

SUMMARY

My current research focuses on how the visual built environment influences people's mobility choices and preferences at a national scale. More broadly, I am interested in urban analytics and computational geography.

EDUCATION

- **University of Leeds – *PhD in Geography*** 2026-2029
Research Interests: Computer Vision, Human Mobility, Data Visualization
- **National University of Singapore – *Master of Urban Planning*** 2023-2025
Modules: Urban Planning; Statistics; Data Visualization GPA:4.50/5
- **Hefei University of Technology – *Bachelor of Engineering in Urban Planning*** 2018-2023
Modules: Urban Planning; Geo-Information Science; Urban Economics GPA:85.76/100

PUBLICATIONS

• **Journals**

4. Quintana, M., Liu, F., Torkko, J., Gu, Y., Liang, X., Hou, Y., Ito, K., Zhu, Y., Abdelrahman, M., Toivonen, T., Lu, Y., & Biljecki, F. (2026). It is greener on the other side: Greenery perception across demographics and personalities in multiple cities. *Landscape and Urban Planning*, 271, 105618. <https://doi.org/10.1016/j.landurbplan.2026.105618>
3. Quintana, M., Gu, Y., Liang, X., Hou, Y., Ito, K., Zhu, Y., Abdelrahman, M., & Biljecki, F. (2025). Global urban visual perception varies across demographics and personalities. *Nature Cities*, 2(11): 1092-1106. <https://www.nature.com/articles/s44284-025-00330-x>
2. Gu, Y., Quintana, M., Liang, X., Ito, K., Yap, W., & Biljecki, F. (2025). Designing Effective Image-based Surveys for Urban Visual Perception. *Landscape and Urban Planning*, 260, 105368. <https://doi.org/10.1016/j.landurbplan.2025.105368>
1. Hu, H., Gu, Y., Liu, W., Nie, X., & Zhang, M. (2022). Research on Micro-Regeneration of Street Corners in the Old Downtown Based on Rhizome Concepts: A Case of Hongxing Road, Yicang Lane, and Wushan Lane in Hefei. *Urbanism and Architecture*, 19(3), 63–67. <https://doi.org/10.19892/j.cnki.csjz.2022.03.14>

• **Conferences**

6. Gu, Y., Li, W., Sia, A., & Biljecki, F. (2026). Assessing Park Satisfaction from Google Maps Reviews Novel Evidence from Multimodal Text–Image Analysis. *Proceedings of the 34th Annual GIS Research UK Conference (GISRUK 2026)*.
5. Cai, C., Kuriyama, K., Gu, Y., & Herthogs, P. (2025). Can a large language model assess urban design quality? Evaluating walkability metrics across expertise levels. *20th 3D GeoInfo & 9th Smart Data Smart Cities 2025*. <https://doi.org/10.5194/isprs-annals-X-4-W7-2025-1-2025>
4. Gu, Y., Liu, H., Lan, L., He, Y., & Biljecki, F. (2025). A Bayesian Spatiotemporal Framework for Explaining Bus Ridership Dynamics in Singapore. *Proceedings of the 19th International Conference on Computational Urban Planning and Urban Management (CUPUM)*. <https://doi.org/10.17605/OSF.IO/ABYQH>
3. Quintana, M., Gu, Y., & Biljecki, F. (2024). Poster abstract: My Street is Better than Your Street: Towards Data-Driven Urban Planning with Visual Perception. *Proceedings of the 11th ACM International Conference on Systems for Energy-Efficient Buildings, Cities, and Transportation*. <https://doi.org/10.1145/3671127.3698700>
2. Gu, Y., Zhang, Y., & Xuan, W. (2023). Generative Design Method of Building Groups Based on AIP (Aging in Place) Assessment: The Case of Dense Urban Renewal Districts in Hong Kong. *Design for Inclusivity: Proceedings of the World Congress of Architects 2023*, 479–495. <https://doi.org/10.1007/978-3-031-36302-3>
1. Gu, Y., Bai, Y., Shen, J., Zhang, S., Li, L., & Ouyang, Y. (2023). Evaluation and optimization of pedestrian space in urban village streets from a child-friendly perspective: A case study of Hefei city. *Proceedings of the 2023 Annual National Planning Conference*. <https://doi.org/10.26914/c.cnkihy.2023.055726>

