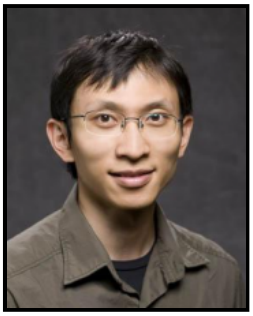

CCT Colloquium Series

Shape Mapping and its Applications in Graphics and Visual Computing

Xin Li, Louisiana State University

Assistant Professor, Department of Electrical and Computer Engineering

Johnston Hall 338
February 20, 2009 - 11:30 am

Abstract:
With the rapid advancement of 3D scanning technologies, high-fidelity geometric datasets of huge size have been acquired through hardware devices. A fundamental and challenging problem is how to build the best possible (surface and volume) mapping between different objects of arbitrarily complicated topological types. Inter-shape mapping, or more specifically, finding a low distorted correspondence between two given shapes is a very powerful enabling tool for various applications in digital entertainment, modeling and simulation, vision, medical imaging, and visualization, etc. We seek accurate and efficient solutions to this fundamental and important problem. We have articulated and developed a general and powerful shape mapping paradigm for objects in different dimensions (from 1D curves, 2D surfaces, to 3D solid objects) with arbitrary topologies. Compared with existing shape mapping techniques, our work offers a better and integrated solution to the inter-object correspondence problem. We explore great potential of our mapping framework through various valuable applications such as shape matching, deformation analysis, animation morphing, information transfer, re-meshing, texture synthesis, physics-based modeling, and so on. Furthermore, we envision broader application scopes including scientific simulation, vision, content-driven information retrieval, digital medicine, virtual environments, etc.

Speaker's Bio:
Xin Li is an assistant Professor in Department of Electrical & Computer Engineering and Center for Computation & Technology. He received the Ph.D. (2008) and M.S. (2005) in Computer Science at Stony Brook University (SUNY), and the B.S. (2003) in Computer Science from University of Science and Technology of China. His research interests include computer graphics, geometric modeling and processing, physics based simulation, and visualization. His recent work includes curve comparison and general shape (surface and volumetric data) mapping, and their applications in broad areas of graphics, vision, visualization, digital geometric processing, animation/simulation, and CAD. For more information about Xin Li and his research projects, please visit http://www.ece.lsu.edu/xinli

---

Refreshments will be served.
This lecture has a reception.

Center for Computation & Technology
2003 Digital Media Center • Telephone: +1 225/578-5890 • Fax: +1 225/578-8957