YIFENG LIU

liuyf23@mit.edu   +1 (213)8204748   lauyihong.github.io
Department of Urban Studies and Planning, MIT
235 Albany St, Cambridge, MA

EDUCATION

Department of Urban Studies and Planning, MIT   **Cambridge, MA**
Master of City Planning - City Design and Development   *Aug 2023 – Present*

- Courses Registered: 11.203: Microeconomics, 6.7920 Optimization Method, 6.s898 Deep Learning

School of Architecture, Tsinghua University   **Beijing, China**
Bachelor of Architecture   *Sep 2018 – Jun 2023*

- Minor Courses: General Psychology, Cognitive Psychology, Programming Fundamentals, Big Data and Machine Intelligence, Statistical Inference, Multivariate Statistical Analysis, Design and Analysis of Experiments, Linear Regression Analysis
- Other Achievements: Academic Advancement Program Outstanding Scholar; Outstanding Individual for Rural Revitalization(2019)

Research Interest

My research interest lies at **the confluence of urban informatics and data-driven optimization**, with a keen focus on **deciphering human mobility patterns**. I am dedicated to leveraging these insights to enhance urban operations, **to optimize public resources for the greater social benefit.**

ACADEMIC EXPERIENCE

Sustainable Urbanization Lab, Center of Real Estate, MIT   **Cambridge, MA**
Market Scientific Research on the Promotion of Heat Pump in Cities (Processing)   *Sep 2023 - Present*

Future Urban AI Studio, Tsinghua University   **Beijing, China**
Infrastructure Analysis based on NYC 311 Service (Processing)   *July 2023 - Present*

- The reliability of urban infrastructure analysis by analyzing the temporal dimension and spatial correlation of 311 service data
- Establishment and management of NYC infrastructure database, which involves geo-coding and distributed computing

Jogging Antivity and Public Health   *April 2022 - Aug 2023*

- Relevant Publication: *Analyzing jogging activity patterns and adaptation to public health regulation, Liu Y, Lai Y. Environment and Planning B: Urban Analytics and City Science, 0(0).* https://doi.org/10.1177/23998083231193484

 Beijing Infractructure Analysis   *March 2022 - Oct 2022*

- Relevant Publication: *Do Vibrant Places Promote Active Living? Analyzing Local Vibrancy, Running Activity, and Real Estate Prices in Beijing, Lai Y, Li J, Zhang J, Yan L, Liu Y. International Journal of Environmental Research and Public Health 19.24 (2022): 16382.* https://doi.org/10.3390/ijerph192416382

Informal Urban Settlements Computing   *Jan 2022 - April 2022*

- Relevant Publication: *Computing Places and Human Activity in Data-absent Informal Urban Settlements, Y. Lai and Y. Liu, 2022 IEEE International Conference on Pervasive Computing and Communications Workshops and other Affiliated Events (PerCom Workshops), 2022, pp. 478-483,* https://doi.org/10.1109/PerComWorkshops53856.2022.9767381

ATOMS ATELIER Urban Analysis Group   **International Cooperation**
Algorithm development and statistical analysis   *May 2022 - Oct 2022*

- Related publication: *Investigating the Impact of Perceived Micro-Level Neighborhood Characteristics on Housing Prices in Shanghai, Song, Q.; Liu, Y.; Qiu, W.; Liu, R.; Li, M. Land 11.11 (2022): 2002.* https://doi.org/10.3390/land11112002

Teaching Experience

11.S954 Applied Data Science for Cities   **DUSP, MIT**
Teaching assistant   *2023 fall*

- Aims to explore the relationship between people's evaluation of the security in streetview and the distribution of infrastructure

11.205 Introduction to Spatial Analysis and GIS   **DUSP, MIT**
Teaching assistant   *2023 fall*

- Aims to explore the relationship between people's evaluation of the security in streetview and the distribution of infrastructure

COURSE WORK

Optimization Method   **MIT Course Work**
Covid testing stations in 2022 lockdown Shanghai   *Nov 2023 – Sep 2023*

- Employed flow network optimization techniques to distribute testing booths based on population density data, achieving full coverage without additional costs and preparing a scalable model for city-wide implementation.

Big Data and Machine Intelligence - final individual project   **THU Course Work**
Street view element segmentation based on tensorflow framework   *Feb 2022 – Jun 2022*

- Aims to explore the relationship between people's evaluation of the security in streetview and the distribution of infrastructure
- Crowdsourcing data platform, - Model Trainning: Train a Mask R-CNN model for street view segmentation and correlative study with the crowdsourcing comments

AR application Development   **Summer Workshop**
An inclusive template to assist people in blocked subway feeling the surficial city via AR   *May 2022 – Sep 2022*

- Google Street View crawling and relocation processing of flicker photo of downtown Tokyo (location of photo in Street View)
- AR app development based on Unity (Vuforia) - Unity APP testing and user usage research, design development

PROFESSIONAL EXPERIENCE

CityDNA tech   **Beijing, China**
Data Analysis Internship   *Jun 2022 – Aug 2022*

- City Physical Examination: Establish a database based on human activity and infrastructure data provided by the Tianjin and Changzhou municipal governments. Measure the completion of the construction of roads and infrastructure in the city.
- Pinsurvey Platform: Organize the database that can reflect the use of the online platform, and build the inductive statistical data visualization platform for managers and back-office personnel.

People's Archietcure Office   **Beijing, China**
Architecture Design Internship   *Jun 2021 – Aug 2021*

- Plug-in house product design and building structure research and development
- Architectural analysis diagrams drawing and rendering

COFCO China National Cereals, Oils and Foodstuffs Corporation   **Shenzhen, China**
Business Development Internship   *Jun 2020 – Jul 2020*

Bid feasibility analysis - Combined with the rapid design of real estate buildings, calculate the construction cost, sale price and construction cycle in urban land. / Participate in an optimization development meeting for a specific urban renewal site

SKILLS

Languages: Cmputing: Python, Julia, C, C++, PostgreSQL, R, JS, HTML; Communicting: English(professional) and Chinese(native).
Programing: Gurobi, Geopandas, Tensorflow, Dask, Skcikit-learn, PostgreSQL, MongoDB...
Design, Construct & Graphic : Adobe Design Suite, QGIS, Rhino, Mapbox, AutoCAD, V-ray, Enscape, figma, Unity(Vuforia) ...