2023/2024 CASA MSc Dissertation Partner Project

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Project title: Rethinking distance/time as travel cost for urban mobility and design.

Outline:

Accessibility has been and continues to be central to physical planning. Although not new, time-based urban performance indicators such as the 15-minute cities have become a mainstream planning principle. Yet, 15 minutes catchment-areas continue to be measured in a relatively simplistic way using metric distance along street networks.

By looking at streets as a basic spatial unit for the analysis of urban mobility and design, these research projects aim to explore the notion of distance as an impedance factor for measuring accessibility, expanding into the relationships between the people’s experience and the environmental quality of streets.

These topics are considered to be of global application and interest; therefore, the specific study areas will be defined with the students but could include ‘data rich’ and ‘data poor’ territories.

Data:

Depending on the selected geographies to conduct the study, there a few available datasets.

UK

Data published by Ordnance Survey (OS). OS Open Roads, Points of Interests, OS Detailed Path Network, OS MasterMap Topography Layer

GLOBAL COVERAGE

OpenStreetMap, Overture Maps Data, Satellite Imagery.

LONDON

Local Authority Maintained Trees, Greater London Authority.

Possible methodologies:

Accessibility analysis based on built environment features (streets, buildings, points-of-interest) using network science methods for weighted networks. Data Science methods could include statistical and spatial clustering for comparative analysis, and text mining for structuring data. The research is considered exploratory and encourages the development of novel geocomputation methods.

Relevant literature:

Batty, M. (2009). Accessibility: In Search of a Unified Theory. Environment and Planning B: Planning and Design, 36(2), 191–194. <https://doi.org/10.1068/b3602ed>

Gehl, J. (2011). Life between buildings: Using public space. Island Press.

Gil, J., Beirão, J. N., Montenegro, N., & Duarte, J. P. (2012). On the discovery of urban typologies: Data mining the many dimensions of urban form. Urban Morphology, 16(1), 27–40. <https://doi.org/10.51347/jum.v16i1.3966>

Palominos, N., & Smith, D. A. (2022). Examining the geometry of streets through accessibility: New insights from streetspace allocation analysis. Environment and Planning B: Urban Analytics and City Science. <https://doi.org/10.1177/23998083221139849>

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I prefer to meet\*:

* Always online
* Mostly online
* Hybrid/flexible
* Mostly in person. X
* Always in person

\* This is not binding, but intended to help best match student and supervisor based on meeting preferences