

Divyakant Tahlyan

Curriculum Vitae
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Transportation Center
Northwestern University
600 Foster Street
Evanston, IL 60208
dtahlyan@u.northwestern.edu
www.dtahlyan.com
+1-813-508-2598

Education

Sep. 2018 – now	Ph.D. Civil Engineering, Northwestern University Advisor: Hani S. Mahmassani; Committee: Amanda Stathopoulos, Susan Shaheen, Sunil Chopra Dissertation: Telemobility through the pandemic: Longitudinal tracking, modeling and outlook
Sep. 2018 – Mar. 2021	M.S. Civil Engineering, Northwestern University Advisor: Hani S. Mahmassani; Committee: Amanda Stathopoulos
Aug. 2016 – May 2018	M.S. Civil Engineering, University of South Florida Advisors: Abdul Pinjari & Fred Mannering; Committee: Robert Bertini Thesis: Performance Evaluation of Choice Set Generation Algorithms for Modeling Truck Route Choice: Insights from Large Streams of Truck-GPS Data
Jul. 2011 – May 2015	B.Tech. Civil Engineering, Indian Institute of Technology (BHU) Varanasi Advisor: Anurag Ohri

Professional Experience

Sep. 2019 – now	Graduate Research Assistant, Northwestern University Transportation Center
Apr. 2021 – Jun. 2021	Teaching Assistant, Northwestern University
Apr. 2019 – Jun. 2019	Teaching Assistant, Northwestern University
Aug. 2016 – May 2018	Graduate Research Assistant, University of South Florida
Jun. 2015 – Jun. 2016	Junior Research Fellow, Indian Institute of Science

Research Interests

- Statistical, econometric and machine learning methods for transportation data analysis: Discrete choice and ordered response models, latent variable modeling (factor, class and transition models), count data models, heterogeneity and hierarchical models, machine learning based classifiers (SVM, neural networks, decision trees), unsupervised learning, ensemble learning and causal inference.
- Humans, technology and infrastructure interaction: ICT and travel impacts, human technology adoption, perception and interaction, socio-technical transition analysis of transportation technologies
- Transportation equity and sustainability: planning for improving accessibility and reducing adverse impact of extreme events amongst lower income and zero vehicle households; promoting car free living, transit and micro-mobility systems.
- Planning for next generation transportation systems: Innovative and emerging mobility systems, electric vehicles, delivery robots and autonomous vehicles, on-demand transit systems.
- Social networks and travel: Egocentric network data collection, social capital measurement and its dimensions, travel and social network relationship
- Route choice modeling: Choice set generation, truck route choice modeling using large scale passive data sources.

