

# RESEARCH SEMINAR

DEPARTMENT OF GEOGRAPHY AND RESOURCE MANAGEMENT  
THE CHINESE UNIVERSITY OF HONG KONG

## Urban Visual Intelligence: Perceiving Cities with AI and Street-Level Imagery

10 Dec 2021 (Fri)  
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The last decades have witnessed an increasing penetration of digital technologies in the physical space. This ushered in a series of radical changes in how we understand, conceive, design, and live the city. More recently, the emergence of geospatial big data and advances in artificial intelligence have opened up new opportunities to sense urban dynamics and evaluate the processes and consequences of urbanization. In this talk, we will focus on four key issues in the understanding and quantitative representation of the urban physical environment: 1) How to observe urban physical environment on a large scale? 2) How to derive semantic information from the scenes of street-level imagery? 3) How to quantify the physical environment of a place? and 4) How to understand the interactions between the built environment, human dynamics, and the socio-economic environment at the human scale? We discuss these issues and approaches through a conceptual framework, 'Urban Visual Intelligence', that illustrates how new image data sources and deep learning techniques can reshape the way we perceive cities, enabling us to study their built environments and their interactions with human behaviour at different scales, and facilitate the development of human-centred and sustainable smart cities.

### Dr Fan Zhang

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Dr Fan Zhang is a Senior Research Associate at MIT and the lead of the Urban Visual AI group at the MIT Senseable City Lab. His research interests include urban data science, geospatial data mining, and GeoAI. He has published over 40 peer-reviewed papers (H-index: 16) and served as a reviewer for over 30 SCI journals. Dr Zhang is now an associate editor of Transactions in Urban Data, Science, and Technology, and a guest editor of ISPRS Journal of Photogrammetry and Remote Sensing (IF: 8.9). He is a member of the board of directors of CPGIS, and has been a session chair in AAG, ACSP, and Geoinformatics, etc. He won the Global Young Scientist Award at the World Geospatial Developers Conference 2020.



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