

CURRICULAM VITAE



UNIVERSITY OF MICHIGAN
TRANSPORTATION RESEARCH INSTITUTE

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NAME: Aditi Misra

TITLE: Assistant Research Scientist

EDUCATION: **PhD in Civil Engineering (Transportation Systems Engineering)**, Georgia Institute of Technology, August 2016
Minor: Computational Econometrics
Dissertation Title: Mapping Bicyclist Route Choice Using GPS Enabled Smartphone based Crowdsourced Data

Master of Science in Civil Engineering, University of Connecticut, 2011

Thesis Title: A Multicriteria Based Framework for Assessing Sustainability of Pile Foundations

RESEARCH INTEREST: Travel Behavior Modeling and Forecasting; Disruptive Mobility Solutions; Data Driven Transportation Planning and Equity; Big Data Analytics (Machine Learning and Neural Networks); Survey Methodology and Design of Experiments; Sampling Bias; Vulnerable Road User Safety and Adoption of Connected and Automated Transportation Solutions

RESEARCH PROJECTS:

- NSF RAPID: Improving Transportation Equity to Enhance Food Security for Families Vulnerable to COVID-19 (Co-PI); *Sponsor: National Science Foundation*; Grant value \$159,995
- NSF RAISE: C-Accel Pilot - Track A1 (Open Knowledge Network): Network for Equity in the Era of Driverless Vehicles (Senior Personnel); *Sponsor: National Science Foundation*; Grant value \$1M
- NSF HDR-DIRSE: Collaborative Research: Framework for Integrative Data Equity Systems (Senior Personnel); *Sponsor: National Science Foundation*; Grant value \$2M
- V2X Bridging Efficacy Analysis (Co-PI); *Sponsor: Ford Alliance*; Grant value \$178,309
- Evaluating the Potential of Transportation Network Companies to Enhance Multimodal Travel for Seniors (Senior Personnel); *Sponsor: Mineta Transportation Institute, San Jose State University/USDOT*; Grant value \$4.9K
- Automated Driving System Demonstration Grant (Co-PI); *Sponsor: USDOT*; Grant value 2M
- Developing Relational Models for Missing AADT for Michigan Roads (PI); *Sponsor: State Police, State of Michigan/NHTSA*; Grant value \$90K
- Data Driven Validation of Bicyclist and Pedestrian Exposure Model (PI); *Sponsor: Office of Highway Safety Planning/NHTSA*; Grant value \$50K

- Developing Relational Models for Missing AADT for Michigan Roads (PI); *Sponsor: State Police, State of Michigan/NHTSA*; Grant value \$110K
- Bicyclist and Pedestrian Level of Comfort Measures for Michigan Roadways- Phase 1 (PI); *Sponsor: State Police, State of Michigan/NHTSA*; Grant value \$120K
- Deriving Bicyclist and Pedestrian Safety Relevant Contexts for AV Environments Using Naturalistic Driving Data (Co-PI); *Sponsor: Toyota Research Institute*; Grant value \$90K
- Developing Bicycle-Related Corner Case Scenarios and a Bicyclist Model for Testing Self-Driving Cars Using Naturalistic Driving Data and Crash Data (Co-PI); *Sponsor: Toyota Research Institute*; Grant value \$123K
- Developing and Simulating Pedestrian-Related Corner Case Scenarios for Testing Self-Driving Cars (Co-PI); *Sponsor: Toyota Research Institute*; Grant value \$116K
- Design Testing and Evaluation Scenarios for Connected and Automated Vehicles (Co-PI); *Sponsor: DiDi Chuxing*; Grant value \$150K
- Identifying Potential Workzone Countermeasures Using Connected Vehicle and Naturalistic Driving Data (PI); *Sponsor: Michigan Department of Transportation*; Grant value \$150K
- Assessing Effectiveness of Advanced Safety Features in Automated and Semi-automated Vehicles (Senior Personnel); *Sponsor: Toyota Motors*
- First-last mile connections for ride-hailing services and bikeshare: A multimodal approach (Co-PI); *Sponsor: DiDi Chuxing*; Grant value \$150K
- Improving the Completeness of Bicyclist and Pedestrian Exposure Data in Michigan – Phase 1 (Co-PI); *Sponsor: State Police, State of Michigan/NHTSA*; Grant value \$100K
- Safe Shared Mobility Via Bicyclist and Motorist Education and Engagement (PI); *Sponsor: Office of Highway Safety Planning/NHTSA, Michigan*; Grant value \$130K
- Detroit Connector Shuttle Service: Performance and Needs Assessment (PI); *Sponsor: UM Provost Office*; Grant value \$35K
- Determining Cost Benefit of Intelligent Intersections (Co-PI); *Sponsor: Continental*; Grant value \$65K
- Research Utilizing the SHRP2 Safety Data to Support Highway Safety (Senior Personnel); *Sponsor: Federal Highway Administration (FHWA)*; Grant value \$472K
- Updated Analysis of Types and Severities of Accidents Involving Tractor Semi-Trailers (Co-PI); *Sponsor: National Technology and Engineering Solutions of Sandia LLC (NTESS)*; Grant value \$25K
- Investigating Vulnerable Road User Risk around Intersections (Co-PI); *Sponsor: Continental Motor Systems*; Grant value \$92K
- 2019 Michigan Traffic Crash Facts & Technical Assistance Projects (Co-PI); *Sponsor: State Police, State of Michigan/NHTSA*; Grant value \$549K
- Modelling Bicyclist Route Choice Using GPS Enabled Smartphone Based Crowdsourced Data (Doctoral thesis); *Sponsor: GDOT*
- Realtime Information Accessibility and Impact: A Case Study of St. Louis Metro (Student Researcher); *Sponsor: St. Louis Metro*

