

Mechanical & Biomedical Engineering
Department Seminar

Large-Scale Scientific Visualization: the State of the Art and Upcoming Challenges

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1:40pm in MEC 114

The United States Department of Energy invests heavily in large computational resources and the science-based applications to drive them. Physical simulations run at these leadership-class facilities generate massive amounts of results data, which must be analyzed to gain understanding of the underlying phenomena. As the computation of our simulations grow, so too must our ability to perform data analysis and visualization.

In this talk we first review the current state of the art in large-scale visualization and how we deliver high-performance computing as an interactive process. However, we are also seeing significant changes in the landscape of high-performance computing. We discuss how recent trends in computer architecture are breaking down the workflows and algorithms traditionally used for large-scale visualization and how we are responding to the challenges.

BIO:

Kenneth Moreland received his Ph.D. in Computer Science from the University of New Mexico in 2004. Dr. Moreland has spent over the past decade at Sandia National Laboratories researching large-scale visualization during which time he has developed the IceT parallel rendering library and led the ParaView 3 development effort. He is currently a co-PI for the SciDAC Institute for Ultrascale Visualization and the PI for the Data Analysis at Extreme (Dax) project funded by ASCR.