Publications

Journal Publications

1. Said, M., **Tahlyan, D.**, Stathopoulos, A., Mahmassani, H., Walker, J., Shaheen, S. 2023. In-Person, Pick Up or Delivery? Evolving Patterns of Household Retail Spending Behavior Through the Pandemic. *Travel Behavior and Society*. <https://doi.org/10.1016/j.tbs.2023.01.003>.
2. **Tahlyan, D.**, Stathopoulos, A., Maness, M. 2022. Disentangling Social Capital: Understanding the Effect of Social Support and Social Network Resources on Urban Activity Participation. *Transportation Research Interdisciplinary Perspectives*. <https://doi.org/10.1016/j.trip.2022.100629>.
3. **Tahlyan, D.**, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. 2021. For Whom Did Telework Not Work During the Pandemic? Understanding the Factors Impacting Telework Satisfaction in the US Using a Multiple Indicator Multiple Cause (MIMIC) Model. *Transportation Research Part A*. <https://doi.org/10.1016/j.tra.2021.11.025>.
4. Abkarian, H., **Tahlyan, D.**, Mahmassani, H., Smilowitz, K. 2021. Understanding Visitor Engagement Behavior at Large-Scale Events: Activity Sequence Clustering and Ranking using GPS Tracking Data. *Tourism Management*. <https://doi.org/10.1016/j.tourman.2021.104421>.
5. Cummings, C., Abkarian, H., Zhou, Y., **Tahlyan, D.**, Smilowitz K. and Mahmassani, H. 2021. Simulating Large-Scale Events as a Network of Heterogeneous Queues: Framework and Application. *Transportation Research Record*. <https://doi.org/10.1177/03611981211035755>.
6. Rahul, T.M., Manoj, M., **Tahlyan, D.** and Verma, A., 2021. The Influence of Activities and Socio-Economic / Demographic Factors on the Acceptable Distance in an Indian Scenario. *Transportation in Developing Economies*, 7(3). <https://doi.org/10.1007/s40890-020-00110-3>.
7. Verma, A., **Tahlyan, D.** and Bhusari, S., 2020. Agent based simulation model for improving passenger service time at Bangalore airport. *Case Studies on Transport Policy*, 8(1), pp.85-93. <https://doi.org/10.1016/j.cstp.2018.03.001>.
8. **Tahlyan, D.**, Pinjari, A. 2020. Performance Evaluation of Choice Set Generation Algorithms for Analyzing Route Choice: Insights from Spatial Aggregation for the BFS-LE Algorithm. *Transportmetrica A: Transportation Science*, 16:3, pp. 1030-1061. <https://doi.org/10.1080/23249935.2020.1725790>.
9. Luong, T.D., **Tahlyan, D.** and Pinjari, A.R., 2018. Comprehensive Exploratory Analysis of Truck Route Choice Diversity in Florida. *Transportation Research Record*, 2672(9), pp.152-163. <https://doi.org/10.1177/0361198118784175>.
10. Verma, A., Kumari, A., **Tahlyan, D.** and Hosapujari, A.B., 2017. Development of hub and spoke model for improving operational efficiency of bus transit network of Bangalore city. *Case Studies on Transport Policy*, 5(1), pp.71-79. <https://doi.org/10.1016/j.cstp.2016.12.003>.

Book Chapters

1. **Tahlyan, D.**, Balusu, S.K., Sheela, P.V., Maness, M. and Pinjari, A.R., 2020. An empirical assessment of the impact of incorporating attitudinal variables on model transferability. In *Mapping the Travel Behavior Genome* (pp. 145-165). Elsevier. <https://doi.org/10.1016/B978-0-12-817340-4.00009-7>.

In-preparation and under review

1. **Tahlyan, D.**, Mahmassani, H., Said, M., Stathopoulos, A., Walker, J., Shaheen, S., Johnson, B. In-Person, Hybrid or Remote? Employers Perspective on the Future of Work Post-Pandemic. Presented at

2023 TRB Annual Meeting in Washington D.C. To be submitted to Journal *Technological Forecasting and Social Change*.

2. **Tahlyan, D.**, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. Trajectories of Telework Through the Pandemic: Outlook and Implications for Cities. Presented at 2023 TRB Annual Meeting in Washington D.C. To be submitted to Journal *Transportation Research Part A: Policy and Practice*
3. Hamad, N., **Tahlyan, D.**, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. Modeling the Effects of Telework on the Duration, Distance, and Time of Day of Out-of-Home Non-Work Activities. Presented at 2023 TRB Annual Meeting in Washington D.C.
4. **Tahlyan, D.**, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. Latent Transition Analysis of Consumer Spending Behavior and Adaptation Across Online and In-Person Channels Through the Pandemic. Presented at 2021 TRB Annual Meeting.