TEACHING AND MENTORING:

At University of Michigan

October 2016-Till Date

Didactic Teaching

- CEE 552 Travel Behavior Analysis and Forecasting – Winter 2020
- Guest lectures
 - CEE 552 Travel Behavior Analysis and Forecasting: Special Topics in Discrete Choice Modelling (Winter 2017, Winter 2019)
 - CEE 450 Introduction to Transportation Planning (Fall 2017)

NGTS Seminar (Fall 2018): Bicyclist Route Modelling Using Smartphone Based GPS Data

NGTS Seminar (Fall 2019): Safe Shared Mobility through Game Based Learning

Research Project Mentoring

Graduate Students:

- Andong Chen (Urban Planning)
- Ang Li (Survey Methodology)
- Zhe Yin (Applied Statistics)
- Guanting Yu (Financial Mathematics)

Undergraduate Students:

- Yifan Zhu, (BS, EECS)
- Karan Kwatra (BS, EECS)
- Yuting Yu (BS, SI)
- Willa Hua (BS, School of Information)
- Muting Wu (BS, EECS) – Independent Study
- Ashirvad Varma (BS, EECS) – Independent Study
- Zexuan Zhao (BS, EECS) – Joint Independent Research Program between UM and Shanghai-Jiaotong University
- Xuetong Sun (BS, Undergraduate Research Opportunities Program, UM)

At Georgia Institute of Technology

August 2012 - May 2016

Didactic Teaching

- Teaching Assistant August 2012–May 2014
CEE 4600 Transportation Planning and Engineering
CEE 4090 Capstone Senior Design

Responsibilities: Select Lectures Sessions, Homework Development, Assignment and Examination Grading

- Guest Lectures
CSE 8803 Computational Sustainability
CEE 6642 Transit Systems Planning and Design

Research Project Mentoring

August 2012 - May 2016

- Alex Poznanski (MS) — Cycle Atlanta Project
- Sarah Windmiller (MS) — St. Louis Metro Project
- Charlene Mingus (MS) — Cycle Atlanta Project
- Rohit Ammanamanchi (BS) — Cycle Atlanta Project

At University of Connecticut:

August 2009–September 2011

Didactic Teaching

- Teaching Assistant August 2009–September 2011
CEE 2110 Applied Mechanics I
CEE 2120 Applied Mechanics II
CEE 3110 Mechanics of Materials
CEE 3510 Soil Mechanics

Responsibilities: Select Lectures Sessions, Recitations, Office Hours, Problem Solving Sessions, Assignment and Examination Grading

PUBLICATIONS:

Theses

- **Misra, A.** (2016). “Mapping Route Choice of Bicyclists in Atlanta Using Crowdsourced GPS enabled Smartphone Data.”, *Ph.D Thesis*, Georgia Institute of Technology, U.S.A
- **Misra, A.** (2010). “A multicriteria based quantitative framework for assessing sustainability of pile foundations.” *M.S. Thesis*, University of Connecticut, U.S.A.

Peer Reviewed Journal Papers

*(Names with * indicate students supervised)*

- M. Shirgaokar, **A. Misra**, A. Agarwal, M. Wachs, B. Dobbs. (2021) “How does grandma’s home location influence her reasons for adopting Lyft or Uber?” *Journal of Land Use and Transportation* (upcoming).
- **A. Misra**, K. Watkins (2018) “Modelling cyclist route choice using revealed preference data – an age and gender perspective”, *Transportation Research Record 2672*, No. 3, pp.145-154..
- A. Sheikh, **A. Misra**, and R. Guenseler. (2015). “High-occupancy toll lane decision making: Income effects on I-85 express lanes, Atlanta, Georgia”, *Transportation Research Record 2531* No. 1, 45-53.
- **A. Misra**, A. Gooze, K. Watkins, M., Asad and C. Ledantec. (2014). “Crowdsourcing and Its Application to Transportation Data Collection and Management.” *Transportation Research Records 2414*, pg 1-8.
- D. Basu, **A. Misra** and A. Puppala (2014). “Sustainability and geotechnical engineering: perspectives and review”, *Canadian Geotechnical Journal*, Vol 52, No. 1, pp. 96-113.
- **A. Misra**, and D. Basu, (2011). “Sustainability metrics for pile foundations.” *Indian Geotechnical Journal*, Vol. 41, No. 2, pp. 108-120.

