The 2005 Visualization Technical Achievement Award

Charles Hansen

University of Utah

Award Recipient 2005

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This 2005 Visualization Technical Achievement Award goes to Charles Hansen, University of Utah, in recognition of seminal work on tools for understanding large-scale scientific data sets.

Charles Hansen has been working on the visualization and analysis of large-scale scientific data for the past 15 years. As simulation of physical processes scale up, the need to understand the results of such simulations has posed significant challenges for the visualization field. The IEEE VGTC is pleased to recognize Charles Hansen's contributions to large-scale scientific data visualization with the 2005 Visualization Technical Achievement Award.

Biography

Charles (Chuck) Hansen is a Professor of Computer Science in the School of Computing and an Associate Director of the Scientific Computing and Imaging Institute at the University of Utah. He received a BS in computer science from Memphis State University in 1981. He also received a PhD in computer science from the University of Utah in 1987.

Chuck's PhD research was titled 'CAGD-based Computer Vision' and explored the boundaries between computer graphics and computer vision. After completing his PhD studies, he was a Bourse de Chateaubriand PostDoc Fellow at INRIA, Rocquencourt France, in 1987 and 1988 working with Olivier Faugeras' group on real-time trinocular stereo. Following his PostDoc, he returned to Utah as a visiting assistant professor before accepting a position at Los Alamos National Laboratory (LANL) in 1989. It was at Los Alamos that visualization captured his research interest. From 1989 to 1997, he was a Technical Staff Member in the Advanced Computing Laboratory (ACL) located at LANL, where he formed and directed the visualization efforts in the ACL. These efforts focused on effective methods for the visualization and analysis of very large data sets and included work on various parallel architectures such as the Thinking Machines CM-2 and CM-5 and the Cray T3D.

He was fortunate to work with a talented group of visualization researchers, both his staff and international visitors to his group. While at Los Alamos, he and his colleagues published multiple papers on parallel visualization and rendering techniques for the exploration of large datasets. In 1997, Chuck moved back to Utah as a Research Associate Professor to join Chris Johnson in establishing the Scientific Computing and Imaging (SCI) group as one of the international leaders in visualization. In 1998, he joined the Computer Science faculty as an Associate Professor. While at Utah, he has pursued his interest in interactive techniques for graphics and visualization. Working with his students and others in SCI, he has produced pioneering work in interactive visualization techniques.These have included exploiting novel data structures for rapid data access and processing of visualization algorithms.

With the advent of the programmable GPU, his background in parallel algorithms has provided unique opportunities for novel methods exploiting the hardware. With students, he has explored time-dependent methods for accelerating isosurface extraction, parallel image based rendering techniques for visualization, interactive multidimensional volume rendering and advanced volume graphics that include modeling and shading, the combination of haptics and visualization for perceptualization of data, and remote visualization.

Chuck Hansen has published over 100 peer reviewed journal and conference papers and has been a co-author on three papers recognized with "Best Paper Awards" at the IEEE Visualization Conference (1998, 2001, 2002). His research has made contributions to the fields of scientific visualization, computer graphics, parallel computation and computer vision. He is currently Associate Editor in Chief of IEEE Transactions on Visualization and Computer Graphics.

Award Information

The IEEE VGTC Visualization Technical Achievement Award was established in 2004. It is given every year to recognize an individual for a seminal technical achievement in visualization. VGTC members may nominate individuals for the Visualization Technical Achievement Award by contacting the awards chair, John Staudhammer, at http://tab.computer.org/vgtc/.