机器感知与智能教育部重点实验室学术报告
科学与工程计算中心计算科学学术报告

北京大学 PEKING UNIVERSITY

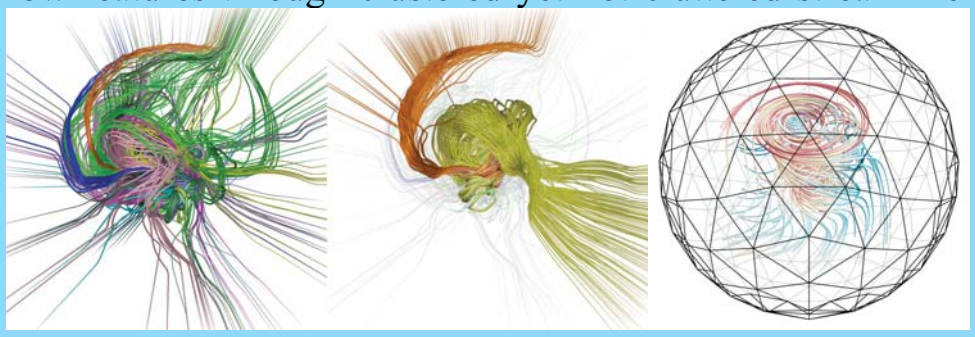
From Clutter to Clarity: Analyzing and Visualizing Large and Complex 3D Flow Fields

时间：2012年5月14日（星期一）下午2:00

地点：北京大学理科二号楼2736报告厅

Chaoli Wang (Assistant Professor)
Michigan Technological University

Visual understanding of three-dimensional fluid flows is critically important in many scientific, engineering and medical disciplines. The most common way to visualize a flow field is to depict the paths, i.e., streamlines for steady flows or pathlines for unsteady flows, that fluid elements will follow at any point in time. For large and complex three-dimensional flows, a fundamental visualization challenge is to strike a careful balance between complexity and clarity. Our strategy to achieve effective streamline visualization is to selectively display streamlines that are characteristic as individuals and informative as a group. In other words, selected streamlines should highlight salient flow features and patterns while reducing occlusion and clutter. In this talk, I will present our recent work on i) hierarchical streamline bundles that accentuate the visual impression of flow features through clustered yet not cluttered streamline display, and ii) a unified framework that solves the problems of streamline selection and viewpoint selection based on a dual information channel.



Chaoli Wang is an assistant professor of computer science at Michigan Technological University. His research focuses on large-scale data analysis and visualization, high-performance computing, and user interfaces and interaction. He received a PhD degree in computer and information science from The Ohio State University in 2006. From 2007 to 2009, he was a postdoctoral researcher at the University of California, Davis. His work has been published in leading conferences and journals such as IEEE Visualization Conference, ACM/IEEE Supercomputing Conference, IEEE Pacific Visualization Symposium, IEEE Transactions on Visualization and Computer Graphics, and IEEE Computer Graphics and Applications. He has served on the program committees of IEEE Visualization Conference (2011, 2012) and IEEE Pacific Visualization Symposium (2008, 2009, and 2010).

2:00 P.M. Mondy, May 14th, 2012
Room 2736, Science Building No. 2, Peking University