LSGI Distinguished Lecture Series
"Social sensing with big geo-data: revisiting several basic geographical concepts"

Overview

It was our pleasure to invite Dr. LIU Yu, Professor of GIScience at the Institute of Remote Sensing and Geographical Information Systems, Peking University, to deliver a seminar of the LSGI Distinguished Lecture Series on 30 March 2017.

Dr. LIU Yu

Dr. LIU Yu is Professor of GIScience at the Institute of Remote Sensing and Geographical Information Systems, Peking University. His research interests cover several theoretical aspects in geographical information science. At present, he pays much attention to big geo-data mining and applications. He has conducted about 10 research projects as PI or Co-PI granted by NSFC (National Science Foundation of China) and MOST (Ministry of Science and Technology) of China, and is the winner of National Science Fund for Outstanding Young Scholars. Yu Liu has published more than 50 papers in international journals including Annals of the Association of American Geographers, International Journal of Geographical Information Science, and Transactions in GIS. He is currently an Associate Editor of Computers, Environment and Urban Systems and an editorial board member of Journal of Spatial Information Sciences.

Lecture abstract

Recently, various big data are drawing more and more attention in geographical research and many scholars have conducted many empirical studies using mobile phone data, social media data, taxi data, and so forth. Social sensing, a newly proposed concept, represents the capability that big data reveal socio-economic geographical features by capturing the spatial behavior patterns of a large population. Given that the term "environment" in human-environment relation studies has been expanded to include the behavioral environment, social sensing techniques provide us a new approach to understanding human-environment relations. Additionally, the emergence of social sensing helps us to rethink several fundamental issues in geographical studies. This talk will discuss two aspects with the support of big geo-data: sensing geographical environments and sensing human behaviors and revisit several basic geographical concepts such as spatial heterogeneity, spatial interaction, place, scale effect, and distance decay. Given that big data can measure distributions and interactions at both individual and aggregate levels, we can quantify the underlying distance and scale effects from the observed patterns. To tackle space and population heterogeneity, clustering methods can be introduced to decompose a space and/or a population into relatively homogeneous human groups and places. Considering that human groups and places are essential to qualitative studies, we argue that social sensing offers an opportunity to integrate big data and survey-based small data, and consequently, qualitative and quantitative methods. Obviously, the second merit makes it possible to construct hybrid geography.