Anran Zheng

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EDUCATION

University of Pennsylvania Philadelphia, PA
Master of Urban Spatial Analytics | GPA: 3.94/4 *May 2022*
Capital Normal University Beijing, China
Bachelor of Science in Geographic Information System (GIS) | GPA: 3.92/4 *Jun 2021*

WORK EXPERIENCES

AECOM Oct. 2023 - now
Geospatial Data Specialist II *Houston, TX*
- Collaborated with transportation planners, engineers, and data scientists to provide data-driven planning solutions for city agencies and clients across 10+ infrastructure projects in Texas.
- Collected, cleaned, and analyzed large-scale datasets (OD, census, traffic). Automated data pipelines and workflows using Python and ArcGIS ModelBuilder to reduce processing time by over 50%.
- Processed a 150+ GB multi-source GPS dataset using Python and SQL. Performed QA/QC on custom trip-identification algorithms to improve metric reliability.
- Led development of digital deliverables including 5 online databases, 7 web applications, and 10+ dashboards using JavaScript, Power BI, and ArcGIS Online, to communicate insights to non-technical stakeholders through storytelling-driven visualizations, maintaining satisfaction from 50+ clients.

SELECTED PROJECTS

Bikeshare Trip Data Science & Analytics in Philadelphia [link] Feb. 2025 - present
- Automated the extraction and transformation of 5M+ real-time trip records with Python, SQL, Airflow, and Docker; built 10+ fact and dimension tables in BigQuery for daily reporting.
- Developed Tableau dashboards with 10+ interactive charts to deliver insights on station-level demand, peak usage times, and user behavior, informing resource allocation and operational decisions for city stakeholders.
- Built and validated a predictive model (XGB-Poisson) in R using 900K+ trip records and spatial-demographic features to forecast trip volumes, achieving 46% MAPE.

NYC Taxi Infrastructure Analytics Jan. 2025 - present
- Optimized 3 ETL workflows to collect, process, and load 1.5M+ rows of NYC taxi trip data into Google Cloud Platform and PostgreSQL using Docker, Python and SQL.
- Wrote advanced SQL queries with Window Functions, CTEs, and Pivot Tables to analyze fare revenue, travel time, and ridership trends. Enhanced query efficiency with table partitioning and clustering.
- Delivered Tableau dashboards with 20+ visualizations to support city mobility and revenue planning in NYC.

Miami Bus Service Reliability Analysis [link] Nov. 2022 - Oct. 2023
- Processed and structured 100+ GB of raw bus GPS data using optimized SQL queries in AWS Redshift. Built 30+ fact and dimension tables to calculate KPIs such as delay frequency and route-level reliability.
- Created Python-based visualizations (heatmaps, pivot tables) to monitor service-level KPIs. Delivered a technical report with actionable insights to stakeholders.
- Mentored a team of four junior analysts on creating dashboards with PowerBI/JavaScript. Delivered a real-time reliability dashboard now used by the Miami Transit Agency for monitoring key KPIs.
- Applied regression and machine learning models (SVM, XGBoost, Random Forest) to forecast bus delays, driving optimization of route schedules and improving reliability KPIs by 20%.

Plan the Siting of E-bus Charging Stations in Florida [link] Oct. 2022 - May. 2023
- Extracted and stored ∼ 1 million real-time bus GPS data from public APIs, using Python and PostgreSQL.
- Applied K-means clustering and scenario-based modeling to optimize the siting for e-bus charging stations, achieving 95% service coverage with the best model.

SKILLS

Programming: Python (Scikit-learn, GeoPandas, Seaborn), R (Tidyr, Caret, Shiny), SQL, C++.
ETL & Cloud Platforms: Google BigQuery, PostgreSQL, (Redshift, S3), Azure, GCP, Google Earth Engine.
Dashboard Visualization: PowerBI, Tableau, Javascript, HTML/CSS, ArcGIS Online, Mapbox.
Spatial Analysis: ArcGIS, PostGIS, Module Builder, QGIS, ArcGIS Pro, FME.