Pramesh Pudasaini

520-999-5043 pramesh@arizona.edu linkedin.com/in/pramesh-pudasaini github.com/prameshpudasaini

Ph.D. student seeking full-time internship as a Transportation Data Scientist for Summer 2024. I bring three years of research experience using machine learning and operations research tools (adept in Python, R, SQL, GAMS), plus five years of hands-on industry experience in project management and leadership.

Education

University of Arizona **August 2021 – Present**

Ph.D. in Transportation Engineering (minor in Statistics & Data Science) *Tucson, AZ*

- **Dissertation** (tentative): Data-Driven Models for Dynamic Dilemma Zone Quantification and Arterial Vehicle Trajectory Generation using Big Data & Machine Learning.
- **Research areas**: applications of machine learning and operations research tools to engineer data-driven solutions to traffic operations/safety problems and dynamic traffic assignment.
- **Leadership**: hosted and organized multiple events with transportation agencies and private consultancies as President of the Institute of Transportation Engineers Student Chapter; organized and led group meetings as Manager of the Smart Transportation Lab.
- **Honors**: Herbold Fellowship ($38,000, June 2021); Roots for Resilience Data Science Scholarship ($7,000, April 2023); Delbert R. Lewis Graduate Fellowship ($2,200, September 2023)

Experience

University of Arizona **August 2021 – Present**

Research Assistant *Tucson, AZ*

- Developed an XGBoost-based optimization framework (in Python) with 95% precision for reidentifying vehicles between detector locations at intersections using high-resolution traffic data.
- Developed an algorithm (in Python) to predict experienced travel time on signalized corridors using multi-source traffic data; currently working on implementing this algorithm to generate low-cost, medium-resolution vehicle trajectory data.
- Programmed and deployed scripts using R Shiny, SQL, and Docker in building a network-wide mobility assessment tool to assess corridor-level traffic operations and safety metrics in the City of Phoenix.
- Developed a real-time intersection queue length estimation model (in R) with 86% accuracy using a highly noisy high-resolution data from video-based vehicle detecting sensors.

Nepal Oil Corporation Limited **March 2017 – August 2021**

Deputy Manager *Kathmandu, Nepal*

- Assisted the project manager in demand forecasting, sales projection, scenario analysis, and optimization for project planning of two large-scale cross-country petroleum pipeline supply chain projects.
- Assisted the director of Engineering & Projects Department in preparing annual budget, procurement plans, and capital expenditure policies-cum-programs for three fiscal years.
- Prepared scope of works and contract documents for hiring consultants; reviewed detailed designs, drawings, and cost estimates from consultants; coordinated with contractors for field supervision and timely execution of contract.
- Prepared detailed designs and drawings, cost estimate, bill of quantities, bidding document, and contract document for four medium-scale civil construction projects; supervised three junior engineers and two overseers in the process.
- Key achievements: promotion to Manager within 4.5 years; contributed to timely completion of over 50% of civil construction projects and 90% of consulting tasks.

Skills

Languages (years): Python (2+), R (3+), SQL (2+), C, MATLAB, HTML
Python Packages: pandas, numpy, json, matplotlib, sklearn, tensorflow
R Packages: data.table, plotly, shiny, ggplot2, sf, leaflet, caret, MASS, e1071, lars
Modeling Tools: GAMS for optimization, DynusT for mesoscopic traffic simulation
Developer Tools: VS Code, Spyder, RStudio, Docker, JupyterLab
Technologies: Spark, Dask, APIs, version control (Git), LaTeX (Overleaf), web design, SEO, WordPress

Publications

- Pudasaini, P., Karimpour, A., & Wu, Y.-J. (2023). Real-Time Queue Length Estimation for Signalized Intersections Using Single-Channel Advance Detector Data. Transportation Research Record, 2677(7), 144-156. DOI
- Pudasaini, P. (2021). Integrated planning of downstream petroleum supply chain: A multi-objective stochastic approach. Operations Research Perspectives, 8, 100189. DOI