

KEYNOTE TALK
Tuesday, September 27, 2011
9:00AM – 10:00 AM / Ballroom 1-2

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Can Computers Master the Art of Communication? A Focus on Visual Analytics

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Abstract

Visual analytics seeks to conduct a discourse with the user through images, to stimulate curiosity and a penchant to decipher the unknown. The computer supports the user in this interactive analytical reasoning process, constructing a formal model of the given data, with the end product being formatted knowledge constituting insight. Yet, validation and refinement of this computational model of insight can occur only in the human domain expert's mind, bringing to bear possibly unformatted knowledge as well as intuition and creative thought. So, it is left to this human user to guide the computer in the formalization (learning) of more sophisticated models that capture what the human desires and what the computer currently believes about the data domain. In visual analytics, the computer uses images and text to exchange information with the user about its view of the domain model. Obviously, the better a communicator the computer is, the more assistance it will elicit from the user to help it refine the model. This leads to topic of my talk -the need for the computer to master the art of interpersonal communication-that is, the communication between it and the human analyst. Effective human speakers use various modes of communication, both direct and indirect, to convey a certain message. In this talk, I will enumerate some of these, translate them into the communication with visuals, and then apply them in a few practical applications, such as high-dimensional data visualization and visual model learning.



Speaker Bio-Sketch: Klaus Mueller received an MS degree in biomedical engineering and a PhD degree in computer science, both from The Ohio State University. He is currently an associate professor in the Computer Science Department at Stony Brook University, where he also holds co-appointments in the Biomedical Engineering and Radiology Departments. His current research interests are computer and volume graphics, visualization, visual analytics, medical imaging and computer vision. He won the US National Science Foundation CAREER award in 2001 and the SUNY Chancellor's Award for Excellence in Scholarship and Creative Activity in 2011. He served as a co-chair at various conferences, such as IEEE Visualization, the Volume Graphics Symposium, and the Fully 3D Workshop on High-Performance Image Reconstruction. He has authored and co-authored more than 140 peer-reviewed journal and conference papers, and he has participated in 15 tutorials at international conferences on various topics in visualization and medical imaging. He is a senior

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