Fatemeh Fakhrmoosavi, Ph.D.

Castleman Building, Room 319, Storrs, CT 06066
✉ moosavi@uconn.edu • 🌐 GoogleScholar

CURRENT POSITION

Assistant Professor, Department of Civil and Environmental Engineering   *Aug. 2022 - ∼*
University of Connecticut

POSTDOCTORAL POSITION

Postdoctoral Fellow, Center of Transportation Research (CTR), University of Texas at Austin   *Sep. 2021 - Aug. 2022*
Advisor: Dr. Kara Kockelman

EDUCATION

PhD, Civil Engineering   *Jan. 2017 - Aug. 2021*
Michigan State University, East Lansing, Michigan, GPA: 4.00/4.00, Advisor: Dr. Ali Zockaie
Dissertation Title: Reliable Transportation Networks Utilizing Emerging Technologies and Pricing Strategies

MS, Civil Engineering, Transportation Engineering   *Jan. 2017 - Dec. 2020*
Michigan State University, East Lansing, Michigan, GPA: 4.00/4.00, Advisor: Dr. Ali Zockaie
Project Title: Network-Level Societal Impacts of Connected and Autonomous Vehicles

MS, Civil Engineering   *Sep. 2012 - Sep. 2014*
Sharif University of Technology, Tehran, Iran, GPA: 4.00/4.00, Advisor: Dr. Mohsen Ghaemian
Thesis Title: A Method for Classification of Existing Dams Based on Level of Safety and Performance

BS, Civil Engineering   *Sep. 2007 - Sep. 2012*
Sharif University of Technology, Tehran, Iran, GPA: 3.05/4.00

HONORS AND AWARDS

Honorable Mention for **the Fitch H. Beach Award** for the Most Outstanding Graduate Researcher   *2021*
College of Engineering, Michigan State University

The Most Outstanding Researcher   *2021*
Department of Civil and Environmental Engineering, Michigan State University

Graduate School Dissertation Completion Fellowship (**DCF**) **Award**, *Michigan State University*   *Spring 2021*

Member of Chi Epsilon Civil Engineering honor society   *2020 - ∼*
Winner of the **ITE Michigan Section 2019 Student Scholarship**, *Institute of Transportation Engineers*   *2019*

Second Place Winner of **Engineering Graduate Research Symposium Poster Awards**   *2018*
Engineering Graduate Research Symposium, Civil Engineering (Transportation/Pavements), Michigan State University

Ranked 1st among all Graduate Students of Hydraulic Structural Engineering   *2014*
Class of 2014, Sharif University of Technology, Iran

PUBLICATIONS

Peer Reviewed Journal Articles

1. M. Shojaei, **Fatemeh Fakhrmoosavi**, A. Zockaie, M. Ghamami, A. Mittal, and J. Fishelson "Sustainable Transportation Networks Incorporating Green Modes for Urban Freight Delivery.", *Journal of Transportation Engineering, Part A: Systems*, (2022).

2. **Fatemeh Fakhrmoosavi**, E. Kamjoo, M. Kavianipour, A. Zockaie, A. Talebpour, and A. Mittal. "A Stochastic Framework Using Bayesian Optimization Algorithm Considering the Network-Level Societal Impacts of Connected and Autonomous Vehicles.", *Transportation Research Part C: Emerging Technologies*, (2022).

3. H. Singh, M. Kavianipour, A. Soltanpour, **Fatemeh Fakhrmoosavi**, M. Ghamami, and A. Zockaie. "Macro Analysis to Estimate Electric Vehicles Fast-Charging Infrastructure Requirements in Small Urban Areas.", *Transportation Research Record: Journal of the Transportation Research Board*, (2022).

4. **Fatemeh Fakhrmoosavi**, A. Zockaie, and K. Abdelghany. "Incorporating Travel Time Reliability in Equitable Congestion Pricing Schemes for Heterogeneous Users and Bimodal Networks." *Transportation Research Record: Journal of the Transportation Research Board*, (2021), 2675(11), pp.754-768.

5. M. Kavianipour, **Fatemeh Fakhrmoosavi**, H. Singh, M. Ghamami, A. Zockaie, Y. Ouyang, and R. Jackson. "Electric Vehicle Fast Charging Infrastructure Planning in Urban Networks Considering Daily Travel and Charging Behavior." *Transportation Research Part D: Transport and Environment*, Vol. 93 (2021), ISSN 1361-9209.

