Wenjing Gong

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EDUCATION

Tongji University, Shanghai, China   2019.09-2022.06

Master of Science in Architecture

- GPA: 88.5/100 (Entrance through the exam-free recommendation program)
- Awards: Academic Scholarship covering all tuition fees 2019.09-2022.06

Shandong University of Science and Technology, Qingdao, China   2014.09-2019.06

Bachelor of Engineering in Architecture

- GPA: 90.5/100 (Rank: 1/60 for 5 years; The national college entrance examination grade: 620)
- Awards: First-class Scholarships in academic performance (5%, 9 times); First-class Corporate Scholarships (5%, 2 times); Design-related Competition Awards (11 times, National and International level); "Outstanding Graduate" of Shandong Province (5%); "Outstanding Student" in Science, Technology, and Innovation at university (5%)

Columbia University, New York, USA   2019.12

Visit Student in Graduate School of Architecture, Planning and Preservation (on site)

- Attended academic meetings and workshops on the subject of urban sprawl, and delivered the final presentation of a design research project on behalf of group members (score: 90/100)

RESEARCH ARTICLES

[1] **Gong, W.**, Huang, X.*, White, M., Langenheim, N., 2023. Walkability Perceptions and Gender Differences in Urban Fringe New Towns: A Case Study of Shanghai. *Land* 12, 1339. https://doi.org/10.3390/land12071339 (SSCI Q2)

[2] **Gong, W.**, Jin, R*., Li, T. Deciphering Urban Bike-Sharing Patterns: An In-depth Analysis of Natural Environment and Visual Quality in New York's Citi Bike System. *Journal of Transport Geography* (Under Review, SSCI Q1)

[3] Zhang, X.*, **Gong, W**. Evolution of Fire Administration Space: Analysis of Location and Architectural Form of the Fire Stations in the Concession Areas of Modern Shanghai. *Time + Architecture*. 2021(06): 156-165. https://doi.org/10.13717/j.cnki.ta.2021.06.025 (In Chinese)

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RESEARCH EXPERIENCE

Deciphering Urban Bike-Sharing Patterns: An In-depth Analysis of Natural Environment and Visual Quality in New York's Citi Bike System

Group Leader | Research Project | Advisor: PhD candidate. Rui Jin (TU Dortmund, Germany)   2023.05-present

- Utilized multi-sources data, including sociodemographic, natural environment, and built environment factors to examine their impact on Citi Bike usage in New York City on weekdays and weekends in the year 2022.
- Processed about 13 million trip data using Python, collected a set of 6,744 street view images through Google API, and then employed PSPNet model for semantic segmentation; processed sociodemographic data at Census Block Groups level, Points of Interest data, weather and air quality data using ArcGIS pro.
- Applied machine learning models to establish non-linear relationships between features and bike-sharing usage at the station scale and reveal the feature importance using SHapley Additive exPlanations (SHAP) package in Python.
- Developed multiscale geographically weighted regression (MGWR) models to capture spatial non-stationary and reveal quantitative effects of related factors at the neighborhood scale.

Walkability Perceptions and Gender Differences in Urban Fringe New Towns: A Case Study of Shanghai

Independent Research | Research Project funded by the Australian Research Council Linkage Project and the National Natural Science Foundation of China (NSFC) | Advisor: Dr. Xiaoran Huang (Swinburne, Australia)   2023.02-2023.07

- Utilized the Network Analysis tool in ArcGIS to obtain the 15-minute walking radius for 11 communities in Shanghai's five new towns and the central area based on the road network from Open Street Map.
- Developed a TrueSkill-based rating system to dynamically collect audits of 325 street view images from professional students, and used DeeplabV3 and Mask R-CNN models to extract the physical features in images.
- Conducted a clustering analysis using PCA and K-means++ algorithms of the perceived walkability scores in 11 communities and explored the characteristics of each cluster.
- Applied Random Forest feature importance to analyze gender differences in factors influencing walkability perception and assessed the prediction performance of various machine learning models.

Intelligent Logistics System under the Perspective of Big Data

Group Member | Digital FUTURES Workshop | Advisor: MetroDataTech (China's leading data technology company providing integrated solutions to complex problems)   2022.06

- Utilized spatial analysis methods such as Kernel Density, Standard Deviational Ellipse, and Spatial Autocorrelation to characterize the spatial and temporal evolution of courier station distribution in 2018 and 2022 at the macro scale.
- Applied the geographically weighted regression (GWR) model to identify meso-influential factors and models that are "fit for courier stations" and evaluated the supply and demand for street-scale courier station layouts.
- Analyzed micro-environmental characteristics "fit for courier stations" within 500m buffer zones and proposed an effectiveness evaluation of the current situation based on specific indicators.
- Built a platform on Datlas system developed by MetroDataTech that integrates data visualization, supply and demand, and performance evaluation for courier station siting services.

Research on Fire Stations and Fire Municipal Administration in Modern Shanghai

Independent Research | Master Thesis (Outstanding) | Advisor: Prof. Xiaochun Zhang   2020.09-2022.06

- Applied qualitative methods to summarize the establishment, distribution, and location characteristics of fire stations in modern Shanghai, as well as the general layout, functional composition, and architectural form.
- Analyzed the impact of municipal fire station construction on Modern Shanghai from sociological and anthropological perspectives, focusing on urban autonomy and civil society.

Undoing Sprawl: Resizing the Urban Form in the Era of "Negative Population Growth"

Group Member | Design Research | Advisor: Prof. Yonghe Zhang, Prof. Zheng Tan, Prof. Michael Bell   2019.09-2020.01

- Analyzed the impact of urban sprawl, including the occupation of green spaces and arable land, as well as the growing separation of food production from consumption in the city, through literature review and satellite map comparisons.
- Suggested a novel urban development framework integrating urban agriculture with the community through three distinct prototypes: agriculture + housing, shopping, and education.

WORKING & TEACHING EXPERIENCE

- Urban Designer and Planner: Tongji Architectural Design (Group) Co., Ltd.   2022.08-present
- Teaching Assistant: Design Basics III, Department of Urban Planning, Tongji University   2020.09-2021.01

SKILLS & ADDITIONAL INFORMATION

- Languages: English (IELTS: 7.0), Chinese (native)
- Spatial Data Analysis: ArcGIS Pro, Geoda, MGWR 2.2
- Programming: Python for data processing, visualization, and analysis; Semantic Segmentation and Instance Segmentation of images; Machine learning models construction and evaluation
- Additional Course Certificates: Machine Learning Specialization from Stanford University on Coursera