

RESEARCH SEMINAR

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

Small World AI- A Modular Metacognitive Digital Twin System for Greener Cities & Cleaner Mobility

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Digital twin technology can improve the level of refined and intelligent management of cities, and has wide applications in urban planning, epidemic and disaster prevention, smart logistics, and sustainability assessment. Cell phone mobile data, as a more accessible fine-grained data set at the city level, has high mining value. However, the seemingly massive and huge cell phone mobile data actually contains serious problems such as sample scarcity, sampling bias, and heterogeneous errors. Then, how to simulate the real "big world" based on the "small world" constructed by the rough cell phone data and guided by the physical constraints of urban population movement behavior becomes one of the research bases of the digital twin city. This talk will focus on our recently built small world AI model - cell phone mobile data processing and analysis system, and its application to smart stations, smart energy and urban sustainability indicators assessment.

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Dr. Haoran Zhang got double bachelor's degrees in Industrial Engineering and Economics, and double Ph.D. degrees in Industrial Engineering and Sociocultural Environment Studies. He has published about 125 journal articles, with 80 ones as first/corresponding authors. He is the editor-in-chief of Handbook of Mobility Data Mining (3 volumes) and Big Data and Mobility as a Service. He is also the subject editor of Advances in Applied Energy. He led Small World AI project incubation, which received the 2021 Smart 50 Awards and 2021 R&D 100 Awards (IT/Electrical category). In 2020, he received the project of Leading Initiative for Excellent Young Researchers supported by the Ministry of Education, Culture, Sports, Science and Technology, Japan.



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