

# LSGI Research Seminar

## **A computational geography approach to understanding human-urban environment interactions**



**Dr Junjun YIN**

Assistant Research Professor  
Pennsylvania State University, United States

**Date:** 29 Jul 2022 (Fri)

**Time:** 9:30 - 10:30am

**Venue:** online @ Zoom

**Language:** English

### **Bio:**

*Junjun Yin is an Assistant Research Professor at the Social Science Research Institute and an ICDS Associate at the Institute for Computational and Data Sciences, the Pennsylvania State University. Before joining Penn State, he was a postdoctoral research fellow at the CyberGIS Center for Advanced Digital and Spatial Studies at the National Center for Supercomputing Applications, the University of Illinois at Urbana-Champaign. He obtained his Ph.D. degree in Spatial Information Science from the Dublin Institute of Technology, Ireland, which is a field in conjunction with Computer Science and Geographic Information Science (GIScience).*

*His research interests center on GIScience with a focus on understanding human dynamics in the urban environment. His main research agenda employs computational geography approaches and geospatial Big Data to model human-urban environment interactions and their applications to urban environmental sustainability, resilience, and mobility. One of his current research themes is using geo-located social media data as a geospatial Big Data source for addressing social problems and societal issues.*

### **Abstract:**

*Seeking detailed spatial and temporal human activity patterns about how citizens interact with their surrounding urban environments is critical to understanding how cities work. This presentation aims to show how we can develop computational geography approaches with geospatial social media Big Data to model and uncover unique human-urban environment interaction patterns. By incorporating complex network theory and large-scale mobility data, spatial networks are constructed to represent people's activities when interacting with the urban environments. This presentation illustrates two case studies: (1) The first study depicts intriguing urban geography based on the collective spatial interaction patterns. Its findings provide an explicit explanation of how spatial proximity affects the interaction intensity across space. (2) The second study characterizes people's daily activity patterns in the urban environment. By modeling the transitions in people's daily activities as geographic context-aware mobility networks, this study reveals distinct and recurrent activity patterns, known as activity motifs, that form the fundamental elements embedded in complex human-urban environment interactions. Finally, this presentation discusses potential challenges and opportunities in adopting computational geography as a core component for a wider range of social science applications.*

All are welcome. To register, please [click here](#) for the details.

For enquiries, please contact Ms Anna Choi at 3400 8158 or [anna.choi@polyu.edu.hk](mailto:anna.choi@polyu.edu.hk)