Priyadarshan Patil

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Education

The University of Texas at Austin *Aug' 17 - Current*
Ph.D. in Operations Research and Industrial Engineering ◇ Specialization : Transportation Engineering
Graduate Certificate in Engineering Education (*Completed*)
GPA : **3.96/4.00**

The University of Texas at Austin *Aug' 15 - Dec'16*
M.S. in Civil and Architectural Engineering ◇ Specialization : Transportation Engineering
GPA : **3.94/4.00**

Indian Institute of Technology, Madras *Jul' 11 - May' 15*
B.Tech in Civil Engineering ◇ Minor : Innovation and Social Entrepreneurship
GPA : **8.48/10.00** ◇ **Top 10% of graduating class**, *Rank 5 in CE Department.*

Refereed publications

6. Gokalp C., Patil P., Boyles S.D., Post-disaster recovery sequencing strategy for road networks. (*Under review*)
5. Venkatraman R., Boyles S.D., James R., Unnikrishnan A., Patil P., Adaptive routing behavior with real-time information under multiple travel objectives. *Transportation Research Interdisciplinary Perspectives (Accepted)*
4. Andrews M.E. & Patil P., A systematic review of argument assessment frameworks in engineering education. *ASEE Annual Conference and Exposition, Conference Proceedings (Accepted, Vol. 2021)*
3. Patil P., Ross K., and Boyles S., Convergence behavior for traffic assignment characterization metrics. *Transportmetrica A: Transport Science, 2020.*
2. Astroza S., Patil P., Smith K., and Bhat C., Transportation planning to accommodate needs of wind energy projects.*Transportation Research Record: Journal of the Transportation Research Board, (2669), 10-18.* - **Ryuichi Kitamura paper award, 2017**
1. Patil, P., et al., Simulation evaluation of emerging estimation techniques for multinomial probit models, *Journal of Choice Modelling, 23, 9-20.*

Conference Presentations

11. Andrews M.E. & Patil P., A systematic review of argument assessment frameworks in engineering education. *ASEE Annual Conference and Exposition 2021 - Long Beach, CA (Accepted)*
10. Gokalp C., Patil P., Boyles S., Post-disaster recovery sequencing strategy for road networks. *100th Annual Meeting of the Transportation Research Board - Washington, DC/Virtual*
9. Patil P., Liao C., Boyles S., Effects of origin-destination matrix errors on user equilibrium. *100th Annual Meeting of the Transportation Research Board - Washington, DC/Virtual*
8. Gokalp C., Patil P., Khosvirikia F., Boyles S., Post-disaster recovery sequencing strategy for road networks. *INFORMS Annual Meeting, 2020 - Maryland/Virtual*
7. Patil P., Liao C., Boyles S., Effects of origin-destination matrix errors on user equilibrium. *INFORMS Annual Meeting, 2020 - Maryland/Virtual*
6. Pandey V., Patil P., Ganesh M., and Boyles S., Computationally-efficient decomposition heuristic for the static traffic assignment problem *2020 INFORMS Transportation Science and Logistics Society Conference - Arlington, VA*
5. Patil P., Ross K., and Boyles S., Convergence behavior for traffic assignment characterization metrics. *99th Annual Meeting of the Transportation Research Board - Washington, DC*
4. Patil P., Ross K., and Boyles S., Convergence behavior for traffic assignment characterization metrics. *INFORMS Annual Meeting, 2019 - Seattle, WA*
3. Pandey V., Patil P., and Boyles S., Online routing of heterogeneous vehicles on stochastic time-varying managed lane networks. *INFORMS Annual Meeting, 2018 - Phoenix, AZ*
2. Boyles S., Patil P., and Alexander W., Quantifying disruption impact across transportation networks, *INFORMS Annual Meeting, 2018 - Phoenix, AZ*
1. Astroza S., Patil P., Smith K., and Bhat C., Transportation planning to accommodate needs of wind energy projects. *96th Annual Meeting of the Transportation Research Board - Washington, DC*

Technical Report

2. Boyles S., Patil P., Pandey V., and Yahia C., Beyond political boundaries: Constructing network models for megaregion planning. *USDOT Tier 1 Center: Cooperative Mobility for Competitive Megaregions, CM2-11.*
1. Astroza S., Patil, P., Smith K., Kumar V, Bhat C., Zhang Z., Texas transportation planning for future renewable energy projects, *Texas Department of Transportation, FHWA/TX-16/0-6850-1*

