Joseph Rodriguez

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Professional Summary

Transit researcher and analyst with 5 years of experience, including 3 years working within transit agencies. Experienced in developing and implementing data-driven solutions to operational challenges. Technologies have enhanced real-time transit management process and improved the rider experience. Interested in opportunities in transit technology and innovation.

Experience

Hayden AI   Jul. 2025 - Present
Data Scientist   *Python, Git, AWS, Grafana*

- Assess various aspects of Hayden AI's camera-based traffic enforcement programs, including transit performance and camera system accuracy.

Northeastern University   Jan. 2021 - Jun. 2025
Research Assistant   *Python, Git, Gymnasium, PyTorch, TensorFlow, GeoPandas*

- Dissertation Title: *Improving High-Frequency Transit Reliability: From Theory to Practice*
- Develop machine learning models for headway management strategies, to improve reliability and rider experience.
- Supervise teams of developers and researchers on software development and data analysis tasks
- Regularly present research and actionable insights to transit agency stakeholders

New York Metropolitan Transit Authority   Jun. 2024 - Aug. 2024
Data Science Intern   *PostgreSQL, PySpark, Git, Azure Synapse, Apache Airflow*

- Evaluated 1 month of bus arrival prediction data in terms of accuracy, stability and completeness, comparing in-house and third party sources. The resulting analysis informed vendor assessment process.
- Productionized ETL pipeline to generate bus arrival accuracy data for >300 bus routes, enabling bus technology team to develop and test improvements on predictions engine
- Productionized ETL pipeline to generate subway running time data for public release in NY State Open Data Portal

Education

Northeastern University   Jan. 2021 - Aug. 2025
Ph.D. in Civil and Environmental Engineering | Boston, MA   *GPA: 3.7/4.0*
Supervisors: Prof. Haris Koutsopoulos, Prof. Jinhua Zhao
Relevant Courses: Public Transportation, Database Management, Reinforcement Learning, Operations Research AI for Human-Computer Interaction

Technion - Israel Institute of Technology   Aug. 2020
B.S. in Civil and Environmental Engineering | Haifa, Israel   *GPA: 87/100*
Relevant Courses: Statistics, Transportation Planning, Introduction to Computer Science, Traffic Engineering and Management, Transportation Systems Analysis

Skills

Programming Languages:
Python, SQL (PostgreSQL, MySQL, SQLite, SparkSQL), JavaScript (React/Node.js)

Python Packages:
Pandas, Numpy, GeoPandas, PySpark, PyTorch, TensorFlow, Gymnasium

Data and Software Development Tools:
DBeaver, Git, Amazon Redshift, Azure Synapse, Apache Airflow, Google Cloud Platform, Vercel, Gitlab

Languages:
English (Fluent), Spanish (Native), French (Intermediate), Hebrew (Intermediate)