

Conference Program

PREFACE

Welcome to APGV 2011! We are pleased to present you the proceedings of the eighth annual Symposium on Applied Perception in Graphics and Visualization, held in Toulouse, France, August 27-28, 2011. The symposium aims at, on the one hand, using insights from perception to advance the field of visual, auditory and multi-sensory representation while, on the other hand, using computer graphics to enable research on perceptual issues that may otherwise not be possible.

APGV has traditionally fostered interaction between the fields of perception, graphics and visualization. This year, we have emphasized this tradition by co-locating the symposium with the 34th European Conference on Visual Perception (ECVP). We hope to create synergies between the two research communities, which obviously share a lot of common interests.

We received a total of 33 paper submissions. Each submission received three reviews, either by members of the International Program Committee, or external reviewers carefully chosen by them. From those reviews and some additional discussions, 19 papers were finally selected for oral presentation at the conference. Veronica Sundstedt, this year's Posters Chair, additionally selected 17 submissions, highlighting late-breaking research in the field.

Following the current arrangement with *ACM Transactions on Applied Perception (TAP)*, five submissions underwent a second review cycle for inclusion in the APGV special issue of the ACM TAP journal. These five submissions were selected by the Program Chairs, based on comments and recommendations made in the reviews. To grant publication, the authors were asked to address all the comments in the summary review; most of them actually went the extra mile and spent additional time and effort to provide the best possible papers. These papers will appear in the ACM Digital Library as TAP papers at the same time as the symposium takes place. They cannot appear in the APGV proceedings in order to avoid double publication.

In addition to the reviewed papers and posters, and as an immediate outcome of the APGV-ECVP collaboration, this year we are honored to have an impressive list of invited speakers, organized in two short joint symposia on Sunday. The first symposium, organized by Quasim Zaidi and Martin Giese, is entitled '*Deforming shapes - deformable templates*' and the second one, organized by Simon Thorpe, is entitled '*Computer Vision & Biological Vision*'. Furthermore, all APGV attendees are kindly invited to attend ECVP's Rank Price plenary lecture by Stan Dehaene: '*How learning to read changes the visual system*'.

As always, we are deeply grateful to Stephen Spencer, Chair of the ACM SIGGRAPH Publications Committee, whose diligence and effort brought these proceedings successfully together. We thank the whole ACM publications board for supporting the idea of fast-tracking selected papers 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. Thanks also to Rachel McDonnell and Simon Thorpe, Conference Chairs, for the discussions that in the end led up to APGV's final program.

Last, we would like to thank everybody involved in organizing this conference and putting together these proceedings (specially Carol O'Sullivan, Bobby Bodenheimer and Katerina Mania, who were always quick to answer e-mails, attend skype calls and offer advice at all times), as well as the authors of all submissions and the IPC members and external reviewers. It has been an honor to serve as Program Chairs of APGV 2011, and we hope we have met the high standards that APGV demands.

APGV 2011 Program Chairs
Diego Gutierrez, Universidad de Zaragoza
Martin Giese, University of Tübingen

APGV 2011 Conference Chairs

Rachel McDonnell	Trinity College Dublin
Simon Thorpe	Université Toulouse 3

APGV 2011 Program Chairs

Diego Gutierrez	Universidad de Zaragoza
Martin Giese	University of Tübingen

APGV 2011 Posters Chair

Veronica Sundstedt	Blekinge Institute of Technology
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Saturday, 27th August 2011

09:00-10:30 **Session 1: Eyes and Gaze**

Susana Castillo, Tilke Judd, Diego Gutierrez
Using Eye-Tracking to Assess Different Image Retargeting Methods

Laura C. Trutoiu, Elizabeth J. Carter, Iain Matthews and Jessica K. Hodgins
(Published in the APGV special issue of ACM Transactions on Applied Perception)
Modeling and Animating Eye Blinks

Andrew Duchowski, Brandon Pelfrey, Donald House and Rui Wang
Gaze Depth with an Eye Tracker During Stereoscopic Display

Simone Frintrop, Erich Rome and Henrik I. Christensen
(Published in the ACM Transactions on Applied Perception, Vol.7, Issue 1, Article 6, 2010)
Computational Visual Attention Systems and their Cognitive Foundation: A Survey

10:30-11:00 **Coffee Break**

11:00-12:55 **Session 2: Virtual Environments**

Erin Mcmanus, Qiufeng Lin, Aysu Erdemir, Stephan Bailey, John Rieser, Bobby Bodenheimer
Perceiving Alterations in Trajectories while Throwing in a Virtual Environment

J. Adam Jones, J. Edward Swan, Gurjot Singh, Stephen R. Ellis
Peripheral Visual Information and Its Effect on Distance Judgments in Virtual and Augmented Environments

