

PROCEEDINGS



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Bernice E. Rogowitz
Thrasyvoulos N. Pappas
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Editors

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Introduction

Last year we celebrated the 25th anniversary of the Conference on Human Vision and Electronic Imaging. Over that time period, HVEI showcased advanced research on the role of perception and cognition in the design, use, and evaluation of images and imaging systems. Many of the ideas presented at HVEI have seeded new fields of academic inquiry and new technologies. The full set of the HVEI manuscripts from 1988-2014 have been compiled on a CD-ROM, and will be available soon through the SPIE.

This year, we celebrated the first conference in our next 25-year history. To keep the conference fresh, we used our keynote speakers, banquet speaker, and invited sessions to introduce new topics.

In the first keynote, Christopher Tyler (The Smith-Kettlewell Eye Research Institute) introduced ideas about art and vision in the perception and representation of materials. Damon Chandler (Univ. of Oklahoma) highlighted ways in which classic models of image quality still hold secrets, and new directions for the analysis of image quality. Shi-Fu Chang (Columbia Univ.) described new experiments aimed at applying machine learning to capture the emotional content in web images, based on human judgments. Later in the week, our keynote speaker Ed Chi (Google) provided insight into the way web behavior is quantified, and what it tells us about human social behavior. Our banquet speaker, Ed Vessel (New York Univ.) showed us some fascinating behavioral and fMRI studies that dealt with what pleases us aesthetically, how the way we categorize plays into aesthetic preference, and how these judgments are being mediated by our brains.

The special session on auditory-visual interactions provided a window into how information presented to the different senses is integrated, how they compete for attention, and how auditory-visual interactions are observed and manipulated in coding, imaging, and movies. The session on perceptual issues in video covered a range of interesting topics, including spatial-temporal interactions in visual processing. The two invited sessions on user experience raised the importance of social and emotional factors on judgments of image quality and aesthetics, showing that not only the task, but the environment, play a large role in how information is processed.

We also enjoyed sessions on the perception and appearance of materials, real-world and natural environments, methodologies for quantifying perceptual quality, and art and perception. And, a nice complement of interactive poster presentations motivated great discussions. In addition, each day was rounded off

with a discussion session, and to top off the conference, we visited the Exploratorium the afternoon of the last day.

We are dedicated to bringing forward important and new topics at the intersection between human perception/cognition, imaging technology, and art. As we begin our second quarter-century, we find HVEI continuing its move “higher up the food chain.” We are focusing increasingly on technologies, tasks and applications that involve attention, memory, aesthetics, and emotion. As we move into this next phase, we anticipate more focus on imaging applications from medical, digital humanities, lighting, social environments, and art, which pose new challenges for understanding how sensory information is represented, explored, and understood.

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