

# CS Seminar

## ***Visualization for Urban Environments***

**Dr. Huamin QU**

**Department of Computer Science and Engineering  
The Hong Kong University of Science and Technology**

**Date:**

**June 3, 2010**

**Thursday**

**4:00 pm**

**Venue:**

**Room 308**

**Chow Yei Ching Building**

**The University of Hong Kong**

**Abstract:**

With the rapid development of 3D modeling and rendering technologies, it is now possible to model a whole city and then show it to the users via Google Earth or Virtual Earth. This opens doors to many applications. For example, it can be used for tourists to plan their trips, for city officials to do city planning or promotion, for scientists to simulate emergent situations, and for ambulance drivers to find the shortest route with less traffic. In this talk, I will present a comprehensive urban environment visualization system which can overlay all kinds of useful information over the context of realistic 3D city models.

I will first present a novel focus+context zooming technique, which allows users to zoom into a route and its associated landmarks in a 3D urban environment from a 45-degree bird's-eye view. We first create more empty space in a map by broadening the roads in it with an adapted seam carving algorithm. Through the creative utilization of the empty space, our technique can informatively reveal the focus region and minimize distortions to the context buildings. Useful information can now be conveniently overlaid in the newly created empty space. After that, I will introduce several visualization projects related to urban environments, such as visual analysis of air pollution data, taxi trajectory data, and mobile phone data.

**About the Speaker:**

Huamin Qu is an assistant professor in the Department of Computer Science and Engineering at the Hong Kong University of Science and Technology. His main research interests are in visualization and computer graphics. He has conducted a wide range of research on scientific visualization, information visualization, visual analytics, real time graphics systems, virtual reality, and medical imaging. He received a 2009 IBM Faculty Award and Honorable Mention for the best paper award at IEEE Visualization 2009. He obtained a BS in Mathematics from Xi'an Jiaotong University, China, an MS and a PhD in Computer Science from the Stony Brook University.

**All are welcome!**

**For enquiries, please call 2859 2180 or email [enquiry@cs.hku.hk](mailto:enquiry@cs.hku.hk)**

**Department of Computer Science**

**The University of Hong Kong**

