2012 Workshop on Ultrascale Visualization
UltraVis 2012

The output from leading-edge scientific simulations is so voluminous and complex that advanced visualization and analysis techniques are necessary to examine and interpret the computed results. Even though visualization technology has progressed significantly in recent years, we are barely capable of exploiting petascale data to its full extent, and exascale datasets are on the horizon.

The Workshop on Ultrascale Visualization has been held in conjunction with the annual IEEE/ACM International Conference on High Performance Computing, Networking Storage and Analysis (Supercomputing Conference) since 2006 to foster communication between visualization researchers and the users of visualization, and to introduce the latest and greatest research innovations in large data visualization. The attendees also learn how these innovations impact scientific supercomputing and discovery process.

This is the 7th Ultrascale Visualization workshop, sponsored in part by the U.S. Department of Energy’s SciDAC program and U.S. National Science Foundation’s PetaApps program. There were a total of ten presentations composed of peer-reviewed papers and invited talks:

1. Large Scale Biomedical Visualization, Chris Johnson, University of Utah
2. An Analysis of a Distributed GPU Implementation of Proton Computed Tomographic (pCT) Reconstruction, Kirk Duffin, Northern Illinois University
3. Stochastic Approach for Integrated Rendering of Volumes and Semi-transparent surfaces, Naohisa Sakamoto, Kyoto University, Japan
4. Meshing the Universe: Integrating Analysis in Cosmological Simulations, Tom Peterka, Argonne National Laboratory
5. Feature-Based Analysis of Large Scale Scientific Data, Timo Bremer, Lawrence Livermore National Laboratory
6. Scalable Visual Queries for Data Exploration on Large, High-Resolution 3D Displays, Khairi Reda, University of Illinois at Chicago
7. Visualization and Post-Processing of Large Scale Engineering Applications, Earl Duque, Intelligent Light
8. The SDAV Software Frameworks for Visualization and Analysis on Next-Generation Multi-core Architectures, Chris Sewell, Los Alamos National Laboratory
10. Oh, $#*! Exascale!: The effect of emerging architectures on scientific discovery, Ken Moreland, Sandia National Laboratories

All talk slides are available at the Workshop website: http://vis.cs.ucdavis.edu/Ultravis12. Seven of the speakers contributed to the proceedings. We would like to thank our program committee members for assisting us in evaluating the submitted papers. The committee members include:

Hank Childs, Lawrence Berkeley National Laboratory
Hans-Christian Hege, ZIB, Germany
Mark Hereld, University of Chicago/Argonne National Laboratory
Kenji Ono, Riken Laboratories, Japan
David Rogers, Sandia National Laboratories
Deborah Silver, Rutgers University
Finally, we would especially like to thank the workshop participants for their attendance and discussion.

Workshop Co-chairs
Kwan-Liu Ma, University of California, Davis
Venkatram Vishwanath, Argonne National Laboratory
Hongfeng Yu, University of Nebraska-Lincoln