

Urban Modeling and Understanding by Data-driven Optimization

Mr Tian Feng

PhD Candidate

Supervisor: Asst Prof Sai-Kit Yeung

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Venue: Think Tank 20 (building 2 level 3 room 2.305)

Abstract: Thanks to the rapid development of simulation techniques and the popularization of publicly accessible geo-tagged imagery data, it has been increasingly convenient to utilize data that were created and shared by non-expert users for solving problems in computer graphics and vision. In this thesis presentation, we attempt to explore the possibility of applying data-driven optimization approaches to achieving desirable design and perception results towards urban areas.

To begin with, we discuss innovations that data-driven optimization approaches have brought to the field of urban modeling and understanding, illustrated with the advantages of relevant applications. Then we describe the novelty of our framework by proposing novel solutions to three pertinent problems. Specifically, we apply data-driven optimization approaches to designing mid-scale layouts and urban transport networks in the context of urban modeling from computer graphics perspective. Regarding urban understanding from computer vision perspective, we utilize such approaches in inferring urban zoning.

Speaker Bio: Tian Feng was granted his BSc Degree in Geographical Information Systems (GIS) from Zhejiang University (ZJU) in June 2012, and later joined the Singapore University of Technology and Design (SUTD) as PhD candidate in Information Systems Technology and Design (ISTD) under the SUTD President's Graduate Fellowship in September 2013. He is currently under the supervision of Prof Sai-Kit Yeung. He has once served as research intern at ZJU GIS Lab from July 2012 to August 2013, and visited the Graphics and Virtual Environments Lab at the University of Massachusetts Boston (UMass Boston) from December 2015 to June 2016. His research interest focuses on urban and mid-scale layout modeling in computer graphics, and urban understanding and perception in computer vision.