Manuscripts under Peer Review

*(Names with * indicate students supervised)*

- **A. Misra**, M. Shirgaokar, A. Agarwal, M. Wachs, B. Dobbs. “How Older Adults Use Ride-hailing Booking Technology in California.” under review for *Transportation Research Records*.
- M. Shirgaokar, **A. Misra**, E. Nobler, D. Muresan. “What can U.S. Travel Data tell Planners about Opening the Economy during COVID19?”, under review for *Transportation Research Records*.
- T. Fabusuyi, **A. Misra**, J. Martinez, A. Chen, V. Jiang, H. V. Jagadish, R. Hampshire. “Enhancing Food Security for Families Vulnerable to COVID-19”, under review for *Transportation Research Records*.
- R. Hampshire, C. Flannagan, H. Jagadish, T. Fabusuyi, E. Hanss, A. Chen, O. He, K. Klinich, Q. Luo, **A. Misra**, M. Reed. “A Public Health Informed Approach to Transportation Equity”, under review for *Transportation Research Records*.
- A. Li*, **A. Misra**, S. Bao. “Bicyclist and Automobile Actions in Bicyclist Related Crashes: Implications for Interactions with Automated Vehicles in Mixed Traffic”, under review for *Transportation Research Records*.
- **A. Misra**, K. Watkins. “Modeling Cyclists’ Willingness to Deviate from Shortest Path Using Revealed Preference Data”, under review for *Transport Geography*.

Technical Reports

*(Names with * indicate students supervised)*

- T. Fabusuyi, **A. Misra**, L. Molnar, R. Hampshire (2019). OHSP Pedestrian and Bicyclists Risk and Exposure Validation Project: Phase II – Final Report, Submitted to Office of Highway Safety Planning, Michigan.
- **A. Misra**, A. Li*, A. Leslie, A. Cao (2019). Estimating Annual Average Daily Traffic on Non-federal Grant Roads – Final Report Submitted to Office of Highway Safety Planning, Michigan.
- **A. Misra**, A. Li*, A. Chen*, A. Cao (2019). Developing a Bicyclist and Pedestrian level of comfort metric and visualization tool for Michigan Phase 1 – Final report submitted to Office of Highway Safety Planning, Michigan
- **A. Misra**, R. Kumar*, W. Hua*, J. Karlow, M. Miranda, L. Park, C. Flannagan (2018). “Safe Shared Mobility Via Bicyclist and Motorist Education”. Final report submitted to Office of Highway Safety Planning (OHSP) in October 2018.
- **A. Misra**, A. Leslie, C. Flannagan, D. Eby (2018). “Identifying Potential Workzone Countermeasures Using Connected Vehicle Driving Data”. Final report submitted to MDOT in May 2018.
- J. Sullivan, **A. Misra** (2017). “Intersection and Intersection-related Crash Typologies”, Final report submitted to Continental in November 2017.
- C. Flannagan, **A. Misra**, D. LeBlanc (2017). Crash Data Analysis to Understand Urban and Taxi-Involved Crashes in RideShare Cities, submitted to General Motors
- **A. Misra**, C. Flannagan (2017). “A Statistical Description of the Types and Severities of Crashes Involving Tractor Semi-Trailers: Update 2011-2015.”, Final report submitted to Sandia National Laboratories in December 2017