6. M. Kavianipour, **Fatemeh Fakhrmoosavi**, M. Shojaei, A. Zockaie, M. Ghamami, J. Wang, and R. Jackson. "Impacts of Technology Advancements on Electric Vehicle Charging Infrastructure Configuration: A Michigan Case Study." *International Journal of Sustainable Transportation*, (2021), pp1-14.

7. **Fatemeh Fakhrmoosavi**, R. Saedi, F. Jazlan, A. Zockaie, M. Ghamami, T. Gates, and P. Savolainen. "Effectiveness of Green Warning Lights with Different Flashing Patterns for Winter Maintenance Operations." T*ransportation Research Record: Journal of the Transportation Research Board*, (2021): 03611981211008187.

8. **Fatemeh Fakhrmoosavi**, R. Saedi, A. Zockaie, and A. Talebpour. "Impacts of Connected and Autonomous Vehicles on Traffic Flow with Heterogeneous Drivers Spatially Distributed over Large-Scale Networks." *Transportation Research Record: Journal of the Transportation Research Board* (2020): 0361198120940997.

9. **Fatemeh Fakhrmoosavi**, M. Kavianipour, M. Shojaei, A. Zockaie, M. Ghamami, J. Wang, and R. Jackson. "Electric Vehicle Charger Placement Optimization in Michigan: Considering Monthly Traffic Demand and Battery Performance Variations." *Transportation Research Record: Journal of the Transportation Research Board* (2020): 0361198120981958.

10. **Fatemeh Fakhrmoosavi**, M. Kavianipour, P. Savolainen, and T. Gates. "Comparisons in Cell Phone Use Rates between Talking and Manually Manipulating the Handheld Device." *Transportation Research Record: Journal of the Transportation Research Board* (2020): 0361198120943589.

11. **Fatemeh Fakhrmoosavi**, A. Zockaie, K. Abdelghany, and H. Hashemi. "An Iterative Learning Approach for Network Contraction: Path Finding Problem in Stochastic Time-varying Networks." *Computer-Aided Civil and Infrastructure Engineering* 34, no. 10 (2019): 859-876.

12. X. Xu, **Fatemeh Fakhrmoosavi**, A. Zockaie, and H. Mahmassani. "Estimating Path Travel Costs for Heterogeneous Users on Large-Scale Networks: Heuristic Approach to Integrated Activity-Based Model–Dynamic Traffic Assignment Models." *Transportation Research Record: Journal of the Transportation Research Board* 2667, no. 1 (2017): 119-130.

Peer-reviewed Conference Proceedings

1. **Fatemeh Fakhrmoosavi**, A. Zockaie, K. Abdelghany, and H. Hashemi. "A Network Contraction Algorithm Using an Iterative Learning Approach for Path Finding Problem in Stochastic Time-Varying Networks considering Travel Time Correlations." *Transportation Research Board 98th Annual Meeting*, No. 19-02992 (2019).

2. A. Zockaie, H. Mahmassani, and **Fatemeh Fakhrmoosavi**. "Reliability-based User Equilibrium in Dynamic Stochastic Networks: A Scenario Approach Considering Travel Time Correlations and Heterogeneous Users." *Transportation Research Board 98th Annual Meeting*, No. 19-05738 (2019).

3. A. Zockaie, H. Mahmassani, **Fatemeh Fakhrmoosavi**. "A Scenario-Based Approach for the Reliability-Based User Equilibrium Problem in Dynamic Stochastic Networks Considering Travel Time Correlations and Heterogeneous Users." *The 7th International Symposium on Dynamic Traffic Assignment*, P22-26 (2018).

4. **Fatemeh Fakhrmoosavi**, A. Zockaie, K. Abdelghany, and H. Hashemi. "Decomposition of Stochastic Time Varying Networks for the Path Finding Problem Considering Travel Time Correlations and Heterogeneity of Users." *Transportation Research Board 97th Annual Meeting*, No. 18-06556 (2018).

5. A. Zockaie, H. Mahmassani, Y. Nie, and **Fatemeh Fakhrmoosavi**. "Reliability-Based User Equilibrium Formulation in Dynamic Stochastic Networks with Correlated Travel Times and Heterogeneous User Preferences." *Transportation Research Board 97th Annual Meeting*, No. 18-06741 (2018).

6. **Fatemeh Fakhrmoosavi**, A. Noorzad, and M. Ghaemian. "A Standard of Societal Risk Criteria for Dams in Iran", *25th ICOLD Congress and 83rd Annual Meeting*, Stavanger, Norway (2015).

