# Tao Liang

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## Skills

**Programming** Python (Pandas, GeoPandas, PyTorch, Scikit-learn. etc.), R, HTML/CSS, JavaScript, SQL, LaTeX, ArcGIS.

## Education

**New York University** *New York, US*

Master's in Transportation Planning and Engineering *Sept 2021 - Current*

- **GPA**: 3.89
- **Courses:** Applied Data Science, Machine Learning for Cities, Deep Learning, Data-Driven Mobility Modeling

**Jilin Jianzhu University** *Changchun, China*

Bachelor of Engineering *Sept 2013 - June 2018*

- Graduated with Distinction

## Work Experience

**New York City Department of Transportation** *New York, US*

Urban Data Analyst Intern *Oct 2021 - Nov 2022*

- Developed the **Health Street Index (NYC)** in collaboration with city planners and stakeholders to prioritize transportation investment and development in areas in need of improvement.
- Collected and analyzed various data sets, including population census, environmental factors, and road conditions, to develop an algorithmic model using **Python** that aggregated the data into a comprehensive health index.
- Created an interactive map using **JavaScript** and **HTML/CSS** to visualize the index and various indicators.

**T&R Design Consultants Studio** *Shenzhen, China*

Co-founder *Aug 2019 - Jul 2021*

- Collaborated with clients and stakeholders to understand their needs and provided data analysis solutions using tools such as Excel, etc.
- Developed data analysis workflows to process and analyze building data, utilizing techniques such as **data mining, cleaning, and processing**.
- Generated data visualizations and reports using tools such as **Tableau** to present data analysis results and insights to clients.

**Hong Kong Huayi Design Consultants (S.Z.) Ltd** *Shenzhen, China*

Architectural Consultant *Jul 2018 - Jul 2019*

- Utilized analytical and data-driven approaches to provide design advice that balances aesthetic and economic considerations.
- Modeled the relationship between profit and commercial, apartment, and office ratios in a mixed-use project to provide design advice to clients.

## Selected Projects

**NYC Street Bike Sharing Demand Prediction** *New York, US*

Finding the potential bike lane and stop installation sites by predicting the sharing bike link flow *Sept 2022 - Dec 2022*

- Conducted data analysis on Citi bike data using **OSMnx map API** to calculate the shortest paths and gather street-level ridership.
- Using **GeoPandas** to obtain the social and environmental information of the street as the predictive variables.
- Applied **Deep Learning models**, such as **Graph Neural Networks (GNNs)**, to predict bike sharing demand and identify potential bike lanes and stops installation sites.

**Predictive Analytics for NYC Real Estate Market** *New York, US*

Investigation of affecting factors towards NYC housing price revision during the COVID-19 pandemic *Sept 2021 - Dec 2021*

- Conducted data analysis on NYC real estate market data to investigate the factors affecting housing price revision during the COVID-19 pandemic.
- Optimized predictive models using **Grid Search** for hyper-parameter tuning, and dissected the variable predictive power using **SHapley Additive exPlanations (SHAP)** values.
- Implemented **Principal Component Analysis(PCA)** to reduce data dimensionality and applied **ML models** to forecast housing prices, achieving 0.82 Adjusted R Squared.

## Achievements

2022 **Winner,** NYU Marron Urban-Data Hackathon *US*

2021 **Scholarship,** September 11th Memorial Program *US*