Peer Reviewed Conference Proceedings and Presentations

*(Names with * indicate students supervised)*

- V. Washington*, S. Guikema, J. Mondisa, **A. Misra** (2020). “Modeling Hurricane Evacuation Departure Times Using Location Data”, Accepted for presentation at INFORMS 2020.
- **A. Misra**, A. Leslie, C. Flannagan. (2021) “Urban Taxi vs Non-taxi Crashes: Implications for Automated Vehicles in the Rideshare Environment”, Accepted for Presentation and publication in ISTDM
- A. Li*, **A. Misra**, S. Bao. (2021) “Bicyclist and Automobile Actions in Bicyclist Related Crashes: Implications for Interactions with Automated Vehicles in Mixed Traffic”, Accepted for presentation in Intellisys 2020 and for publication in Advances in Intelligent Computing.
- A. Li*, **A. Misra**, S. Bao (2019). “Understanding VRU Crashes for AV Safety Training and Deployment”, Presented at Automated Vehicles Symposium in Orlando, Florida, 2019.
- S. Feng, H. Sun, Y. Feng, C. Yu, S. Bao, **A. Misra**, Y. Zhang, H. Liu (2018) Testing Scenario Library Generation for Connected and Automated Vehicle Evaluation, TRB Annual Meeting Compendium 2019
- J. Sullivan, **A. Misra** (2018). “Leveraging Estimates of V2V-Based Intersection Collision Avoidance Benefits to Determine V2I-Based Benefits from Intelligent Intersection Support”, ITS America, 2018.
- **A. Misra**, K. Watkins (2016). “Modeling Cyclists’ Willingness to Deviate from Shortest Path Using Revealed Preference Data”, TRB Annual Meeting Compendium 2017.
- **A. Misra**, K. Watkins, C. Ledantec. (2014). “Socio-demographic Influence on Cyclists’ Self Classification by Rider Type”, Transportation Research Board Annual Meeting Compendium, 2015.

- **A. Misra**, K. Watkins, C. LeDantec (2014). “Cycle Atlanta.” North American Travel Monitoring Exposition Conference (NATMEC), Chicago. (Presenter)
- **A. Misra** and D. Basu (2011). “Foundation sustainability.” Pan-American Conference on Soil Mechanics and Geotechnical Engineering, Canada 2011.
- **A. Misra** and D. Basu (2011). “Sustainability Indicators for Pile Foundations”, International Conference on Geotechnics for Sustainable Development, Hanoi, 2011.
- **A. Misra** and D. Basu (2011). “A Quantitative Sustainability Indicator System for Pile Foundations, Gecongress, 2011.
- **A. Misra**, and D. Basu, (2010). “A quantitative approach for measuring sustainability in geotechnical engineering.” International Conference on Sustainable Built Environments – The State of the Art, Kandy, Sri Lanka, December 2010.

Invited Talks at Panels and Workshops

- PA AV Summit 2019 – Panel on Vulnerable Road User and AV Interaction
- TRB Wargame 2018 – Safety Team
- Mind the Gap - Workshop sponsored by Standing Committee on Women’s Issues in Transportation in TRB Annual Meeting 2018, Moderator
- Expanding the Research Discussion on Women’s Issues in Transportation, TRB 95th Annual Meeting: Panelist

APPOINTMENTS:

Assistant Research Scientist, CMISST, University of Michigan Transportation Research Institute Oct 2016-ongoing

- Leading multiple projects related to
 - Big Data and Data Ecosystems for travel behavior research
 - Big data analytics with application in safety and mobility challenges
 - Ridesharing and disruptive technologies and their socio-economic impacts
 - Smart and connected infrastructure
 - Bicyclist and pedestrian crash data analysis
 - Bicyclist and pedestrian exposure modelling

Intern, Data Science for Social Good (DSSG), Atlanta May 2014 –July 2014

- Collaborative project between Oracle Academy, Pindrop Securities and Georgia Tech
- Participants selected from across North America
- Consultant to Atlanta Community Court for their expansion plan

Intern, San Francisco County Transportation Authority June 2013 –July 2013

- Developing route choice models for bicyclists based on GPS data

Graduate Research Assistant, Georgia Tech July 2013 – Aug 2016

- Collaborated in proposals that received funding from Georgia Department of Transportation and NCHRP
- Mentored graduate and undergraduate researchers

SERVICE:

- World Economic Forum Inclusivity Quotient Project Partner - Ongoing
- TRB Standing Committee on Women and Gender in Transportation: Member and Paper Review Coordinator, 2016-2022
- TRB Standing Committee on Transportation Planning Methods and Applications: Member and Paper Reviewer, 2019-2022.
- TRB Bicyclist and Pedestrian Data Subcommittee: Paper Review Coordinator, 2017-2019
- GT Women Alumni Network: Development Committee Member 2015-2016
- American Society of Engineering Education, GT: Board Member 2015 -2016
- Graduate Student Advisory Council, Civil and Environmental Engineering, GT: Member 2014-2016
- Women in Transportation Seminar, GT: Board Member, 2013-2014

AWARDS & SCHOLARSHIPS:

- Michigan Roads Scholar** 2018
One of 30 faculty members chosen across all UM campuses for a road trip across the state to communicate with stakeholders, local people, communities, prospective students and to serve as future mentors for students
- Wang Fellowship** 2015
▪ Awarded to outstanding graduate students in Civil Engineering at Georgia Tech
- AirSage Pass Scholarship** July 2014
▪ Awarded for original contribution in field of transportation data related research
▪ Open to all transportation professionals across North America
- James D. Foley Scholar Award** 2014
▪ One of 6 finalists from 4000+ graduate students at Georgia Tech
▪ Original contribution in research with significant social impact