XIUCHENG LIANG

Residence: Singapore

PhD Researcher

College of Design and Engineering, National University of Singapore

 Personal Website

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 Google Scholar Profile

 LinkedIn Profile

RESEARCH INTERESTS

Urban Planning, Urban Data Science, Urban Landscape and Built Environment, Deep Learning, Computer Vision

EDUCATION

•Doctor of Philosophy (PhD) - Third year *08/2023-Now*
National University of Singapore (NUS), School of Design and Environment, Singapore CGPA: 4.93 of 5

•Master of Urban Planning (Two-year Program) *08/2020-06/2022*
National University of Singapore (NUS), School of Design and Environment, Singapore CGPA: 4.78 of 5

•Bachelor of Engineering in Urban and Rural Planning *09/2014-07/2019*
Shenzhen University (SZU), School of Architecture and Urban Planning, Shenzhen, China CGPA: 3.45 of 4

SELECTED PUBLICATIONS - CITATION: 360+

Liang, X., Zhao, T. and Biljecki, F., 2023. Revealing spatio-temporal evolution of urban visual environments with street view imagery. *Landscape and Urban Planning, 237*, p.104802. https://doi.org/10.1016/j.landurbplan.2023.104802

Liang, X., Chang, J.H., Gao, S., Zhao, T. and Biljecki, F., 2024. Evaluating human perception of building exteriors using street view imagery. *Building and Environment*, 263, p.111875. https://doi.org/10.1016/j.buildenv.2024.111875

Liang, X., Xie, J., Zhao, T., Stouffs. R. & Biljecki, F., 2025. OpenFacades: An Open Framework for Architectural Caption and Attribute Data Enrichment via Street View Imagery. Under review in the *ISPRS Journal of Photogrammetry and Remote Sensing.*

Zhao, T., **Liang, X.**, Tu, W., Huang, Z. and Biljecki, F., 2023. Sensing urban soundscapes from street view imagery. *Computers, Environment and Urban Systems*, 99, p.101915. https://doi.org/10.1016/j.compenvurbsys.2022.101915

Zhao, T., **Liang, X.**, Biljecki, F., Tu, W., Cao, J., Li, X. and Yi, S., 2025. Quantifying seasonal bias in street view imagery for urban form assessment: A global analysis of 40 cities. *Computers, Environment and Urban Systems*, 120, p.102302. https://doi.org/10.1016/j.compenvurbsys.2025.102302

Biljecki, F., Zhao, T., **Liang, X.** and Hou, Y., 2023. Sensitivity of measuring the urban form and greenery using street-level imagery: A comparative study of approaches and visual perspectives. *International Journal of Applied Earth Observation and Geoinformation, 122*, p.103385. https://doi.org/10.1016/j.jag.2023.103385

Gu, Y., Quintana, M., **Liang, X.**, Ito, K., Yap, W. and Biljecki, F., 2025. Designing effective image-based surveys for urban visual perception. *Landscape and Urban Planning*, 260, p.105368. https://doi.org/10.1016/j.landurbplan.2025.105368

Lei, B., Liu, P., **Liang, X.**, Yan, Y. and Biljecki, F., 2025. Developing the urban comfort index: Advancing liveability analytics with a multidimensional approach and explainable artificial intelligence. *Sustainable Cities and Society*, 120, p.106121. https://doi.org/10.1016/j.scs.2024.106121

Ito, K., Zhu, Y., Abdelrahman, M., **Liang, X.**, Fan, Z., Hou, Y., Zhao, T., Ma, R., Fujiwara, K., Ouyang, J. and Quintana, M., 2025. Zensvi: An open-source software for the integrated acquisition, processing and analysis of street view imagery towards scalable urban science. *Computers, Environment and Urban Systems*, 119, p.102283. https://doi.org/10.1016/j.compenvurbsys.2025.102283

RESEARCH & PROJECT EXPERIENCE

•Urban Analytics Lab, National University of Singapore (NUS), Singapore *11/2021-02/2022*
Research Intern

- "Sensing Soundscape from Street View imagery" as research intern, focused on estimating large-area high-resolution urban soundscape by a deep learning approach, removing the need for laborious and expensive noise measurement.
- Completed soundscape survey to investigate human perception on street view images, including established a soundscape questionnaire, reviewed and selected soundscape attributes, assessed and filtered usable data.
- Engaged in deep learning model training and academic report writing, including data processing, research framework establishment, sound measurement in Singapore for model verification and completed literature review and methodology section of research paper.

