**Chen Zhong / dissertation ideas, 2020-2021**

Overall research interests:

* Urban mobility (focusing on travel behaviour and urban activity patterns)
* Urban form and spatial structure, (using, e.g., spatial interaction models, spatial network analysis, accessibility analysis)
* Spatial data mining (focusing on the use of automatic generated human mobility data such as smart card data and social media data) and data uncertainty

1. **Change of spatial structure in the great bay area (**contributes to [**SIMETRI**](https://simetri.uk/) **Projects)**

--One idea is to investigate the evolution of spatial structure in the GBA over a decade by spatial network analysis (e.g., spatial syntax, percolation theory) using road network data (from 2010 to 2020). Historical road network data in 2010, 2014 and 2016 are available but needs some minor processing. Road network data after 2016 needs to be sourced.

--Another way of exploring the topic is to profile the spatial structure of GBA in the context of the node-place-design model. A good reference paper can be found [here](https://www.sciencedirect.com/science/article/abs/pii/S0966692319300377). Besides existing data (e.g., housing price data, POIs, population data) we could offer, you will need to collect, clean and process some extra open sources data to build a more comprehensive list of urban indicators.

1. **Comparatively study of cities (London and Shenzhen) using accessibility and segregation measure (**contributes to [**SIMETRI**](https://simetri.uk/) **Projects)**

The brief idea is to explore and compare how characteristics of each region's transport system and spatial mismatch between residential and workplace locations are related to inequalities. A reference paper could be found [here](https://www.sciencedirect.com/science/article/abs/pii/S0264275120313640), but this project will look at London and Shenzhen instead.

1. **Covid-19: mobility, public awareness and spread of the virus**

The aim is to identify any relationship between covid cases and the spatial patterns (of human mobility, activity/covid related tweets) extracted from (geo)tweets in London.

Data for this project will be public covid data from the [gov website](https://coronavirus.data.gov.uk/); tweets(provided for project use only), and other supplementary data sets, e.g., UK census data, deprivation data

**Extra –** freestyle tweet data mining - Anyone interested in a case study of developing countries, particularly, Kenya, are welcome to propose ideas. The relevant tweets data (historical and during covid) is available.