Continuous Statistical Visualization — Where Information Visualization Meets Scientific Visualization

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Abstract

A rather recent trend in visualization is to combine traditional scientific visualization methods (such as volume rendering) with information and statistical visualization techniques (such as scatterplots). This combination of techniques is particularly useful for multi-variate data defined on spatial grids because the spatial relationships and the characteristics of the data attributes can be shown simultaneously. However, statistical and information visualization methods for multi-variate data, such as scatterplots and parallel-coordinates plots, have tradition- ally been applied to intrinsically discrete data points and, therefore, treat data as a collection of independent data samples. In contrast, this talk advocates the use of continuous data models for statistical visualization ap- plied to continuous data. Main advantages are that visual artifacts from data sampling are avoided and that the visualization process becomes scalable with respect to data set size.

Biography: Daniel Weiskopf received the Diplom (MSc) degree in physics and the PhD degree in physics, both from Eberhard-Karls- Universität Tübingen, Germany, and he received the Habilitation degree in com- puter science at Universität Stuttgart, Germany. From 2005 to 2007, Dr. Weiskopf was an assistant professor of computing science at Simon Fraser University, Canada. Since 2007, he has been a professor of computer science at the Visualization Research Center, Universität Stuttgart (VISUS) and at the Visualization and Interactive Systems Institute (VIS), Universität Stuttgart. His research interests include visualization, visual analytics, GPU methods, real-time computer graphics, ubiquitous visualization, perception-oriented computer graphics, and special and general relativity. He is member of ACM SIGGRAPH, the Gesellschaft für Informatik, and the IEEE Computer Society.