Priyadarshan **Patil**

PHD CANDIDATE · OPERATIONS RESEARCH AND INDUSTRIAL ENGINEERING
The University of Texas at Austin, Austin, TX

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Summary

- Driven, collaborative, and hands-on researcher with 7 publications (3 first author) and 16 conference presentations. Has experience in predictive modeling, applied science, algorithms, and optimization
- A highly motivated, data driven, and analytical collaborator with a natural ability to think strategically and discuss technical concepts with technical and non-technical audiences
- Enjoys coaching and mentoring team members with professional development

Work Experience

Center for Transportation Research, The University of Texas at Austin *Austin, TX*
RESEARCH ASSISTANT *Aug 2015 - present*

- 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 TX department of transportation, reducing transportation and pavement repair costs by 23%
- Proposed usage of neural networks to quantify disruption impact across urban transportation networks. Over 98% of disruption impacts were predicted within 1% threshold, while reducing computation time
- Used network decomposition heuristics to propose parallel processing algorithm for the traffic network flow problem, reducing computation time by 22%
- Mentored 1 PhD and 2 Undergraduate students for programming skills, technical communication, and optimization techniques

ITS Planners and Engineers *Hyderabad, India*
TRANSPORTATION SOFTWARE INTERN *April. 2014 - August. 2014*

- Developed a computer vision application to verify vehicle count at traffic toll booths
- Used adaptive gaussian mixture model and geometry-based algorithms to provide 91% model accuracy, helping automate manual operations

Relevant Projects

- Developed a joint demand prediction/inventory control model 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
- Designed and simulated liver transplant systems for heterogeneous patient groups under various liver allocation policies. Implemented variance reduction techniques to improve policy performance within the simulation framework

Education

The University of Texas at Austin *Austin, TX*
PH.D. IN OPERATIONS RESEARCH AND INDUSTRIAL ENGINEERING *Aug. 2017 - present*
The University of Texas at Austin *Austin, TX*
M.S. IN TRANSPORTATION ENGINEERING *Aug. 2015 - Dec. 2016*
Indian Institute of Technology Madras *Chennai, India*
B.TECH. IN CIVIL ENGINEERING *Aug. 2011 - May. 2015*

Relevant Information

- Skills: Python (Pandas, Numpy, Scipy, Sklearn, pytorch, Tensorflow), R, MATLAB, SPSS, SQL, Numerical Simulation, Data Structures and Algorithms
- 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
- Leadership/service: Secretary, ITE/ITS student chapter; Secretary, INFORMS student chapter; Tenant advisory board member, University housing and dining, Paper referee (3 Journals and 2 conferences)
- Awards: Best student paper award 2022, TexITE; Graduate study award 2019, ITS Texas; Ryuichi Kitamura paper award for best professor-student pair award, 2017