Priyadarshan **Patil**

Applied Scientist · Amazon (Worldwide operations)

☐ (+1) 512-228-1100 | ✉ Priyadarshan@utexas.edu | ⌂ priyadarshanpatil.github.io | ▣ Priyadarshan17 | 🎓 Priyadarshan N. Patil

Summary

- Driven, collaborative, and hands-on researcher with 9 publications (4 as first author) and 16 conference presentations. Has experience in predictive modeling, applied science, regression and classification algorithms, and optimization
- A highly motivated, data driven, and analytical collaborator with a natural ability to think strategically and effectively communicate technical concepts to both technical and non-technical audiences

Work Experience

Electrotempo Inc. *Arlington, VA*
Applied Scientist and Team lead *April 2023 - Current*

- Leading a team of five (SWEs, DS, DE) for developing site electrification solutions. Designed and implemented optimization back-end, managed software development life cycle, and worked with clients to ensure success.
- Handled product management requirements such as drafting PRDs and roadmaps, developing performance metrics, creating wireframes, ensuring prioritization and alignment.
- Designed and implemented and end-to-end solution for power and energy demand estimation for depots, involving data fusion, transformation, and regression models
- Working on a site equipment sizing product incorporating behavioral and scheduling data with joint site and fleet optimization.

Amazon.com *Seattle, WA*
Applied Scientist *August 2022 - March 2023*

- Developed and automated the short-term (11 weeks) plan for flow and carrier allocation on Amazon's US network. The plan includes adherence to third-party contracts, a glide path for event days, and guidance for staffing
- The developed python MILP model reduced Amazon network staffing costs by 2%, while reducing plan WAPE from 5% to 3.3% which increases plan robustness. We also reduced annual contract violation penalties by $600M
- Improved last mile topology optimizer performance by generating and using historical/prediction regression methods, reducing WAPE from 16% to 9% to improve robustness. This tool is used to determine mid-term and long-term jurisdiction planning

Center for Transportation Research, The University of Texas at Austin *Austin, TX*
Research Assistant *Aug 2015 - July 2022*

- Used SVM and KNN ensemble for traffic incident detection based on inductive loop data. The proposed method provided >90% accuracy and 0.86 F-score across all tested corridors.
- Used dynamic programming and convex optimization methods to improve post-disaster recovery sequencing for road networks, improving solution complexity from factorial to exponential
- Developed efficient algorithms for symmetric traffic assignment problem, reducing solution time by 50%. Proposed usage of this algorithm for rail road network electrification within a bi-level problem structure
- Used graph algorithms to optimize oversize/overweight vehicle routing for Texas DOT, reducing transportation and pavement repair costs by 23%

Relevant Projects

- Developed a joint demand forecasting/inventory control model using generalized regression models for the 2019 'fORged by machines' competition sponsored by AWS and INFORMS computing cluster. The model won the first prize nationally
- Served as consultant for city of West Lake Hills, TX to propose data driven traffic control interventions, reducing accidents and traveler delays. Presented results to city council in a town hall meeting

Education

The University of Texas at Austin *Austin, TX*
Ph.D. in Operations Research and Industrial Engineering *2022*

Indian Institute of Technology Madras *Chennai, India*
B.Tech. in Civil Engineering *2015*

Relevant Information

- Skills: Python, Optimizers (Xpress, CPLEX, Gurobi), ML/DS libraries (sklearn, tensorflow pytorch, xgboost, etc.), visualization libraries (matplotlib, seaborn, plotly), SimPy, SQL, R, Git
- Certifications: AWS cloud practitioner CLF-001 (June 2023)
- Coursework: Data Science Lab, Linear regression/Discrete choice methods, Network Optimization, Production/inventory control, Econometrics, Applied probability, Linear/Integer programming, Applied Engg. data analysis/visualization/optimization
- Awards: Best student paper award 2022, TexITE; Graduate study award 2019, ITS Texas; Ryuichi Kitamura paper award, 2017
- Leadership/service: Member and Communications Coordinator, Standing Committee on Railroad Operating Technologies, Transportation Research Board; Panel expert for ACRP and NHCRP for grants worth $750K, Referee for Amazon Research award grants, Research paper referee (10 Journals and 3 conferences).