WORK & RESEARCH EXPERIENCE

- **College of Design and Engineering, National University of Singapore** Singapore, SG
Research Engineer (Urban Analytics Lab) | Full-time 10/2025 – 12/2025
 - Funded by National Parks Board project: ‘Spatio-temporal trends in usage and perception of parks and green spaces’.
 - **Data Science:** Conducted large-scale data analysis of Google Maps Reviews to quantify park perception and satisfaction in Singapore.
- **Future Cities Lab Global, Singapore-ETH Centre** Singapore, SG
Research Assistant (Semantic Urban Elements) | Full/Part-time 05/2024 – 06/2025

- **Experimental Research:** Developed and refined urban perception surveys, ensuring methodological rigor and cross-market comparability across five continents on the globe.
- **Data Science:** Conducted preprocessing, statistical analysis, and interpretation of survey data to derive actionable insights.

• **College of Design and Engineering, National University of Singapore**

Singapore, SG

Research Assistant (Urban Analytics Lab) | Part-time

08/2023 – 04/2024

- **Experimental Research:** Led a one-month survey, gathering over 600 responses on subjective human perception.
- **Data Science:** Conducted cross-sectional and longitudinal analyses to evaluate the consistency and variability across diverse survey settings.

• **College of Architecture and Art, Hefei University of Technology**

Hefei, CHN

Teaching Assistant (Architectural DigitalFUTURES) | Full-time

08/2022 – 09/2022

- **Project Management & Teaching:** Managed and supported the instruction of a Computational Art and Technology Workshop involving a team of 15 undergraduate students.
- **Hardware & Software Management:** Oversaw and maintained laboratory computational resources to ensure support for scientific research activities.

• **Anhui Urban and Rural Planning and Design Institute**

Hefei, CHN

Assistant Engineer (GIS Module) | Full-time

07/2021 – 09/2021

- **Field Research:** Conducted on-site demographic surveys and data collection in Tianchang City.
- **Data Science:** Identified village layouts in Tianchang City using remote sensing imagery and performed data entry, analysis, and visualization of demographic information.

OTHER INDEPENDENT RESEARCH

Comparative Analysis of Microscopic Geographic Data and Macroscopic Geographic Data for

• **Housing Price Prediction: A Case Study in Singapore**

Tutor: Chaewon Ahn

05/2024

- Collected resale housing prices in Singapore, geocoded addresses to obtain coordinates, and aggregated them into level-8 H3 grid cells.
- Gathered macro-scale (e.g., Point of Interest, Night-time light intensity) and micro-scale (Street View Images) urban data to analyze their contributions to housing prices using GWR models at both levels.
- Performed t-tests to statistically compare explanatory differences between the two levels and offered integrated policy recommendations and urban planning insights for future housing development and renewal.

Assessing the Impact of Urban Built Environment on MRT Ridership Dynamics in Singapore: A

• **Spatiotemporal Analysis**

Tutor: Filip Biljecki

04/2024

- Examined MRT ridership trends across Singapore's planning areas from 2020 to 2023.
- Aggregated built environment variables: bus ridership, POI density, nighttime light density, and population density.
- Used OLS, GWR, and GTWR models to analyze the relationship between MRT ridership and built environment variables, compared model performance, and interpreted variable contributions from a spatiotemporal perspective.

• **Correlation Between Campus Environment Elements and Relaxing Effects based on Mobile Sensing**

Tutor: Ying Long

07/2023

- Captured 4,575 street view images of Tongji University using a GoPro mobile sensing device.
- Applied SegFormer for semantic segmentation to obtain campus environment element metrics and trained a ViT model with human scorings to obtain relaxation probabilities.
- Analyzed correlations between relaxation probabilities and segmentation factors to inform campus design recommendations.

• **Optimal Design of GAN Generative Masterplan based on Urban Carbon Emission Effects**

Tutor: Jiawei Yao

07/2022

- Annotated urban elements (e.g., buildings, plants, roads) from satellite images using LabelMe.
- Segmented satellite tiles with Mask R-CNN and trained datasets using pix2pix GAN.
- Integrated GAN models with building scheduling algorithms, optimizing for road and plant carbon emissions metrics.

SKILLS

- **Languages:** Chinese, English
- **Programming & Scripting languages:** Python, R, HTML
- **Softwares:** QGIS, AutoCAD, Photoshop, Illustrator, Figma, Grasshopper