•Urban Analytics Lab, National University of Singapore (NUS), Singapore *05/2022-08/2022*
Student Researcher

- Assisted with cross-city study on evaluating the sensitivity of SVI-derived measurements to several factors, such as the field of view and direction of the image, and the impact of Modifiable Areal Unit Problem.
- Engaged in literature review, Python-based data mining, processing, and analysis.

•**College of Design and Engineering, National University of Singapore (NUS), Singapore**   *08/2021-04/2022*
Dissertation Module
- Conducted research "Clustering and Spatial Temporal Evolution of Visual Environment based on Street View Imagery", focused on recognise hidden visual patterns of visual environment according to deep learning approach, employing convolution network for feature extraction and embedding.
- Established a research framework to extract physical and perceptual features, create graph to encode features and spatial structure, and generate clusters based on feature embedded.
- Conducted a case study and applied this framework in Singapore, including investigating the distribution of visual homogeneous domains, analysed characteristic and monitored the spatio-temporal evolution of clusters.

HONORS & AWARDS

2023 NUS Research Scholarship

2020 Comics work selected for the first Guangdong Provincial Comics Exhibition

2020 Merit Award of the First Guangdong Youth Lacquer Painting Exhibition

2019 Hundred Excellent Graduation Thesis / Design Award, Shenzhen University

2018-2019 Star of Shenzhen University

2018 3rd Prize of "Challenge Cup" Undergraduate Extracurricular Academic Science and Technology Works Award, Shenzhen University

2015-2016 3rd Prize of SUIADR Academic Scholarship

2014-2015 Excellent Student of Academic Performance (Second Prize), Shenzhen University

2014-2015 1st Prize of SUIADR Academic Scholarship

RESEARCH TALKS

09/2024 At Urban Governance and Design Thrust, Society Hub, Hong Kong University of Science and Technology (Guangzhou)

09/2024 At School of Civil Engineering & Transportation, South China University of Technology, Guangzhou, China

09/2024 11th GISChat in Chinese social media

10/2024 Climate Change AI (CCAI) discussion seminar

11/2024 At College of Architecture and Urban Planning, Shenzhen University

06/2025 Present at Presented at the 19th International Conference on Computational Urban Planning and Urban Management (CUPUM), London, 2025

08/2025 Present at London-Singapore Urban Analytics Seminar for Liveable Cities

MEDIA AND COMMUNICATION

Architectural Perception and Emotional Well-being (2024), YouTude ▶ Video Link

Tutorial: Generating voxel 3D city model for cities worldwide (2025), YouTube ▶ Video Link

Presentation: 11th GISChat, the Application of Human Perception in Urban Studies *(in Chinese)* (2024), Bilibili ▶ Video Link

SERVICE AND TEACHING

Teaching assistance:

AY2023/2024-Semester 2 DEP5111 Planning Technologies

AY2024/2025-Semester 1 UD5625 Methods and Tools for Urban Design

AY2024/2025-Semester 2 DEP5107 Dissertation

AY2025/2026-Semester 1 CDE2212 AI for Design

Academic journal peer review:

1. *Landscape and Urban Planning*, Elsevier
2. *Computers, Environment and Urban Systems*, Elsevier
3. *Humanities and Social Sciences Communications*, Nature Portfolio
4. *Scientific Reports*, Nature Portfolio
5. *Building and Environment*, Elsevier
6. *Cities*, Elsevier
7. *International Journal of Health Geographics*, Springer Nature
8. *Environment and Planning B: Urban Analytics and City Science*, Sage Journals
9. *Transactions in Urban Data, Science, and Technology*, Sage Journals

TECHNICAL SKILLS

Programming Languages: Python (proficient), R (familiar)

Tools: R-studio, VScode, Git, Github

Machine & Deep Learning: PyTorch, Tensorflow, Scikitlearn, CUDA, Geopandas

Others: ArcGIS, QGIS, SketchUp, Rhino, Photoshop, LaTeX