurement Setting in Judging Traveled Distance: Additional Evidence for Underestimation

Rachael Casey, Adar Pelah, Jonathan Cameron, Joan Lasenby
Influence of step frequency on visual speed perception during locomotion

Mary Whitton, Laura Kassler, Jeff Feasel, Michael Lewek, Frederick P. Brooks, Jr.
Matching Actual Treadmill Walking Speed and Visually Perceived Walking Speed in a Projection Virtual Environment

Maria Sifniotis, Ben Jackson, Katerina Mania, Nikos Vlassis, Phil Watten, Martin White
3D Visualization of Archaeological Uncertainty

Steve Haroz, David Whitney
Temporal Thresholds for Feature Detection in Flow Visualization

Danielle Albers, Michael Gleicher
Perceptual Principles for Scalable Sequence Alignment Visualization

Peter Khooshabeh, Jonathan Gratch, Lixing Huang, Jianhua Tao
Does Culture Affect the Perception of Emotion in Virtual Faces?

Alan Purvis, Veronica Sundstedt
Perceptibility of Clones in Tree Rendering

Laura Raya, Susana Mata, Oscar D. Robles
Perceptual evaluation of illumination effects in virtual environments

Gerd Bruder, Frank Steinicke, Klaus Hinrichs
Calibration and Estimation of Virtual Interpupillary Distances for Immersive Head-Mounted Displays

APGV 2010
Conference Rooms & Exhibition
Los Angeles Marriott Downtown Hotel
333 South Figueroa Street
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