Conference Presentations (*presenter)

1. **Tahlyan, D.**, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. 2023. Trajectories of Telework Through the Pandemic: Outlook and Implications for Cities. 102nd Annual Meeting of Transportation Research Board. Washington D.C. [Oral]
2. Hamad, N., **Tahlyan, D.**, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. 2023. Modeling the Effects of Telework on the Duration, Distance, and Time of Day of Out-of-Home Non-Work Activities. 102nd Annual Meeting of Transportation Research Board. Washington D.C. [Poster]
3. **Tahlyan, D.**, Mahmassani, H., Said, M., Stathopoulos, A., Walker, J., Shaheen, S., Johnson, B. 2023. In-Person, Hybrid or Remote? Employers Perspective on the Future of Work Post-Pandemic. 102nd Annual Meeting of Transportation Research Board. Washington D.C. [Poster]
4. Said, M.*., **Tahlyan, D.**, Stathopoulos, A., Mahmassani, H., Walker, J., Shaheen, S. 2022. In-Person, Pick Up or Delivery? Evolving Patterns of Household Spending Behavior Through the Early Reopening Phase of the COVID-19 Pandemic. 4th Bridging Transportation Researchers (BTR) Conference. Online [Oral]
5. **Tahlyan, D.***, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. 2022. For Whom Did Telework Not Work During the Pandemic? Understanding the Factors Impacting Telework Satisfaction in the US Using a Multiple Indicator Multiple Cause (MIMIC) Model. 101st Annual Meeting of Transportation Research Board. Washington D.C. [Oral]
6. **Tahlyan, D.***, Said, M., Mahmassani, H., Stathopoulos, A., Walker, J., Shaheen, S. 2022. Latent Transition Analysis of Consumer Spending Behavior and Adaptation Across Online and In-Person Channels Through the Pandemic. 101st Annual Meeting of Transportation Research Board. Washington D.C. [Poster]
7. **Tahlyan, D.***, Stathopoulos, A., Maness, M. 2021. Disentangling Social Capital: Understanding the Effect of Social Support and Social Network Resources on Urban Activity Participation. 3rd Bridging Transportation Researchers (BTR) Conference. Online. [Oral]
8. **Tahlyan, D.**, Stathopoulos, A.*., Maness, M. 2021. Disentangling Social Capital: Understanding the Effect of Social Support and Social Network Resources on Urban Activity Participation. 100th Annual Meeting of Transportation Research Board. Online. [Poster]
9. **Tahlyan, D.***, Kim, E., Mahmassani, H. 2021. Real-Time Short-Term Traffic Forecasting: A Meta-Learner Based Ensemble Framework. 100th Annual Meeting of Transportation Research Board. Online. [Poster]

10. **Tahlyan, D.*** and Mahmassani, H. 2021. Characterizing zero-vehicle households: A double-hurdle problem perspective. 100th Annual Meeting of Transportation Research Board. Online. [Poster]
11. Cummings, C.*, Abkarian, H., Zhou, Y., Tahlyan, D., Smilowitz, K. and Mahmassani, H. 2021. Simulating Large-Scale Events as a Network of Heterogeneous Queues: Framework and Application. 100th Annual Meeting of Transportation Research Board. Online. [Poster]
12. Cummings, C.*, **Tahlyan, D.**, Abkarian, H., and Mahmassani, H. 2021. Understanding Attendee Satisfaction at Planned Special Events: Role of Quality of Transportation Services and Prior Expectations. 100th Annual Meeting of Transportation Research Board. Online. [Poster]
13. **Tahlyan, D.***, Kim, E., and Mahmassani, H. 2020. Real-Time Short-Term Traffic Forecasting: A Meta-Learner based Ensemble Framework. 2nd Bridging Transportation Researchers (BTR) Conference. Online. [Oral]
14. **Tahlyan, D.**, Maness, M.* 2019. Incorporating social capital as a latent variable in discrete choice models. International Choice Modeling Conference (ICMC), Kobe, Japan. [Oral]
15. **Tahlyan, D.**, Sheela, P.V., Maness, M.*, Pinjari, A.R. 2018. Improving the spatial transferability of travel demand forecasting models: An empirical assessment of the impact of incorporating attitudes on model transferability. 15th International Conference on Travel Behavior Research, Santa Barbara. [Oral]
16. **Tahlyan, D.**, Sheela, P.V., Maness, M.*, Pinjari, A.R. 2018. Improving the spatial transferability of travel demand forecasting models: An empirical assessment of the impact of incorporating attitudes on model transferability. 7th International Conference on Innovations in Travel Modeling (ITM), Atlanta. [Oral]
17. **Tahlyan, D.***, Pinjari, A. R., 2018. Performance Evaluation of Choice Set Generation Algorithms for Modeling Truck Route Choice: Insights from Large Streams of Truck-GPS Data. 97th Annual Meeting of Transportation Research Board, Washington D.C. [Poster]
18. Luong, T.D.*, **Tahlyan, D.** and Pinjari, A.R., 2018. Comprehensive Exploratory Analysis of Truck Route Choice Diversity in Florida. 97th Annual Meeting of Transportation Research Board, Washington D.C. [Poster]
19. **Tahlyan, D.***, Pinjari, A. R., 2017. Performance Evaluation of Choice Set Generation Algorithms for Modeling Truck Route Choice: Insights from Large Streams of Truck-GPS Data. 4th Conference of the Transportation Research Group of India, Mumbai, India. [Oral]
20. **Tahlyan, D.***, Pinjari, A. R., 2017. Performance Evaluation of Choice Set Generation Algorithms for Modeling Truck Route Choice: Insights from Large Streams of Truck-GPS Data. 5th Annual UTC Conference for the Southeastern Region, Gainesville, FL. [Oral]