Erin Mcmanus, Bobby Bodenheimer, Stephan Streuber, Stephan De La Rosa, Heinrich Buelthoff, Betty Mohler
The Influence of Avatar (Self and Character) Animations on Distance Estimation, Object Interaction and Locomotion in Immersive Virtual Environments

Betsy Williams, Stephen Bailey, Gayathri Narasimham, Muqun Li, Bobby Bodenheimer
(Published in the APGV special issue of ACM Transactions on Applied Perception)
Evaluation of Walking in Place on a Wii Balance Board to Explore a Virtual Environment

Saturday, 27th August 2011

Nicolas Bonneel, Clara Sued, Isabelle Viaud-Delmon, George Drettakis
(Published in the ACM Transactions on Applied Perception, Vol.7, Issue 1, Article 1, 2010)
Bimodal Perception of Audio-Visual Material Properties for Virtual Environments

12:55-14:15 **Lunch**

14:15-15:45 **Session 3: Visualization**

Fernando Navarro, Susana Castillo, Francisco Seron, Diego Gutierrez
(Published in the APGV special issue of ACM Transactions on Applied Perception)
Perceptual Considerations for Motion Blur Rendering

Jeroen Van Baar, Steven Poulakos, Wojciech Jarosz, Derek Nowrouzezahrai, Rasmus Tamstorf, Markus Gross
Perceptually-Based Compensation of Light Pollution in Display Systems

Lea Lindemann, Stephan Wenger, Magnor Marcus
Evaluation of Video Artifact Perception Using Event-Related Potentials

Alexandre Coninx, Georges-Pierre Bonneau, Jacques Droulez, Guillaume Thibault
Visualization of Uncertain Scalar Data Fields Using Color Scales and Perceptually Adapted Noise

15:45-16:15 **Poster Fast-Forward**

16:15-17:15 **Coffee Break + Posters Session**

17:15-18:45 **Session 4: Distance Estimation**

Markus Leyrer, Sally A. Linkenauger, Heinrich H. Bülthoff, Uwe Kloo, Betty J. Mohler
The Influence of Eye Height and Avatars on Egocentric Distance Estimates in Immersive Virtual Environments

Phillip Napieralski, Bliss Altenhoff, Jeffrey Bertrand, Lindsay Long, Sabarish Babu, Christopher Pagano, Justin Kern, Timothy Davis
(Published in the APGV special issue of ACM Transactions on Applied Perception)
Comparing Near Field Distance Perception in Real and Virtual Environments Using Both Verbal and Action Responses

Qiufeng Lin, Xianshi Xie, Aysu Erdemir, Gayathri Narasimham, Timothy Mcnamara, John Rieser, Bobby Bodenheimer
Egocentric Distance Perception in Real and HMD-based Virtual Environments: the Effect of Limited Scanning Method

Tien Dat Nguyen, James Cremer, Joseph Kearney, Jodie Plumert
Effects of Scene Density and Richness on Traveled Distance Estimation in Virtual Environments

19:30 **Reception**

Sunday, 28th August 2011

09:00 - 11:30	APGV- ECVP SYMPOSIUM I: Deforming Shapes - Deformable Templates
Chris Bregler, USA Non-Rigid Models in Science and Entertainment	
Qasim Zaidi, USA What do Deforming Shapes Reveal about Structure from Motion	
Alan Johnston, UK Perceiving Dynamic Faces	
Rufin Vogels, Belgium Coding of Static and Acting Bodies in Monkey Temporal Cortex	
Martin Giese, Germany Neural Theory for the Recognition of Goal-directed Actions: from Hand Actions to Causality Perception	
Alan Yuille, USA Learning Hierarchical Models of Shape	

11:30 - 11:45 **Coffee Break**

11:45 - 13:15	Session 5: Motion and Animation
Dominik Endres, Andrea Christensen, Martin Giese (Published in the APGV special issue of ACM Transactions on Applied Perception) Emulating Human Observers with Bayesian Binning: Segmentation of Action Streams	
Martin Prazak, Carol O'Sullivan Perceiving Human Motion Variety	
Micheal Larkin, Carol O'Sullivan Perception of Simplification Artifacts for Animated Characters	
Franck Caniard, Heinrich Bülhoff, Pascal Mamassian, Seong-Whan Lee, Ian M. Thornton Active Control Does Not Eliminate Motion-Induced Illusory Displacement	

13:15 - 14:30 **Lunch**

In Cooperation with:



Sunday, 28th August 2011

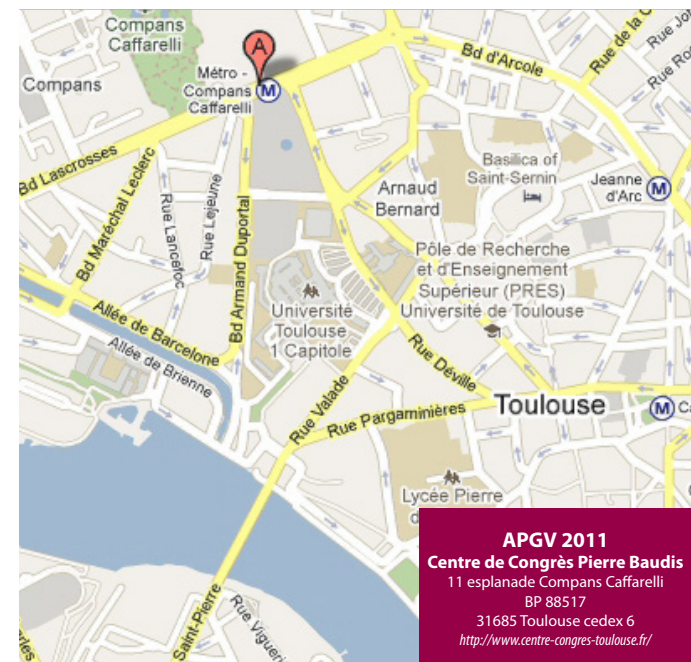
14:30 - 17:00	APGV- ECVP SYMPOSIUM II: Computer Vision and Biological Vision
Simon Thorpe, France Spike Based Recognition - from Biology to Hardware	
Cordelia Schmid, France Bag of Features and Beyond	
Tomaso Poggio, USA Computations, Circuits and Biophysics in Visual Cortex: Learning to Learn	
Aude Oliva, USA Predicting Scene Memorability	
Shimon Ullman, Israel Objects and Parts: Bottom-Up, Top-Down and Context	

18:00 - 19:30	ECVP KEYNOTE
Stan Dehaene (College de France) How Learning to Read Changes the Visual System	

POSTERS
James Mardell, Mark Witkowski, Robert Spence Gaze-Contingent Enhancements for a Visual Search and Rescue Task
Thomas J. Grindinger, Andrew T. Duchowski, Pilar Orero Differentiating Aggregate Gaze Distributions
Guido Maiello, Clara Silvestro, Andrea Canessa, Manuela Chessa, Agostino Gibaldi, Silvio P. Sabatini, Fabio Solari Assessment of Stereoscopic Depth Perception in Augmented Reality Environments based on Low-Cost Technologies
Srinivas Sridharan, Reynold Bailey, Ann McNamara, Cindy Grimm Subtle Gaze Manipulation for Improved Mammography Training
Michael Dorr, Peter J. Bex Gaze-Contingent Real-Time Video Processing to Study Natural Vision
Christine J. Ziemer, Benjamin Chihak, Jodie M. Plumert, Tien Dat Nguyen, James F. Cremer, Joseph K. Kearney Is Perception-Action Coupling More Malleable in Virtual than in Real Environments?
Allan G. Rempel, Wolfgang Heidrich, Rafał Mantiuk The Role of Contrast in the Perceived Depth of Monocular Imagery
Fakhri Torkhani, Kai Wang, Annick Montanvert Towards Perceptual Quality Evaluation of Dynamic Meshes
Nicolas Schneider, Michael Dorr, Laura Pomarjanschi, Erhardt Barth A Gaze-Contingent Reading Tutor Program for Children with Developmental Dyslexia

POSTERS

B. Meyer, M. Gonter, C. Grunert, S. Thomschke, M. Vollrath, M. Magnor Realistic Tone-Mapping with Integrated Human Contrast Perception after Headlight Glares in Driving Simulations
Laura Pomarjanschi, Michael Dorr, Erhardt Barth Gaze Guidance Reduces the Number of Vehicle-Pedestrian Collisions in a Driving Simulator
Jan Wojdzia, Martin Zavesky, Michael Starke, Rainer Groh Coordinated Interaction for Enhanced Perception in Multiple Views
Timo Kunkel, Gerwin Damberg, Lewis Johnson A High Bit Depth Digital Imaging Pipeline for Vision Research
Erin A. McManus, Aysu Erdemir, Stephen W. Bailey, John Rieser, Bobby Bodenheimer Using Endpoints to Judge Alterations in Self-Produced Trajectories in an Immersive Virtual Environment
Qiufeng Lin, Xianshi Xie, Aysu Erdemir, Gayathri Narasimham, Timothy P. McNamara, John Rieser, Bobby Bodenheimer Egocentric Distance Perception in HMD-based Virtual Environments
Stephen W. Bailey, Faith S. Pampel, Daniel Ashmead, Bobby Bodenheimer Spatial Localization with Only Auditory Cues: A Preliminary Study
Gerd Bruder, Frank Steinicke, Carolin Walter, Mathias Moehring Evaluation of Field of View Calibration Techniques for Head-mounted Displays



APGV 2011
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