Anran Zheng

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Education

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

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

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

Skills

Programming: Python, R, SQL, C++, Latex.
Spatial Analysis: ArcGIS, Module Builder, QGIS, ArcGIS Pro, Google Earth Engine, SPSS.
Data Visualization: Tableau, PowerBI, Javascript, HTML/CSS, ArcGIS Online.

Projects

Analysis of Miami-dade Transit buses' On-time Performance (OTP) [link] Apr. 2023 - now

- Scrapped and processed about **40 million** records of OTP data from **Swiftly API**.
- Applied various metrics (e.g. arrival time/headway difference at routes/stops level) to measure the OTP, generated compelling visualization and delivered reports to **Miami Transit Authority**.
- Employed **time-fixed effects** regression model to identify how service reliability impacts the bus ridership.
- Led and mentored graduate students in establishing a user-friendly **web dashboard** for visualizing bus OTP.

Leveraging Big data analytics to inform Mobility Hub development in Florida [link] May. 2023 - now

- Collected and processed geospatial data among various cities from multiple sources (e.g. ACS, LEHD, OSM).
- Analyzed and quantified spatial indicators (e.g. **transit connectivity, spatial accessibility, and social equity**) through **Module Builder** in ArcGIS. Integrated them to the suitability score to site mobility hubs.
- Collaborated with **FDOT** to produce reports and deliver monthly presentations.

Analysis of Large-scale GPS Travel Survey Data in North Florida Mar. 2023 - June. 2023

- Cleaned, preprocessed and visualized a massive GPS dataset at about **140 GB**.
- Designed sophisticated algorithms based on a novel Python package named *trackintel*, which can accurately identify individuals' trip information to access the food sources and their travel modes from GPS dataset.

Plan the Siting of E-bus Charging Stations (EBCS) in Gainesville, FL [link] Oct. 2022 - May. 2023

- Extracted real-time vehicle location data at $\sim$ **1 million** records over half a year from public APIs.
- Built predictive model to estimate the bus electric energy consumption based on the **GTFS dataset**.
- Implemented a location optimization model to site EBCS, which can achieve **95% service coverage** of e-buses given only 4 EBCS being sited in Gainesville.

Spatial Accessibility to the COVID-19 Testing Sites in NYC [link] Jan. 2022 - Apr. 2022

- Leveraged Python and SQL to extract COVID-19 data and loaded into Google Cloud Storage. Transformed the data into appropriate form with Google Big Query. (**ETL Pipeline)**
- 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 through **GWR model** in RStudio.

Work Experiences

Chinese Academy of Surveying and Mapping | GIS and Statistical Analyst Jul. 2020 - Oct. 2020

- Extracted and classified lakes in Tibet through advanced Python programming based on a vast elevation dataset. **Saved 80% of calculation time** and proved the effects of global warming on lake size changes.
- Performed spatial and statistical analysis about changes of land-use patterns and urbanization situation among different cities in China with ArcGIS and advanced functions in **Excel (e.g. VLOOKUP, Pivot Table)**.