Project Reports

1. Jayme, A., Usta, B., Hamad, N., **Tahlyan, D.**, Johnson, B., Mahmassani, H., Al-Qadi, I., Quandt, J. 2023. Smart Mobility Blueprint for Illinois. Report Number: FHWA-ICT-23-006. Prepared for Illinois Department of Transportation. <https://doi.org/10.36501/0197-9191/23-007>
2. **Tahlyan, D.**, Hamad, N., Said, M., Mahmassani, H., Stathopoulos, A., Shaheen, S., Walker, J. 2022. Analysis of teleworkers' experiences, adoption evolution and activity patterns through the pandemic. Report Number: Telemobility-TR-2022-4. Prepared for Telemobility University Transportation Center. <https://rosap.ntl.bts.gov/view/dot/65844>
3. **Tahlyan, D.**, Said, M., Mahmassani, H., Stathopoulos, A., Shaheen, S., Walker, J. 2022. Longitudinal tracking survey to understand changing consumer spending, telework and mobility patterns through the pandemic. Report Number: Telemobility-TR-2022-5. Prepared for Telemobility University Transportation Center. <https://rosap.ntl.bts.gov/view/dot/65993>

4. Mannerling, F., Maness, M., Pinjari, A., Zhang, Y., Alnawmasi, N., Balusu, S.K., Barbour, N., Behnoor, A., Eluru, N., Luong, T., Mishra, D., Sheela, P.V. and **Tahlyan, D.**, 2019. Emerging Econometric and Data Collection Methods for Capturing Attitudinal and Social Factors in Activity, Travel Behavior and Safety Modeling. Prepared for Center for Teaching Old Models New Tricks (TOMNET), U.S. Department of Transportation University Transportation Center.

<https://rosap.ntl.bts.gov/view/dot/62804>
5. Mannerling, F., Maness, M., Pinjari, A., Zhang, Y., Balusu, S.K., Barbour, N., Menon, N., Sheela, P.V. and **Tahlyan, D.**, 2018. Investigation of the Role of Attitudinal Factors on the Adoption of Emerging Automated Vehicle and Safety Technologies. Prepared for Center for Teaching Old Models New Tricks (TOMNET), U.S. Department of Transportation University Transportation Center.

<https://rosap.ntl.bts.gov/view/dot/62803>
6. **Tahlyan, D.**, Pinjari, A.R., Luong, T. and Ozkul, S., 2017. Truck Route Choice Modeling using Large Streams of GPS Data. Report No. CAIT-UTC-NC32. Prepared for Center for Advanced Infrastructure and Transportation (CAIT), U.S. Department of Transportation University Transportation Center.

