

Liu Liu

SUMMARY

An urban scientist with eight years of entrepreneurship in the urban computing industry, continuously focused on the built environment and human behavior analysis through adopting urban visual AI. His academic interests lie in the interdisciplinary fields of computer vision, generative AI, optimization, urban computing, and urban design.

EDUCATION

Massachusetts Institute of Technology Cambridge, MA | 2022.09 - Present

- Ph.D. in Computational Urban Science, DUSP & City Form Lab (GPA 5/5)

Data-related classes: 6.8300 Advances in Computer Vision(A), 6.4102 Artificial Intelligence(A), 6.C51 Modeling with Machine Learning(A), 6.7200 Optimization Methods(A), 6.S098 Intro to Applied Convex Optimization(P)

Massachusetts Institute of Technology Cambridge, MA | 2012.09 - 2014.06

- Master in City Planning, DUSP (GPA 4.7/5)

Tongji University Shanghai, China | 2007.09 - 2012.06

- Bachelor of Engineering (GPA 4.78/5, 1st of 57)

EXPERIENCE

Research Assistant | City Form Lab (MIT) Cambridge, MA | 2022.9 - Present

- Collaborated on the development of the UNA pedestrian flow model tool and optimized for large-scale cases in NYC
- Leading the project of Street Ballet in detecting social behaviors based on time-stamped street views.

Research Assistant | Senseable City Lab (MIT) Cambridge, MA | 2023.9 - Present

- Delivered data analysis and drafted human perceptual analysis based on eye tracker and deep learning CAM model analysis

Teaching Assistant | 11.205+11.520: Intro to GIS and Workshop (MIT) Cambridge, MA | 2023.9 - 2023.12

- Led weekly lab teaching students practical skills in GIS and graded assignments to evaluate their academic progress.
- Provided guidance and support during office hours, ensuring clarity in GIS applications and project implementation.

Founder | CitoryTech Co. Ltd. Shanghai, China | 2017.06 - 2022.08

- Founded a data-driven startup, securing over \$3M in revenue by innovating in visual AI and spatiotemporal modeling for notable clients like the World Bank, Daimler, and Hong Kong Land.
- Delivered 15+ joint research papers/patents by collaborating with research labs from MIT, TJU, HKU, and THU.

Short-Term Consultant | World Bank Shanghai, China | 2018.02 - 2020.01

- Support TOD decisions in Beijing by co-authoring the report “Assessing Physical Environment of TOD in Beijing.”

External Consultant | Tencent Company Shenzhen, China | 2015.12 - 2016.06

- Provided data support for the division of city clusters in China by developing clustering models based on Tencent's 1 billion user traveling data in the top national planning project led by the Ministry of Housing and Urban-Rural Development.
- Brought revenue and government relations to Tencent by discovering the value of its LBSN data to urban planning.

Data Scientist | China Academy of Urban Planning and Design Shanghai, China | 2014.07 - 2017.01

- I established urban visual analysis, followed by 20+ planning institutes, using computer vision for urban planning.
- Guided planning development in Shanghai, Nanjing, Changsha, Yiwu, etc., through LBS data analysis.

- Data analysis and drafting reports on the usage after the new policy of Metro card fee based on the AFC database.
- Designed the data collection system for GTFS real-time data and solved the time-lag problem.

PUBLICATIONS (citation 880+)

- Zhou, B., Liu, L., Oliva, A., & Torralba, A. (2014, September). Recognizing city identity via attribute analysis of geo-tagged images. In European conference on computer vision (pp. 519-534). Springer, Cham.
- Liu, L., Zhou, B., Zhao, J., & Ryan, B. D. (2016). C-IMAGE: city cognitive mapping through geo-tagged photos. *GeoJournal*, 81(6), 817-861.
- Liu L., Liu Z. (2018) The Recognition of CAZ in Shanghai Based on Evaluated POI. In: Shen Z., Li M. (eds) Big Data Support of Urban Planning and Management. Advances in Geographic Information Science. Springer, Cham
- Liu, Liu, Fan Zhang, Bolei Zhou, Zhoutong Wang, and Yingxin Li. "STREETALK: A NAVIGATION SYSTEM FOR PEDESTRIANS AND CYCLISTS." *Landscape Architecture Frontiers* 6, no. 2 (2018): 94-101.
- Zhou, B., Liu, L., Oliva, A., & Torralba, A. (2014, September). Recognizing city identity via attribute analysis of geo-tagged images. In European conference on computer vision (pp. 519-534). Springer, Cham.
- Zhang, Fan, Bolei Zhou, Liu Liu, Yu Liu, Helene H. Fung, Hui Lin, and Carlo Ratti. "Measuring human perceptions of a large-scale urban region using machine learning." *Landscape and Urban Planning* 180 (2018): 148-160.
- Long, Y., & Liu, L. (2017). How green are the streets? An analysis for central areas of Chinese cities using Tencent Street View. *PloS one*, 12(2), e0171110.
- Fang, Wanli, Liu Liu, and Jianhao Zhou. "Assessing Physical Environment of TOD Communities around Metro Stations: Using Big Data and Machine Learning." (2020).
- Cui, Can, et al. "The spatial-temporal dynamics of daily intercity mobility in the Yangtze River Delta: An analysis using big data." *Habitat International* (2020): 102174.
- Xu, Liyan, et al. "Cost-effectiveness Analysis of Antiepidemic Policies and Global Situation Assessment of COVID-19." *arXiv preprint arXiv:2004.07765* (2020).
- Zhang, D., Yi, H., Chen, Y., Jiang, N., Shao, J., & Liu, L. (2022). An urban infrastructure assessment system built on geo-tagged images and machine learning. *Computational Urban Science*, 2(1), 1-21.

PATENTS

- Nan Jiang, Xin Xiong, Liu Liu: A method and system for matching photographic composition (substantial examination), 2020-07-28; China, CN202010275026.2
- Nan Jiang, Xin Xiong, Liu Liu: A street view model generation method, device, system and storage medium (substantial examination), 2020-07-28; China, CN202010275032.8

AWARDS and PUBLIC SERVICE

- Reviewer for Journal of Transport and Land Use (JTLU), Transactions in Urban Data, Science, and Technology (TUS), Computational Urban Science (CUS).
- MIT Presidential Graduate Fellowship Award and Department Fellow, 5+2 years (2022-2027, 2012-2014); National Scholarship (2008-2011, three times); Guest Lecturer for Tongji University (2021, 2020); Hongkong University (2019); China Urban Planning Annual Conference with keynote speech (2015, 2016, 2017);
- Gusu Leading Talents Program for Innovation and Entrepreneurship, Suzhou, China (2022); Jiangsu Province Youth Friendship Ambassador (2009).