Anran Zheng

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Education

University of Florida — Gainesville, FL
Master of Transportation Engineering — *Aug 2023 (Expected)*

University of Pennsylvania — Philadelphia, PA
Master of Urban Spatial Analytics — *May 2022*

Northern Illinois University — Dekalb, IL
Bachelor of Science in Geography — *Aug 2021*

Capital Normal University — Beijing, China
Bachelor of Science in GIS — *Jun 2021*

Skills

Programming: Python, R, SQL, C++, Latex.
Spatial Analysis: ArcGIS, QGIS, ArcGIS Pro, Google Earth Engine, GeoDa, SPSS.
Data Analytics: Machine/Deep Learning, Google Cloud Computing, Git, and ETL Pipeline.
Data Visualization: PowerBI, Tableau, Javascript, HTML/CSS, ArcGIS Online.
Statistical Modelling: Logistic Regression, SVM, XGBoost, Random Forest, K-Means, Cross-Validation.

Data Science Projects

Analysis of Miami-dade Transit buses' On-time Performance [link] 2023
- Scrapped and processed about **40 million** rows of on-time performance data from Swiftly.
- Developed different performance metrics to measure the transit service supply and on-time performance.
- Implemented advanced machine learning algorithms **(e.g. RF, SVM, XGBoost)** to predict the bus delay time. Optimized model performance, which leads to a **20% reduction in MAE.**
- Led and mentored graduate students in establishing a **web dashboard** for visualizing bus on-time performance. Allowed users to track detailed real-time and historic spatiotemporal information of bus delay.

Bus fleet electrification and e-bus charging stations planning in Gainesville, FL [link] 2023
- Developed an accurate electric energy consumption prediction model via Python based on the **GTFS dataset.**
- Designed and implemented a location optimization model of e-bus charging stations, which can achieve **85% service coverage** of e-buses and **30% reduction of system travel time.**

Evaluation framework of the optimal locations for mobility hubs in Gainesville, FL (On-going) 2023
- Conducted in-depth analysis of spatial indicators, including transit connectivity, spatial accessibility, and social equity, to quantify the suitability score of mobility hubs based on multiple criteria.
- Collaborated with **FDOT** to produce reports and deliver monthly presentations to the city of Gainesville.

Analysis of the food acquisition behavior in North Florida (On-going) 2023
- Cleaned, preprocessed and visualized a massive GPS dataset at about **140 GB**.
- Guided two CS master students on the development of algorithms, which can accurately identify individuals' home location, food acquisition trips, and travel mode.

Spatial accessibility to the COVID-19 testing sites in NYC [link] 2022
- Built **ETL pipelines & interactive dashboard** visualizing the COVID-19 situation in NYC.
- Utilized O-D cost matrix and **network analysis** to assess the spatial accessibility to COVID-19 testing sites in ArcGIS Pro. Identified and compared the spatial accessibility across multimodal transport modes.
- Investigated socioeconomic factors influencing the spatial accessibility of testing sites. Identified underlying causes in spatial disparities to provide insights for equitable resource allocation.

Work Experiences

Chinese Academy of Surveying and Mapping | GIS and Statistics Analyst Jul. 2020 - Jan. 2021
- Developed an advanced algorithm, which can extract and classify lakes by leveraging a vast elevation dataset.
- Conducted spatial and statistical analysis about land-use patterns among different cities in China.
- Created a detailed laboratory manual outlining the data analysis process and presented it to the local environmental agency.