<https://rosap.ntl.bts.gov/view/dot/34888>
7. **Tahlyan, D.**, Luong, T.D., Pinjari, A.R. and Ozkul, S., 2017. Development and Analysis of Truck Route Choice Data for the Tampa Bay Region using GPS Data. Report BDK25-730-3. Prepared for Florida Department of Transportation. <http://dx.doi.org/10.13140/RG.2.2.22337.43363>

Master's Thesis

1. **Tahlyan, D.**, 2018. Performance Evaluation of Choice Set Generation Algorithms for Modeling Truck Route Choice: Insights from Large Streams of Truck-GPS Data. University of South Florida.

<https://digitalcommons.usf.edu/etd/7649/>

Recognition

Awards & Honors

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| 2021 | Northwestern University Transportation Center Dissertation Year Fellowship (\$39,648) |
| 2021 | Transportation & Development Institute Bob Camillone Memorial Scholarship, American Society of Civil Engineers Illinois Section (\$2,000) |
| 2018 | Walter P. Murphy Fellowship, Northwestern University (\$52,178) |
| 2017 | 2 nd place. USF ITE Student Chapter Transportation Data Visualization Competition (\$100) |

Grants

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| 2022 | Northwestern Open Access Fund (\$1000) |
| 2023 | Northwestern TGS Conference Travel Grant. For attending 102nd Annual Meeting of Transportation Research Board in Washington D.C. (\$600) |
| 2022 | Northwestern TGS Conference Travel Grant. For attending 101st Annual Meeting of Transportation Research Board in Washington D.C. (\$600) |
| 2017 | USF Student Government. For attending 4th Conference of Transportation Research Group of India in Mumbai, India. (\$750) |
| 2017 | USF ITE Student Chapter. For attending 5th Annual UTC Conference for the Southeastern Region in Gainesville, FL. (\$150) |

Media Mentions

- 2023* Telework Transportation Research in Light of the COVID-19 Pandemic. <https://www.nationalacademies.org/trb/blog/telework-transportation-research-in-light-of-the-covid-19-pandemic>
- 2021 Northwestern Graduate School Spotlight. <https://www.tgs.northwestern.edu/about/our-people/spotlight/divyakant-tahlyan.html>
- 2021 "Roadwork projects must consider issues of pedestrians, say IISc researchers", Deccan Herald. <https://www.deccanherald.com/city/bengaluru-infrastructure/roadwork-projects-must-consider-issues-of-pedestrians-say-iisc-researchers-942957.html>
- 2020* "Fewer crashes, but more serious injuries in Chicago during pandemic, data shows", WGN-TV. <https://wgntv.com/news/coronavirus/fewer-crashes-but-more-serious-injuries-in-chicago-during-pandemic-data-shows/>. Also read: <https://www.transportation.northwestern.edu/news-events/articles/2020/chicago-mobility-under-covid-19.html>.
- 2018 "Boarding at model Kempegowda International Airport will be a breeze", Bangalore Mirror. <https://bangaloremirror.indiatimes.com/bangalore/others/boarding-at-model-kempegowda-international-airport-will-be-a-breeze/articleshow/63671281.cms>
- 2016 "IISc to develop software that could prevent mishaps like the stampede during Kumbh Mela", India Times. <https://www.indiatimes.com/news/india/iisc-to-develop-software-that-could-prevent-mishaps-like-the-stampede-during-kumbh-mela-255592.html>

* Media article does not explicitly mention me, but either mentions or refers to my research

Research Project Experience

- 2019 – now As graduate research assistant at Northwestern University Transportation Center
--- **Mobility 4.0:** Survey design to gather information from public, private and academic stakeholders regarding ongoing autonomous/electric mobility work in the state of Illinois
--- **UTC Telemobility:** E-commerce and tele-work adoption amid a global pandemic, longitudinal tracking survey, latent class and transition analysis
--- **Advisory Services for Maricopa Association of Governments (MAG) ABM-DTA Model Integration Phase II:** dynamic traffic assignment software performance evaluation
--- **EAA Airshow Access Logistics:** multi-modal simulation, scenario design, policy recommendations
- 2016 – 2018 As graduate research assistant at University of South Florida
--- **UTC Teaching Old Models New Tricks:** spatial transferability of travel models, choice models and latent variables, survey design, social network analysis
--- **Truck Route Choice Modeling using Large Streams of GPS Data:** large scale GPS data analysis, discrete choice modeling, route choice set generation
--- **Development and Analysis of Truck Route Choice Data for the Tampa Bay Region using GPS Data:** heuristic development for raw GPS data to route choice data conversion
- 2015 – 2016 As junior research fellow at the Indian Institute of Science

