Supervisor: Jia Wang

|  |
| --- |
| **Project 1: Identification of leisure hubs from geo-tagged social media posts**  Location planners working for, e.g. a pub or cinema chains regularly need to identify and quantify new store opportunities based on existing leisure activity (“hub effect”). In this context, you will build a set of scored leisure hub polygons for the UK, based on data from location-enabled social media platforms such as Twitter. The methodology should draw from the fields of Natural Language Processing, Information Retrieval and Computational Geometry. |
| **Project 2: Identification of tourist locations from geo-tagged social media posts**  This is a similar project to project 1. Tourists are often underrepresented in location planning models because, unlike residential or worker population, they’re not recorded in more traditional data sources like the census. To fill that gap, you will build a tourist intensity layer for the UK based on data from location-enabled social media platforms such as Twitter. The methodology should draw from the fields of Natural Language Processing, Information Retrieval and Computational Geometry. In the end, you can conduct the project evaluation by comparing your tourist locations with the ones from official data, e.g., the tourism data from local councils. |
| **Project 3: Insights from Uber movement data**  This is the project topic allows you quite a lot of freedom for exploration. We would like to understand what the value of Uber’s open movement data is in the context of location planning or people’s travel pattern. In this project you will analyse the granularity and coverage of the Uber movement data in the UK and come up with specific case studies that can, for instance, help a retailer to better understand the travel patterns to/from a location and urban planners to better understand their cities. |
| **Project 4: Modelling road networks and pavements with smart navigation**  Existing representations and models of road networks focus mainly on traffic and road usage of vehicles. This project focuses on cyclists and pedestrians who partially share road networks with vehicle users but have different travel requirement and behaviours. The project aims at modelling cycling/walking networks that can be integrated into the existing road networks with better navigation strategies for pedestrians and bike users.    **Skills required:**   * Programming languages such as R, Python or Scala for data manipulation * Libraries used for processing spatial data such as *geopandas* (Python) or *PostGIS* (SQL) * Basic understanding of unsupervised learning and statistical analysis * Data visualisations tools for presenting spatial/temporal data * Basic understandings of graph theory for road network representation |