7. **Fatemeh Fakhrmoosavi**, M. Ghaemian, and A.Noorzad. "Basic Dam Safety Studies for Existing Dams in Iran", *82nd ICOLD Symposium and Annual Meeting*, Bali, Indonesia (2014).

Project Reports

1. A. Zockaie, R. Saedi, **Fatemeh Fakhrmoosavi**, F. Jazlan, M. Ghamami, T. Gates, P. Savolainen, J. Brascamp, and B. Schneider. "Effectiveness of Green Strobes on Winter Maintenance Vehicles and Equipment." *Michigan Department of Transportation*, Ref. No. OR19-127 (2020).

2. M. Ghamami, A. Zockaie, S. Miller, M. Kavianipour, **Fatemeh Fakhrmoosavi**, H. Singh, F. Jazlan, M. Shojaie. "Electric Vehicle Charger Placement Optimization in Michigan: Phase II – Urban." *Michigan Department of Environment, Great Lakes, and Energy* (*EGLE*) (2020).

3. M. Ghamami, A. Zockaie, S. Miller, M. Kavianipour, M. Shojaie, **Fatemeh Fakhrmoosavi**, L. Honhnstadt, H. Singh. "Electric Vehicle Charger Placement Optimization in Michigan: Phase I-Highways.", *Michigan Agency for Energy* (2019).

4. A. Zockaie, R. Saedi, T. Gates, P. Savolainen, B. Schneider, M. Ghamami, R. Verma, **Fatemeh Fakhrmoosavi**, M. Kavianipour, M. Shojaei, H. Singh, J. Warner, C. Zhou. "Evaluation of a Collision Avoidance and Mitigation System (CAMS) on Winter Maintenance Trucks." *Michigan Department of Transportation*, Ref. No. OR17-103 (2018).

RESEARCH EXPERIENCE

Postdoctoral Fellow, University of Texas at Austin   *Sep. 2021 - Aug. 2022*

Funded Research Projects:

- *Title:* Enhancing the Capabilities of POLARIS in Simulating Shared Autonomous Electric Vehicles   *2021-2022*
  Agency: DOE's Argonne National Laboratory

- *Project Title:* Understanding the Impact of Autonomous Vehicles on Long-distance Travel Mode   *2021-2022*
            and Destination Choice in Texas
  Agency: Texas Department of Transportation

Graduate Research Assistant, Michigan State University   *Jan. 2017 - Aug. 2021*

Funded Research Projects:

- *Title:* Assessing Network-wide Impacts of Dedicated Lanes for Autonomous and Connected Vehicles   *2021*
  Agency: Ford Motor Company (Partially Funded)

- *Project Title:* Determining State and Federal Transportation Responsibilities to Residents on Islands   *2021*
  Agency: Michigan Department of Transportation

- *Project Title:* Assessing System Performance of the Michigan Trunkline: Measures and Analytical   *2020 - 2021*
            Procedures for Planning and Operations
  Agency: Michigan Department of Transportation

- *Project Title:* Effectiveness of Green Strobes on Winter Maintenance Vehicles and Equipment   *2019 - 2020*
  Agency: Michigan Department of Transportation

- *Project Title:* Electric Vehicle Charger Placement Optimization in Michigan: Phase II – Urban   *2019 - 2020*
  Agency: Michigan Department of Environment, Great Lakes, and Energy (EGLE)

- *Project Title:* Electric Vehicle Charger Placement Optimization in Michigan: Phase I-Highways   *2018 - 2019*
  Agency: Michigan Agency for Energy

- *Project Title:* Evaluation of a Collision Avoidance and Mitigation System (CAMS) on Winter   *2017 - 2018*
            Maintenance Trucks
  Agency: Michigan Department of Transportation

TEACHING AND MENTORING EXPERIENCE

Guest Lecturer, University of Texas at Austin   *Nov. 2021*

- CE 311: Elementary Statistics for Civil Engineering   *Fall 2021*
  Type: Undergraduate Level
  Instructor: Dr. Kara Kockelman (kkockelm@mail.utexas.edu)

Teaching Assistant, Michigan State University *Aug. 2020 - May 2021*

   - CE 444: Traffic Engineering *Fall 2020*
     Type: Undergraduate Technical Elective
     Instructor: Dr. Ali Zockaie (zockaiea@egr.msu.edu)

   - CE 341: Transportation Engineering *Fall 2020 - Spring 2021*
     Type: Undergraduate Core Requirement
     Instructors: Anthony Ingle (ingleant@egr.msu.edu)
                 Dr. Timothy Gates (gatestim@egr.msu.edu)