- ***The Kumbh Mela Experiment:*** data collection in large-scale high-density crowd event, personal GPS tracker and video data collection
- ***Agent based pedestrian simulation modeling for Bangalore International Airport:*** Anylogic based simulation modeling, discrete choice model estimation and survey design

Teaching Training and Certification

Spring 2023	<i>Mentored Discussions of Teaching (MDT)</i> Northwestern Searle Center for Advancing Learning and Teaching
Fall 2022	<i>Introduction to Evidence-Based Undergraduate STEM Teaching</i> Massive Online Open Course, Center for the Integration of Research, Teaching and Learning (CIRTL) Network
Fall 2022	<i>MOOC-Centered Learning Community</i> Northwestern Searle Center for Advancing Learning and Teaching

Teaching Experience

2021	<i>Teaching Assistant, Economics and Finance for Engineers</i> Class Size: 72 Weekly in-class discussion session (1 hour), weekly office hours (2 hours) Median CTEC Score: 5/6 for TA's ability to answer student's questions, preparation for each session, communication of ideas, and interest in teaching the course Course In-charge: Pablo Durango-Cohen Northwestern University
2019	<i>Teaching Assistant, Engineering Analysis 3: System Dynamics</i> Class Size: 106 Weekly in-class discussion session (1 hour), weekly office hours (2.5 hours), and weekly homework and exam grading (for 10 weeks in total) Median CTEC Score: 5/6 for TA's ability to answer student's questions, preparation for each session, communication of ideas, and interest in teaching the course Course In-charge: Kyoo-Chul Park Northwestern University

Mentoring Experience

2022	Nadim Hamad, Ph.D. Student, Northwestern University [Mobility 4.0 Telemobility UTC]
2021	Xiaowei Bi, Master's Student, Northwestern University [Mobility 4.0]

Professional Service

Peer Review for Journals (total no. of reviews) **Total = 41**

Transportation Research Part A: Policy and Practice (18)
 Transportation Research Part D: Transport and Environment (5)
 Journal of Transport Geography (4)
 Journal of Infrastructure Systems (3)
 Accident Analysis and Prevention (2)
 IATSS Research (2)
 IEEE Access (2)
 Journal of Transport & Health (2)
 Case Studies on Transport Policy (1)

Innovative Infrastructure Solutions (1)	
Journal of Advance Transportation (1)	
<u>Peer Review for Conferences (years: total no. of reviews)</u>	Total = 31
Bridging Transportation Researchers Conference (2021: 1, 2020: 2)	
Conference of Transportation Research Group of India (2017: 4)	
IEEE International Conference on Intelligent Transportation (2021: 2)	
Transportation Research Board Annual Meeting (2023: 8; 2022: 6; 2021: 5, 2020: 2, 2018: 1)	

Other Service

- Board Member, Northwestern Transportation Club, 2020-2021
- Data Steward, Northwestern University Transportation Center, 2020-now
- Undergraduate Training & Placement Representative, Department of Civil Engineering, Indian Institute of Technology (BHU), Varanasi, 2014-2015
- Joint Secretary, Cine Club, Indian Institute of Technology (BHU), Varanasi, 2013-2014

Memberships

- Student Member, Institute of Transportation Engineers, Oct.2021-now
- Student Member, American Society of Civil Engineers, 2021-now
- Student Member, International Institute of Forecasters, 2021-2022
- Student Member, USF Institute of Transportation Engineers (ITE) Student Chapter, 2016-2018