

YIFENG LIU

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Department of Urban Studies and Planning, MIT
235 Albany St, Cambridge, MA

EDUCATION

Massachusetts Institute of Technology

Master of City Planning

Cambridge, MA

Aug 2023 – Present

- Related Courses: 6.7920 Optimization Method, 6.C51+6.S951 Modeling with Machine Learning: Algorithms and Applications, 11.203 Microeconomics, 1.200 Transportation Fundation and Methods, 6.3700 Intro to Probability...

Tsinghua University

Bachelor of Architecture

Beijing, China

Sep 2018 – Jun 2023

- Related Courses: Multivariate Statistical Analysis, Design and Analysis of Experiments, Linear Regression Analysis, Programming Fundamentals, Big Data and Machine Intelligence ...

- 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**, **machine learning modeling** and **data-driven optimization** with a keen focus on **facility management**, **transportation systems**, and **market behaviors**. I am dedicated to leveraging these insights to enhance urban operations and optimize public resources for the greater social benefit.

RESEARCH EXPERIENCE

Sustainable Urbanization Lab, Center for Real Estate, MIT

Cambridge, MA

Market Scientific Research on the Promotion of Heat Pump in Cities (In Progress)

Sep 2023 - Present

- Using regression models to understand heat pump market dynamics and consumer behavior in Massachusetts

- Sensitivity analysis based on the size of the estimated time window

Future Urban AI Studio, Tsinghua University

Beijing, China

Infrastructure Analysis based on NYC 311 Service (In Progress)

July 2023 - Present

- Establishment and management of NYC infrastructure database

- The reliability of urban infrastructure analysis by analyzing the temporal dimension of 311 service data and their spatial correlation

Jogging Activity 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 Infrastructure 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

Algorithm development and statistical analysis

May 2022 - Oct 2022

- Relevant 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 [course website](#)

DUSP, MIT

Teaching assistant

fall 2023

Assist teachers to make course plans and courseware, grade homework

Assist students in completing independent urban quantitative research course projects

11.205 Introduction to Spatial Analysis and GIS

DUSP, MIT

Teaching assistant

fall 2023

An introduction to Geographic Information Systems (GIS), enabling the use of mapping for data analysis across various fields

Responsible for recitation

OTHER ACADEMIC EXPERIENCE

Optimization Method - final group project

MIT Course Work

[COVID Testing Facility Allocation in 2022 lockdown Shanghai](#)

Nov 2023 – Sep 2023

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

PassBy - 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

Big Data and Machine Intelligence - final individual project

THU Course Work

Street view element segmentation based on tensorflow framework

Feb 2022 – Jun 2022

- Explore the relationship between people's evaluation of the security in streetview and the distribution of infrastructure

- Establish and maintain the Crowdsourcing data platform and its database - Train a Mask R-CNN model for street view segmentation and correlative study with the crowdsourcing comments

Chinese Mathematics Olympiad

Zhejiang, China

The third prize

fall 2017

PROFESSIONAL EXPERIENCE

CityDNA tech

Beijing, China

Data Analysis Internship

Jun 2022 – Aug 2022

- Establish a database based on human activities and infrastructure data provided by the Tianjin and Changzhou municipal governments. Measure the completion rates of roads and infrastructure construction in the city.

- Organize the database that can reflect the use of the online platform, and build the inductive statistical data visualization platform

People's Architecture 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

- Construction simulation and project cost estimation, combined with sales and construction cycle, guide the bidding of real estate land.

SKILL

Languages: English (professional), Chinese (native), Julia, Python, C, C++, PostgreSQL, R, JS, and HTML

Programming: Gurobi, Geopandas, Tensorflow, Dask, Skcikit-learn, PostgreSQL, MongoDB...

Design, Construct & Graphic : Adobe Design Suite, QGIS, Rhino, Mapbox, AutoCAD, V-ray, Enscape, figma, Unity(Vuforia) ...