Awards

6. **Professional Development Award, 2020** - Awarded by the Graduate School at UT Austin for presentations at the 2020 INFORMS annual meeting and 2021 TRB annual meeting
5. **Winner, fORged by Machines competition, 2019** - Awarded by INFORMS computing society cluster and AWS for the best demand prediction/inventory control model
4. **Professional Development Award, 2019** - Awarded by the Graduate School at UT Austin for presentations at the 2019 INFORMS annual meeting
3. **Scholarship for Graduate Study in ITS, 2018** - Awarded by Intelligent Transportation Society Texas chapter for academic achievements
2. **Professional Development Award, 2018** - Awarded by the Graduate School at UT Austin for presentations at the 2018 INFORMS annual meeting
1. **Ryuichi Kitamura paper award, 2017** - Best Paper award for a professor- student pair awarded by Travel analysis methods section (ADB00) of the Transportation Research Board

Coursework Highlights

UT Austin (PhD) - Data Science Lab, Public Transportation Engineering, Network Optimization, Linear Programming, Integer Programming, Applied Engg. Data Analysis/Visualization/Optimization, Applied Stochastic Processes, Markov Decision Processes, Queueing Theory, Production/Inventory Control, Decision Analysis

UT Austin (MS) - Transportation Network Analysis, Transportation Systems Management, Logistic Regression/Discrete Choice, Dynamic Traffic Assignment, TransCAD GIS, Logistics Analytics

IIT Madras - Transportation Network Analysis, Computer Applications in Traffic & Highway Engineering, Probability-Statistics and Stochastic Processes, Calculus I & II

Relevant Technical Skills

Languages: C, C++, Python, MATLAB, R, AMPL

Tools/Packages: SPSS, Stata, TransCAD, OpenCV, Vissim, ArcGIS

Python libraries: Pandas, Numpy, Scipy, Matplotlib, Seaborn, Sklearn, NLTK, Catboost/XGBoost, Tensorflow

Academic Employment

Graduate Teaching Assistant: Probability and statistics (Spring 2019, Spring 2020), Civil engineering systems (Fall 2018), Transportation Systems (Fall 2016)

- **Probability and Statistics:** Assisted course design, evaluation design and handled grading (Overall Rating: 4.33/5)
- **Civil Engineering Systems:** Created new modules on data analysis and linear regression, in addition to conducting regular lab sessions and grading (Overall Rating: 4.46/5)

Graduate Research Assistant: Boyles research group (Fall 2017-current), Bhat research group (Fall 2015-Fall 2016)

Research

Masters Thesis : Simulation Evaluation of Emerging Estimation Techniques for Multinomial Probit Models *Jan' 16 - Dec' 16*

Advisor: Dr. Chandra Bhat, UT Austin

Evaluated computational performance of MACML, GHK-ML, GHK-CML, GHK-SGI and Bayesian MCMC for multinomial probit models across different simulation settings

Bachelors Thesis : Network Algorithms for Sustainability Objective *Aug' 14 - May' 15*

Advisor: Dr. Karthik K Srinivasan, IIT Madras

Formulated a multi-objective multiple user class gradient projection algorithm for the traffic assignment problem (TAP) and implemented on the Chennai road network

Major Projects

1. Simulation of liver transplant systems for multiple liver quality thresholds
   - Designed and simulated liver transplant systems for heterogeneous patient groups under various liver allocation policies.
2. Intersection redesign study for West Lake Hills City
   - Conducted a traffic count study and traveller satisfaction survey for intersection traffic configurations
   - Presented results of the study to the city council and general public and made recommendations for changing intersection configuration
3. Modeling inequity through dynamic traffic assignment (DTA)
   - Designed a parking search problem with departure time choice to model inequity
   - Derived analytical solutions for the parking search problem with PQ model integration
4. Planning for environmental effect of pollutants by Visualization in TransCAD
   - Performed 4-step planning process, linked trip distribution to emission density and prepared visualizations to pinpoint areas of maximum impact for easy remedial measures

Mentoring Experience

- Graduates Linked with Undergraduates in Engineering (GLUE) mentor, Fall 2018 - Spring 2019
  - Undergraduates supervised: Katherine Ross, Bradley Gladdens

Professional Involvement

- Member, Institute for Operations Research and Management Sciences (INFORMS)
- Friend of ADB40 committee, Transportation Research Board (TRB)
- Member, Institute of Transportation Engineers (ITE) and Intelligent Transportation Society of America (ITS America)
- Secretary, ITE/ITS student chapter at the University of Texas at Austin (*Best TX student chapter award, 2019*)
- Secretary, INFORMS student chapter at the University of Texas at Austin
- ORIE Representative, Women's Transportation Seminar (WTS) student chapter (*Teamwork excellence award, 2019; Support excellence award, 2019*)

Research Service

- Paper Referee, Transportation Research Board (TRB) annual meeting (2018-current)
- Paper Referee, American Society for Engineering Education (ASEE) annual conference (2021)

Miscellaneous

- National Intercollegiate Racquetball Player, UT Austin.
- Intramural Racquetball Champion, Fall 2018, UT Austin
- 99.99 %ile in CAT 2014 (conducted by IIMs), ranked among top 25 among over 1,70,000 candidates.
- KVPY fellowship granted by the Dept. of Science and Technology, Govt. of India.