Xuefei QIN

EDUCATION BACKGROUND

University of Edinburgh, College of Arts, Humanities and Social Sciences Edinburgh, UK
Master of Science **Major:** Urban Strategies and Design 09/2020 – 11/2021
Overall Classification: With Merit **Average score**: 66
Core Courses: Spatial Planning, Strategic Spatial Vision Project, Urban Design Theory, Urban Design for Health and Wellbeing, Urban Project, Latin American Cities.

Xi'an University of Science and Technology, School of Architecture and Civil Engineering Shaanxi, China
Bachelor of Engineering **Major:** Architecture 09/2014 – 06/2019
GPA: 3.56/4 **Average score:** 85.63/100
Core and Related Courses: Architectural Design, City Planning, Residential Area Planning, Site Design, Conceptual Design, Computer-Aided Design, Advanced Mathematics C, Computer Cultural Basis, Engineering Economy and Project Management, Computer Basic Skills Training, Model Making

PUBLICATIONS

1. **Xuefei Qin**, "Correlation between fine-grained neighborhood socioeconomic status distribution and crime rates in New York City based on machine learning", *Conference on Signal Processing and Machine Learning 2023* (Just Accepted)

2. **Xuefei Qin**, Yinghua Ji, "Analysis of urban functional zone classification method based on big data visualization design integrating POI and remote sensing data", *The Journal of Sustainable Energy Technologies and Assessments* (Under review)

QUALIFICATIONS AND SKILLS

Coursera (University of Michigan) Python 3 Programming 10/2022 – 12/2022
Python basics; Python functions, files, and Dictionaries; Data collection and processing with python; Python classes and inheritance; Python Project: pillow, tesseract and OpenCV

Coursera (Imperial College London) Mathematics for Machine Learning 12/2022 – 02/2023
Linear Algebra, Multivariate Calculus, PCA

Software:
Python: Basic programming; Machine learning, Web data scraping
RStudio, SPSS: Data cleaning, processing and analysis; Mapping; Data visualization
Geographic information processing and analysis: ArcGIS, QGIS
Modeling and Design: Rhino, Grasshopper, Sketchup, CAD, Photoshop

RESEARCH EXPERIENCE

• **MASTER THESIS： Evaluation and difference comparison of smart city construction status in China based on the Entropy-TOPSIS method**
Supervisor： Dr. Collins Michael
This project focused on the evaluation of the development level of pilot smart cities in China. Based on the Entropy-TOPSIS evaluation model, we proposed the performance of 36 cities from six dimensions and gives four suggestions for smart city construction.
Main contributions:
• Proposed a smart city evaluation system based on China, consisting of six dimensions and 21 indicators.

- Evaluated 36 smart cities and analyzed the results based on the Entropy-TOPSIS model.
- Proposed recommended actions for improving smart city performance in the context of China.

- **PROJECTS**

1. Smart City: Theory, Practice and Application: Urban and transportation planning based on data analysis and machine learning **07/2022 – 11/2022**

Supervisor: Prof. Yan Song

This project focused on urban problem-solving using machine learning and data analysis. Based on the open data and machine learning, we proposed an approach to predict fine-grained neighborhood socioeconomic status (NSES) in Brooklyn, USA and analyzed the relationship between NSES and crime rate.

Main contributions:

- Designed a method for Brooklyn, USA, that collects publicly available data from housing advertising sites and the Open Street Map and trains a machine learning model to predict fine-grained NSES.
- Machine learning model optimization, the final prediction accuracy reached 82%.
- Analyzed the correlation between fine-grained NSES distribution and crime rates.

2. A guideline for inclusive "Urban Village" regeneration in Guangzhou, China **03/2021 – 06/2021**

Supervisor: Dr. Soledad Garcia Ferrari

This project focused on the urban village (informal settlements) regeneration and housing problem of the low-income population in Guangzhou, China. Based on quantitative research methods, the report proposed an inclusive urban village regeneration framework to solve these two issues.

Main contributions:

- Demonstrated the close relationship between the renewal of urban villages and the housing problems of low-income groups.
- Designed an analytical framework to evaluate the performance of the current urban village regeneration.
- Proposed design guidelines for Guangzhou's urban villages to help shape an inclusive urban village program that will meet the housing needs of the low-income population payable housing by 2035, while improving the quality of living in the urban village.

3. Analysis of the challenges of housing and habitat in Guangzhou, China **02/2021 – 04/2021**

Supervisor: Dr. Soledad Garcia Ferrari

This project aims to investigate and analyze housing and living conditions in six urban centers of Guangzhou, China. Based on qualitative research and field trips, the paper identified the main challenges in each area.

Main contributions:

- Reviewed the development of the city of Guangzhou, the policies behind it, and the current situation.
- Analyzed the housing situation and relevant data in different urban areas and identified the main challenges in each area.
- Conducted case studies and comparative studies.

4. Latin American Cities: A comparative study of housing affordability in Brazilian cities

Supervisor: Dr. Soledad Garcia Ferrari **03/2021 – 06/2021**

This project focused on the housing affordability of low-income groups in Brazil. Based on the cluster analysis and least squared method, this paper analyzed changes in housing affordability and regional differences between 2008 and 2018 in 27 large and medium-sized cities in Brazil.

Main contribution:

- Evaluated and classified the housing market development level of selected cities based on the cluster analysis.
- Established the analysis model of housing affordability evaluation.
- Calculated and analyzed the changes of housing affordability and its time series in 27 Brazilian cities.

5. Alternative Strategic Policies Report on the City of Edinburgh Region **10/2021 – 12/2021**

Supervisor: Prof. Harry Smith

This project focused on the alternative policies that are more following the Strategic Spatial Development Vison 2020 – 2070 in Edinburgh region to better deliver the aims of a competitive strategy.

Main contribution:

- Evaluated the potential for the project to convey the strategy of a competitive area.
- Proposed detailed alternative policies and actions.

6. Assessment of spatial planning status in Beijing, China **09/2021 – 12/2021**

Supervisor: Dr. John McCarthy

This project focused on the necessary criteria for an effective spatial planning system, and explored the performance of Beijing's system. Based on the quantitative method, this paper proposed a spatial planning evaluation system from four dimensions and evaluated the achievements in Beijing.

Main contributions:

- Analyzed the four essential criteria for an effective spatial planning system.
- Designed a spatial planning system evaluation methodology based on the criteria.
- Examined the extent to which Beijing, China, has achieved these standards.