

# YIFENG LIU

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

## EDUCATION

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### Department of Urban Studies and Planning, MIT

Master of City Planning - City Design and Development

Cambridge, MA

Aug 2023 – Present

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

### School of Architecture, Tsinghua University

Bachelor of Architecture

Beijing, China

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

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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

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### Sustainable Urbanization Lab

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

Cambridge, MA

Sep 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

### Future Urban AI Studio, Tsinghua University

Infrastructure Analysis based on NYC 311 Service (Processing)

Beijing, China

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 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

International Cooperation

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

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### 11.S954 Applied Data Science for Cities

Teaching assistant

DUSP, MIT

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

Teaching assistant

DUSP, MIT

2023 fall

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

## COURSE WORK

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### Optimization Method

Covid testing stations in 2022 lockdown Shanghai

MIT Course Work

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

Street view element segmentation based on tensorflow framework

THU Course Work

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 Training: Train a Mask R-CNN model for street view segmentation and correlative study with the crowdsourcing comments

### AR application Development

An inclusive template to assist people in blocked subway feeling the surficial city via AR

Summer Workshop

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

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### CityDNA tech

Data Analysis Internship

Beijing, China

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 Architecture Office

Architecture Design Internship

Beijing, China

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

Business Development Internship

Shenzhen, China

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

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**Languages:** Computing: Python, Julia, C, C++, PostgreSQL, R, JS, HTML; Communicating: 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) ...