Jiaqi Liang

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EDUCATION

TU Graz, Austria - PhD in Architecture & Planning (Smart City Focus), Doctoral Program in Technical Sciences 08/2021-Now
Cornell University, United States - Master of Regional Planning, College of Arts, Architecture and Planning 08/2021-05/2023
East China Normal University, China - B.S. in Human Geography, School of Urban and Regional Science 09/2016-06/2020
University of British Columbia, Canada - Visiting Student in Urban Forestry 06/2017-08/2017

WORK EXPERIENCE

Junior Researcher *Complexity Science Hub, Vienna, Austria* 11/2024-Now

- Worked as a PhD researcher focusing on **urban sustainability** in the Digital Innovation School of Complexity Science Hub.
- Conducted research on **transportation, energy, urban growth and morphology**, especially on **the Global South**, with approaches of complex systems and data and network science, as well as application of urban massive data and LLM.

Sustainable Smart City Intern *International Telecommunication Union, Geneva* 08/2023-08/2024

- Organized the 1st United Nations Virtual Worlds Day with 20+ UN entities and 200+ participants; authored the 1st UN Executive Briefing on virtual worlds and SDGs. Crafted graphic-rich webpages and presentations, authored event reports.
- Conducted research on **digital transformation** and sustainable development trends, **smart city case studies**, industrial solutions and examined the impact of digital twins, large generative models on future city.
- Managed a digital transformation webinar series with 30+ episodes and 1000+ participants; contributed to 2 ITU Technical Reports and 5 international conferences, enhancing Digital Transformation Resource Hub.

Governance Researcher *Tongji-MIT City Science Lab, Remote* 10/2023-10/2024

- Engaged in the **SoCity DAO Project**, focused on promoting **green commute** transportation means, studied decentralized incentive policies combined with current blockchain layer2 solutions, and smart contract technologies.
- Developed the web application product on green commute and reputation record. Suggested new voting models, reputation score calculation and governance token system design and promoted prosocial pro-sustainable behaviors in cities.

Sustainability Intern *The KPA Group, Pleasanton, CA, US* 05/2022-10/2022

- Developed **sustainability strategies** for 10+ Northern California projects using LEED and WELL standards; assessed the public facilities. Built predictive models for city population and staff growth by Stata.
- Wrote technical reports on net zero carbon emission. Assessed local hazards for ***climate change adaptation***, analyzed ***earthquakes, floods and wildfires*** with open data from USGS, NOAA by ArcGIS Pro
- Created 3D models of facilities for sunlight, thermal, and energy analysis with DEM data

GIS Graduate Assistant *Cornell University, Ithaca, NY, US* 08/2022-12/2022

- Responsible for course CRP 4080: Introduction to GIS, covered **geospatial data processing**, thematic mapping, geocoding, georeferencing, network analysis. Instructed Python coding labs, including the usage of analysis tools like ArcGIS Pro, QGIS, Geoda and access of open-source urban big data.
- Managed, published and used ArcGIS Online shapefiles and Geo-datasets in Cornell CUGIS platform.

Urban Planning Consultant *Tianhua Planning & Design Co., Ltd, Shanghai* 08/2020-06/2021

- Shaped strategic concepts, and communicated with clients for **6 strategic master planning projects.**
- Studied green technology trends, mapped market competition, evaluated global value chain for bamboo, yacht and marine industry, and estimated future market growth.
- Built models by muti-source data to **estimate feasible development amount**, and compared to clients' need.
- **Interviewed industry experts**, government officials, drafted questionnaires, and wrote summaries.
- Scraped data of land transaction, market rent, and compensation data to estimate overall returns of projects.

PROJECT & RESEARCH EXPERIENCE

Modeling Horizontal and Vertical Urban Growth in the Global South Cities (ongoing project)

- Decomposed and modelled urban growth with high resolution multi-year imagery data, analyzed cities' growth patterns

Case Study of the Development Research about Science, Technology and Innovation Parks in Asian-Pacific Countries, *sponsored by United Nations ESCAP*

- Conducted literature review and analyzed cases of Asian Science, Technology, and Innovation parks.
- Wrote a report about the history, typology, and operation of Indonesia STI parks; Discussed and compared with current studies of other Asian-Pacific countries.

How the Location Selection of High-Speed Railway Stations Influences Station Area Development in China

- Established the group project as the leader; Archived and preprocessed social-economic, NPP-VIIRS ***nighttime light imagery***, and POI data related to high-speed railway stations. Measured station area development based on night activity
- Used geocoding services to enrich heterogeneous raw data with their geographic information with Google Map API
- Implemented multivariate regression analysis and ***Difference-in-Difference estimation*** to determine the statistical importance of station construction based on panel data

Perception of Reliability of Metro System Extracted from Social Media Data

- Scraped and extracted informative comments about Shanghai Metro System from social media by Python.
- Applied Natural Language Processing tools to make sentiment analysis and keywork extraction, referred the Shanghai Metro yearly report to deeply analyzed why people have positive and negative perceptions.

Encourage Trips to Green Space: Effects of Built Environments of Home and Workplace on Green Space Usage

- ***Geocoded*** neighborhood addresses (Google Map API), collected and processed park usage frequency, and socio-economic data at individual level. Quantified built environment factors based on ***POI data mining***.
- Implemented a ***Gradient Boosting Decision Tree*** model to analyze the non-linear impact with R

Prediction of Sustainable Transportation Choices and Spatial Analysis of the Effect of Public Transit on Median Earnings of NYC

- Predicted frequency of sustainable trips and whether people choose sustainable transportation for commuting by applying ***Random Forest and Boosting models***.
- Analyzed effects of socio-economic and geographical factors on the choice of sustainable transportation.
- Archived and preprocessed ***social-economic and POI data*** related to public transit.
- Used ***hotspot analysis*** to significant spatial clusters of high earnings, implemented multivariate regression analysis and Spatial Error and Spatial Lag models to determine the statistical importance of public transit accessibility on different groups of people.

HONORS AND PRIZES

Excellent Undergraduate Student of Shanghai, *awarded by Shanghai Municipal Education Commission*
National Scholarship (Top 0.2% of 27,000,000 students), *awarded by Ministry of Education of the People's Republic of China*
Excellent Student in 2016, 2017, and 2018, *awarded by East China Normal University*
Premium Scholarship in 2016, *awarded by East China Normal University*

SKILLS

Urban Design: Adobe InDesign, Illustrator, CorelDraw, Rhino, AutoCAD, Microsoft Suites
Programming, Stats & ML: Python, R, Neural networks (PyTorch), Natural Language Processing, Stata, SPSS
GIS: ArcGIS Pro, QGIS, ArcMap, ENVI
Certificates: UN Introduction to Data Governance, BCG Climate and Sustainability Virtual Experience Program, Coursera Machine Learning Online Certificate, UN Sustainable Finance
Languages: English (Professional), Chinese (Native), French (Beginner), German (Beginner)