# Wenjing Gong

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## EDUCATION

**2024 -**   **Ph.D. Student, Urban and Regional Science**
Texas A&M University, College Station, USA
Advisor: Dr. Xinyue Ye

**2019 - 2022**   **M.E., Architecture (Urban Study)**
Tongji University, Shanghai, China

**2019**   **Visiting Student, Graduate School of Architecture, Planning and Preservation**
Columbia University, New York, USA

**2014 - 2019**   **B.E., Architecture**
Shandong University of Science & Technology, Qingdao, China *(2024 US News: #377 globally)*

## ACADEMIC & PROFESSIONAL EMPLOYMENT

**2024 - 2028**   **Graduate Research Assistant**
Advisor: Dr. Xinyue Ye, Center for Geospatial Sciences, Applications and Technology,
Texas A&M Institute of Data Science - Urban AI Lab,
Texas A&M University, College Station, USA

**2022 - 2024**   **Designer and Planner**
Architecture Design & Research Institute of Tongji University, Shanghai, China

**2020**   **Undergraduate Teaching Assistant**
Department of Urban Planning, Tongji University, Shanghai, China

## RESEARCH INTERESTS

- Urban Analytics, GIScience, GeoAI, Urban Planning
- Transportation, Travel Behavior, Human Mobility
- Sustainable and Resilient Cities, Urban Climate, Public Health

## PEER-REVIEWED PUBLICATIONS

2024   **Gong, W.**, Rui, J., Li, T., 2024. 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* 115, 103799. https://doi.org/10.1016/j.jtrangeo.2024.103799

2023   **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

## RESEARCH EXPERIENCE

**05/2023 - 01/2024  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 | Mentor: Ph.D. candidate. Jin Rui (TU Dortmund, Germany)

- 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.
- Authored a manuscript published in the *Journal of Transport Geography* as the lead writer, based on research results.

**02/2023 - 07/2023  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 | Mentor: Dr. Xiaoran Huang (Swinburne, Australia; NCUT, China)

- 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.
- Authored a manuscript published in the journal *Land* as the lead writer, based on research results.

**06/2022  Intelligent Logistics System under the Perspective of Big Data**

Group Member | DigitalFUTURES 12th Summer Workshop | Mentor: MetroDataTech (China's leading data technology company)

- 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.

## PRESENTATIONS

Workshops

2022      Gu, J., **Gong, W**., Zhang, X. Analysis of the Spatial Distribution of Express Courier Stations and Assessment of Site Selection Effectiveness. *DigitalFUTURES 12th Summer Workshops*, July 2, 2022, Virtual.

2019      **Gong, W**., Huang, H., Zhang, X. Undoing Sprawl: Urban Agriculture as a Social Innovation. *Resizing the Urban Form in the Era of "Negative Population Growth" Workshop*, Columbia University, December 9, 2019, New York.

## AWARDS & HONORS

2019 - 2022      Academic Scholarship covering all tuition fees

2014 - 2022      Design/Planning-related Competition Awards (11 times, National and International level)

2014 - 2019      First-class Scholarships in academic performance (5%, 9 times)

2014 - 2019      First-class Corporate Scholarships (5%, 2 times)

2019      "Outstanding Graduate" of Shandong Province (5%)

2019      "Outstanding Student" in Science, Technology, and Innovation at university (5%)

## SKILLS

**Programming:** Python (Data Processing, Visualization, and Analysis), HTML

**Machine learning/Deep learning:** Computer Vision (Semantic/Instance Segmentation), Tree models, Explainable AI (SHAP)

**Spatial Data Analysis:** ArcGIS Pro, QGIS, Geoda, MGWR 2.2

**Design and Planning:** AutoCAD, SketchUp, Rhino, Photoshop, Illustrator, InDesign, Enscape, Lumion, XIUMI (WeChat H5 pages Creating)