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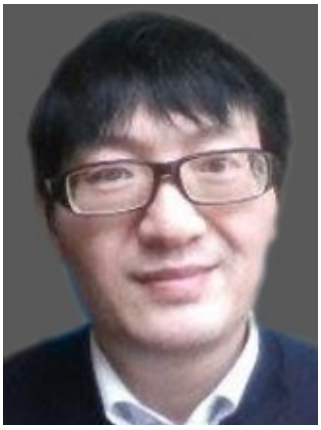

Topic of the Speech:
Estimating Exercisality on Urban Greenways Using Physical Exercise Trajectory Data and Network-constrained Approach

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Dr. Jianquan Cheng is a Reader in Urban Studies at the Department of Natural Sciences, Manchester Metropolitan University (MMU) and Deputy Director of the Manchester Metropolitan Crime and Well-being Big Data Centre. Jianquan is also a visiting professor at the Key Laboratory of Environment Change and Resources Use in Beibu Gulf (Ministry of Education), Nanning Normal University, China.

His research experience and expertise encompass sustainable urbanisation (e.g., urban growth, geographical mobility, spatial accessibility, energy consumption, and gentrification), and sustainable healthy cities (e.g., health inequality, sports infrastructure, physical exercise, walking behavior, and climate and pandemic impacts), using GIS (geographic information science and system), big data, AI, and VR (virtual reality) approaches. His recent projects focus on analysing and modelling the impact of the physical and built environment on public health and well-being across various scales in Chinese and British cities, aiming to generate data-driven evidence and frameworks for spatial interventions and planning. He is also an Associate Editor for Frontiers in Sustainable Cities and International Review for Spatial Planning and Sustainable Development. Jianquan is a member of UK ESRC peer review college and a panel member of the British Council ISPF.

ABSTRACT SUBMISSION
-FOR INVITED SPEAKER ONLY

Estimating Exercisality on Urban Greenways Using Physical Exercise Trajectory Data and Network-Constrained Approach

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ABSTRACT (NO MORE THAN 500 WORDS:)

Green exercise is a key facet of urban vitality, supporting the hypothesis that increased physical activity enhances urban vitality. Although research into urban vitality recognises green space as a crucial element, existing studies have primarily focused on external vitality from the perspective of the spatial system, often neglecting the unique internal vitality associated with physical exercise. This study proposes an original conceptual framework of 'exercisality' from the perspective of system energy, comprising four dimensions: density, diversity, intensity, and time continuity. Given that urban greenways are publicly accessible, linear-type green infrastructures enabling residents to engage in regular and habitual green exercise, we have developed an innovative quantitative method to estimate and validate 'exercisality' on urban greenways (EUG) by utilising physical exercise trajectory data from the Keep APP across central Beijing in 2022. The hotspots of EUG, identified through the innovative method of local indicators of network-constrained clusters (LINCS), were initially defined as a new landscape of EUG. It is argued that the EUG landscape will generate a spatial demonstration effect of large-scale physical exercises on the public. This effect will encourage more people to participate in physical exercise if the linear green infrastructure is planned and governed appropriately.

Key words: exercisality, urban greenway, network-constrained approach, APP trajectory data, green exercise, spatial demonstration effect.