

# Xuefei Qin

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Research interest: AI-Assisted Spatial Analytics and Modelling, Generative Design, Urban Computing

## EDUCATION

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### University of St Andrews

09/2024 - now

- M.S. in Computing and Information Technology
- Relevant Courses: Artificial Intelligence Principles, Artificial Intelligence Practice, Databases, Object-Oriented Modelling, Design and Programming, Software Engineering Principles, Software Quality, Web Technologies

### University of Edinburgh

09/2020 - 11/2021

- M.S. in Urban Strategies and Design GPA: 66/100 (With Merit)
- Relevant Courses: Spatial Planning, Strategic Spatial Vision Project, Urban Design Theory, Urban Project, Urban Design for Health and Wellbeing, Latin American Cities

### Xi'an University of Science and Technology

09/2014 – 06/2019

- B.Eng. in Architecture GPA: 85.63/100
- Relevant Courses: 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

## RESEARCH EXPERIENCES

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*Note. [x] refers to the papers in the publication & research list.*

### Wang Lab, Fourth Medical University

02/2023 – 01/2024

Advisor: Prof. Fuli Wang

Research Topics: GeoAI for spatial analytics, GeoAI for humanities [3], Disease prognosis model [2]

### Smart City Seminar: Urban and transportation planning based on data analysis and machine learning, University of North Carolina at Chapel Hill

06/2022 - 02/2023

Advisor: Prof. Yan Song

Research Topics: Mobility analysis, GeoAI for spatial analytics [1]

### Global Urbanism and Resilience Lab, University of Edinburgh

09/2020 - 11/2021

Advisor: Prof. Soledad Garcia-Ferrari & Prof. Harry Smith

Research Topics: Urban quantitative research [5], Urban regeneration [6,7], Housing [8]

## PUBLICATIONS & RESEARCHES

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### Publications (\* indicates co-first author, \* indicates correspondent author)

1. **Qin, X.** (preprint). 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*
2. **Qin, X.<sup>+</sup>**, Zhang, R.<sup>+</sup>, Gao, X., Zheng, Y., Hou, G., Zhang, Y., Tian, Y., Wang, Y., Ma, S., Wang, F.\* (major revision). Sarcomatoid renal cell carcinoma prognosis prediction based on the machine learning algorithm. *Cancer Reports*.
3. Yuan, W.<sup>+</sup>, **Qin, X.<sup>+</sup>**, & Jiang, X.\* (under revision). Are neighborhood perceptions associated with children's emotional health in Hong Kong? Insights from GeoAI. *Urban Informatics*

## **Researches**

### **4. MASTER THESIS (2025): Renewables Calculator – A Computational Tool for Residential Energy System Planning**

This project designed and developed an interactive full-stack simulation platform for evaluating residential renewable energy systems. Users can explore system configurations and operating strategies using real-world data. The tool supports user-led scenario testing and early-stage decision making in sustainable retrofit planning.

Key Technologies: React.js, Spring Boot, Java

### **5. MASTER THESIS (2021): Evaluation and difference comparison of smart city construction status in China based on the Entropy-TOPSIS method**

This paper focused on the evaluation of the development level of pilot smart cities in China. Based on the Entropy-TOPSIS evaluation model, this project proposed a smart city evaluation system from six dimensions and evaluated 36 cities, then gave four suggestions for smart city construction.

### **6. AI-based Flight Route Planner | Java, AI Search, Spatial Modelling**

Implemented a complete polar-coordinate flight route planner with multiple AI search strategies (DFS, BFS, UCS, A\*, Best-First, SMA\*). Modelled aircraft movement in circular grid space and applied tie-breaking rules to ensure consistent state expansion. Evaluated algorithm performance across optimality, memory, and efficiency. Extended the system with a bidirectional heuristic search and conducted a comparative analysis.

### **6. A guideline for inclusive “Urban Village” regeneration in Guangzhou, China**

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.

### **7. Analysis of the challenges of housing and habitat in Guangzhou, China**

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.

### **8. A comparative study of housing affordability in Brazilian cities**

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.

## **QUALIFICATIONS AND SKILLS**

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**Programming:** Python, Java, R, JavaScript, SQL, Go

**Geographic information processing:** ArcGIS, QGIS

**Modeling & Design:** Rhino, Grasshopper, Sketchup, CAD

**English:** IELTS 7

**Qualifications:** [Deep Learning Specialization](#); [Mathematics for Machine Learning Specialization](#); [Python 3 Programming Specialization](#).