Guest Lecturer, Michigan State University *Nov. 2020*

   - CE 841: Traffic Flow Theory *Fall 2020*
     Type: Graduate Core Requirement
     Instructor: Dr. Ali Zockaie (zockaiea@egr.msu.edu)

Mentoring Three Graduate Students , University of Texas at Austin *Sep. 2021 - ∼*

Mentoring Graduate and Undergraduate Students , Michigan State University *Jan. 2017 - Aug. 2021*

   - Two Undergraduate and Three Graduate Students

TEACHING AND MENTORING TRAINING CERTIFICATES

 An Introduction to **Evidence-Based Undergraduate STEM Teaching** *Nov 2020*
The Center for the Integration of Research Teaching and Learning (CIRTL)

Trained CyberAmbassador by Completing CyberAmbassadors Training Program *May 2020*
Supported by National Science Foundation (NSF)

Graduate Research Mentor Training Certificate *May 2020*
Developed by the National Research Mentor Network and the Center for the Improvement of Mentored Experiences in Research and the Tau Beta Pi Association

OTHER EMPLOYMENT HISTORIES

Structural Design Engineer. (Part-time), Shahd-AB-Sanat Company, Iran *Sep. 2012 – May 2016*
Project manager and structural design engineer

Internship, Housing Foundation Office, Iran *Jun. 2012 – Sep. 2012*
Road Safety assessment and rehabilitation design of rural roads at the operational level.

SERVICES

Professional

Reviewing Papers for Different Journals and Conferences

   - Transportation Research Record

   - Transportation Research Part C

   - Transportmetrica B: Transport Dynamics

   - Journal of Advanced Transportation

   - Bridging Transportation Researchers (BTR) Conference

   - Road Safety and Simulation

Friend of Network Modeling Committee (AEP40) & the Committee on Traffic Flow Theory and Characteristics (ACP50)
Transportation Research Board

Chair of the Session Entitled "Automated & Electric Vehicles"
The Third Bridging Transportation Researchers (BTR) Conference, 2021

Community

Representative of Civil and Environmental Engineering Department **Graduate Engineering Student Council (GESC)**, *Michigan State University*	*Aug. 2019 - Aug. 2021*
Secretary of Institution of Transportation Engineers **(ITE) Student Chapter** *Michigan State University*	*Sep. 2019 - Sep. 2020*
*- Recipient of the **ITE Great Lakes District Outstanding Chapter Award***	2020
*- Recipient of the **Student Chapter Momentum Award***	2020

PEER REVIEWED PRESENTATIONS

Lectern

1. "On- and off-street parking strategies and outcomes for shared autonomous vehicle fleet operations." *Bridging Transportation Researchers (BTR) #4 Conference*, Aug. 2022.

2. "Self-driving Vehicles' Impacts on Americans' Long-Distance Travel Choices." *Bridging Transportation Researchers (BTR) #4 Conference*, Aug. 2022.

3. "Self-driving Vehicles' Impacts on Americans' Long-Distance Travel Choices." *Southern Regional Science Association Annual Meeting*, Apr. 2022.

4. "A Stochastic Framework to Assess the Network-Level Societal Impacts of Autonomous Connected Vehicles in a Mixed Traffic Environment." *Bridging Transportation Researchers (BTR) #3 Conference*, Aug. 2021.

5. "Considering Drivers' Heterogeneity in a Mixed Fleet of Connected, Autonomous, and Human-Driven Vehicles." *Dynamic Traffic Assignment (DTA) 2021 Virtual Symposium*, Jul. 2021.

6. "Incorporating a Mixed Fleet of Autonomous, Connected, and Human-driven Vehicles into a Mesoscopic Simulation Tool Considering Network Capacity Variations with Heterogeneous Drivers." *2021 International Symposium on Transportation Data and Modeling (ISTDM)*, Jun. 2021.

7. "Investigating Trends in Handheld Driver Cell Phone Use by Type in Consideration of Driver, Vehicle, and Site-Specific Factors." *Transportation Research Board 99th Annual Meeting*, Jan. 2020.

8. "Impacts of Connected and Autonomous Vehicles on Traffic Flow with Heterogeneous Drivers Spatially Distributed Over Large-Scale Networks." *Transportation Research Board 99th Annual Meeting*, Jan. 2020.

9. "An Efficient Learning-based Network Contraction Approach for Optimal Path Finding Problem in Dynamic Stochastic Networks." *The INFORMS Annual Meeting*, Seattle, WA, Oct. 20-23, 2019.

