Min Chen: Visualization in Flatland

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Abstract

A large number of challenging problems in visualization involve three or higher dimensional data, while the majority of visualization results have been, and will continue to be, shown on two dimensional computer displays and paper media. "Flatland: A Romance of Many Dimensions", written by a headmaster and Shakespearean scholar in 1884, enlightened us about the fundamental difficulty and hindrance in visualizing such data. The speaker will draw from his experience in areas of visualization (including volume graphics and video visualization), and discuss challenges in visualization from the perspective of "Flatland", highlighting the essence of dimension reduction in several visualization techniques. To a large extent, such challenges also signify the divergence of visualization from traditional computer graphics applications. The speaker will present his answers to the following questions: when does graphics become visualization, and what would be a visualization problem (or concept or system) that is not a graphics one?

Short Biography

Min Chen received his BSc degree in computer science from Fudan University in 1982 and his PhD degree from the University of Wales in 1991. He is currently a professor in the Department of Computer Science, Swansea University. In 1990, he took up a lectureship in Swansea. He became a senior lecturer in 1998 and was awarded a personal chair (professorship) in 2001. His main research interests include visualization, computer graphics, and interactive computing. Since 1992, he has led the Visual and Interactive Computing group at Swansea (currently consisting of 6 faculty members), and under his supervision, 19 PhD and 3 MPhil students have successfully completed their research programs. He has also led the Centre of Excellence for Computing and Software Technologies since 2002, and is the co-director of the recently-established Wales Institute for Visual Computing. He was the paper co-chair of IEEE Visualization 2007 and 2008, and played a major role in establishing workshops on volume graphics and knowledge-assisted visualization. He is a fellow of the British Computer Society and a member of Eurographics, IEEE and ACM SIGGRAPH.