

Xiaoyi Wu

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EDUCATION

University of Pennsylvania

Sep 2021- Jun 2022

Master of Urban Spatial Analytics

- Main Courses: Multimodal Transportation, Remote Sensing, Artificial Intelligence, Transportation Planning, Spatial Statistics, Game Theory, Public Policy Analytics
- Honors: Master's Degree Scholarship, 2021-2022

China University of Geosciences (Beijing)

Sep 2016- Jun 2020

Bachelor of Science, major in Geology

- Honors: Professional Scholarship (top 10%, three times), 2017-2019
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RESEARCH EXPERIENCE

Bio-inspired Artificial Intelligence for Optimizing Multi-modal Urban Transportation

Jun 2022-Present

Research Assistant at *Télécom SudParis* | Supervised by [Prof. Andrea Araldo](#)

- Restructured the C++ codes and implemented the bi-level optimization algorithm in multi-modal transportation, optimized the layout and frequency of buses and metro lines in the high-level architecture, and focused on the multimodal routes of users in the low-level architecture
- Conducted experiments with various movement volume to model the realistic scenario, and improved the algorithm's performance with 35.0% less fuel cost and 24.7% less vehicle number in acceptable waiting time
- This work will be submitted to *ACM SIGSPATIAL International Workshop on Computational Transportation Science*

Wharton Political Lab/ESG Analytics Lab

Jun 2022-Present

Research Assistant at *Wharton School* | Supervised by [Prof. Witold Henisz](#)

- Calculated word similarity based on Levenshtein distance and overlap coefficient, and conducted word count and fuzzy matching of company names
- Wrangled most recent Twitter posts on water quality by APIs, conducted sensitivity and polarity analysis to assess public's attitudes of water quality policy

COVID-19's Impact on Human Mobility and Social Equity in New York

Jan-May 2022

Capstone Project at *University of Pennsylvania*

- Wrangled, cleaned and processed monthly Point of Interest data from Safegraph and socio-economic data from American Community Survey, constructed origin-destination matrix with inflow/outflow movement volume on tract level based on Python
- Analyzed the spatio-temporal characteristics of human travel behaviors in New York during COVID-19, conducted coefficient analysis to identify social-economic factors associated with mobility changes in income contexts
- Made an [interactive map](#) to display time-series human mobility pattern and demographic information based on JavaScript, and concluded low-income groups exposed to higher risk of transmission and economic loss during the pandemic

NJ Transit Delay Prediction

Nov-Dec 2021

Coursework Project at *University of Pennsylvania*

- Collected GTFS data to get the frequency and stop location of NJ Transit rails, and weather data from National centers to include weather conditions as input features
- Processed, and conducted exploratory time-series analysis to identify regularity and variability in the hourly and weekly rail operation pattern

- Constructed time-lag features to take prior performance into consideration, built Random Forest model to forecast the delay situation of NJ Transit, and identify the factors effect transit delay by feature importance analysis

Deep Multi-agent Reinforcement Learning

Sep 2020-Sep 2021

Research Assistant at Institute of Automation, Chinese Academy of Sciences / Supervised by [Prof. Haifeng Zhang](#)

- Conducted research on resource allocation in dynamic system, developed novel multi-agent reinforcement learning algorithm, focusing on both individual and social benefit maximization, and applied transformer architectures to realize the variability in agent number and type
- Designed core functions and web interaction of [Jidi](#) platform, implemented baseline algorithms such as Soft Actor Critic and simulation environments such as Snake

INDUSTRY EXPERIENCE

Kuayue Express

Mar-Sep 2020

Data Analyst Intern at Automated Dispatching System Department

- Responsible for the optimizing the dispatching system, and developing rule-based routing, scheduling, and dispatching algorithms to improve delivery services
- Built time-series regression model to predict shipping weights, and analyzed various factors' impacts on operation performance such as holiday and weather
- Visualized spatial-temporal pattern of dispatching performance and delivery tasks, and identified the inefficient scheduling events

PUBLICATION

Xiaoyi Wu, Anran Zheng. "Landslide identification in Hong Kong using generative adversarial networks based on inventory data". AutoCarto 2022.

SKILLS

- English: **IELTS: 7.0** | **GRE: 156+167+3.0**
- Programming: **Python** (Professional) | **JavaScript** (Familiar) | **R** (Familiar) | **C++** (Familiar)
- Software: **AcrGIS** | **GeoDa** | **Google Earth Engine** | **ENVI** | **SSH**