10. "Reliability-based user equilibrium in dynamic stochastic networks: a scenario approach considering travel time correlations and heterogeneous users." *Transportation Research Board 98th Annual Meeting*, Jan. 2019.

Poster

11. "Assessing the Network-Wide Impacts of Dedicated Lanes for Connected Autonomous Vehicles." *Transportation Research Board 101st Annual Meeting*, Jan 2022.

12. "A Stochastic Framework to Assess the Network-Level Societal Impacts of Autonomous and Connected Vehicles in a Mixed Traffic Environment." *Transportation Research Board 100th Annual Meeting*, Jan 2021.

13. "Incorporating Travel Time Reliability in Equitable Congestion Pricing Schemes for Heterogeneous Users and Bimodal Networks." *Transportation Research Board 100th Annual Meeting*, Jan 2021.

14. "Effectiveness of Green Warning Lights with Different Flashing Patterns for Winter Maintenance Operations." *Transportation Research Board 100th Annual Meeting*, Jan 2021.

15. "Electric Vehicle Charger Placement Optimization in Michigan: Considering Monthly Traffic Demand and Battery Performance Variations." *Transportation Research Board 99th Annual Meeting*, Jan 2020.

16. "Toward a Sustainable Transportation Network Incorporating Green Modes for Urban Freight Delivery." *Transportation Research Board 99th Annual Meeting*, Jan 2020.

17. "A Network Contraction Algorithm Using an Iterative Learning Approach for Path Finding Problem in Stochastic Time-varying Networks Considering Travel Time Correlations." *Transportation Research Board 98th Annual Meeting*, 2019.

18. "Decomposition of Stochastic Time Varying Networks for the Path Finding Problem Considering Travel Time Correlations and Heterogeneity of Users." *Transportation Research Board 97th Annual Meeting*, Jan 2018.

19. "Reliability-Based User Equilibrium Formulation in Dynamic Stochastic Networks with Correlated Travel Times and Heterogeneous User Preferences." *Transportation Research Board 97th Annual Meeting*, Jan 2018.

20. "Heuristic Approach to Estimate Travel Costs on Least Generalized Cost Paths for Heterogeneous Users in Integrated ABM-DTA on Large-Scale Networks." *Transportation Research Board 96th Annual Meeting*, Jan 2017.

OTHER PRESENTATIONS

1. "The Impacts of Connected and Autonomous Vehicles on Traffic Flow over Large-Scale Networks." *MSU CEE/ITE Transportation Seminar Series*, Sep. 2020.

2. "A Learning-based Network Contraction Approach for Optimal Path Finding Problem." *SPARTRANS Seminar Series, Michigan State University*, Oct. 2019.

3. "Exploring an Equitable Congestion Pricing Scheme Considering Travel Time Reliability for Multi-Class Users." *Engineering Graduate Research Symposium*, Michigan State University, Mar 2019.

4. "Investigating Driver- and Site-specific Factors Associated with Cell Phone Usage Rate by Drivers." *Engineering Graduate Research Symposium*, Michigan State University, Mar 2019.

5. "Electric Vehicle Charger Placement Optimization in Michigan Considering Seasonal Traffic Demand and Battery Performance Variations." *Engineering Graduate Research Symposium*, Michigan State University, Mar 2019.

6. "Network Contraction Using an Iterative Learning Approach: Path Finding Problem in Stochastic Time-varying Networks Considering Link Travel Time Correlations for Multi-class Users." *Engineering Graduate Research Symposium*, Michigan State University, Mar 2018.

7. "A Formulation Framework for The Reliability-Based User Equilibrium Problem: Dynamic Stochastic Networks with Correlated Travel Times and Multi-Class Users." *Eng. Graduate Research Symposium*, Michigan State University, 2018.

8. "A Scenario-based Approach for the Reliability-based User Equilibrium Problem in Dynamic Stochastic Networks Considering Travel time Correlations and Heterogeneous Users." *Engineering Graduate Research Symposium*, Michigan State University, Mar 2018.

9. "Travel Costs Estimation on Least Generalized Cost Paths for Large-scale Networks with Multi-Class Users." *ITE Great Lakes District Annual Meeting*, Ann Arbor, Apr 2017.

10. "Travel Costs Estimation on Least Generalized Cost Paths for Large-scale Networks with Multi-Class Users." *Engineering Graduate Research Symposium*, Michigan State University, Mar 2017.

PROFESSIONAL MEMBERSHIPS

American Society of Civil Engineers (ASCE)

Institute of Transportation Engineers, ITE International