

Mohammadali Shirazi, Ph.D.

Assistant Professor, School of Civil Engineering and Environmental Science
Assistant Professor, School of Industrial and Systems Engineering
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EMPLOYMENT

Assistant Professor, University of Oklahoma, Norman, OK, U.S. School of Civil Engineering and Environmental Science School of Industrial and Systems Engineering	Jan 2025- Present
Assistant Professor, University of Maine, Orono, Maine, U.S. Department of Civil and Environmental Engineering	2019 - 2024
Research Fellow, University of Michigan, Ann Arbor, Michigan, U.S. Department of Civil and Environmental Engineering Advisor: Professor Yafeng Yin	2018 - 2019

EDUCATION

Ph.D. in Civil Engineering , Texas A&M University, College Station, TX, U.S. Advisor: Professor Dominique Lord	2013 - 2018
M.Sc. in Civil Engineering , Sharif University of Technology, Tehran, Iran. Advisor: Professor Hedayat Aashtiani	2009 - 2011
B.Sc. in Civil Engineering , Iran University of Science and Technology, Tehran, Iran.	2004 - 2009

FUNDING AND GRANTS

University of Maine PI/ UMaine PI (~\$1.7 million)	Sep. 2019- present
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1. **Role: PI**, \$75,000. June 2024 - May 2025. Sponsor: *Maine Department of Transportation (MaineDOT)*. Assessing the Effectiveness of Speed-Activated Blank-Out Signs in Maine.
2. **Role: UMaine PI**, \$140,000, Jan 2024 - May 2026, Sponsor: *National Academy of Sciences, National Cooperative Highway Research Program (NCHRP)*. NCHRP 15-82: Relationship of Speed, Roadway Geometrics, and Crashes on High-Speed Rural Highways. [Lead: University of Connecticut, Total: \$750,000].
3. **Role: UMaine PI**, \$750,000, Jun 2023 - May 2028, Sponsor: *U.S. Department of Transportation (U.S. DOT)*. New England University Transportation Center (Safety & Equity Center). [Lead: University of Massachusetts, Total: \$15 million]
4. **Role: PI**, \$101,406, Sep 2022 - Aug 2024, Sponsor: *Maine Department of Transportation (MaineDOT)*. Data-Driven Approach for Traffic Operations Project Performance Evaluation and Understanding the Causes of Non-Recurring Congestion.
5. **Role: PI**, \$34,000, Mar 2023 - Dec 2023, Sponsor: *Maine Department of Transportation (MaineDOT)*, Framework for updating Layer Coefficients in AASHTO1993 Flexible Pavement Design.
6. **Role: UMaine PI**, \$180,000, Sep 2023 - Dec 2025, Sponsor: *Federal Highway Administration (FHWA)*, Maine Advanced Signal Control and Connected Vehicle System for Safe, Efficient and Equitable Rural Transportation (MAST). [Lead: MaineDOT, Total: \$3.47 million]
7. **Role: UMaine PI**, \$75,000, Aug 2022 - Aug 2025, Sponsor: *National Academy of Sciences, National Cooperative Highway Research Program (NCHRP)*, NCHRP 03-142: Evaluating the Impacts of Real-Time Warnings and Variable Speed Limits on Safety and Travel Reliability during Weather Events. [Lead: University of Connecticut, Total \$400,000].

8. **Role: PI**, \$41,000, Jan 2022 - Dec 2023, Sponsor: *Maine Department of Transportation (MaineDOT)*, Exploring the Safety Impact of Rumble Strips on Prevention of Lane Departure Crashes in Maine.
9. **Role: PI**, \$76,863, Jan 2022 - Dec 2023, Sponsor: *Transportation Infrastructure Durability Center (TIDC)*, Exploring the Safety Impact of Rumble Strips on Prevention of Lane Departure Crashes in Maine.
10. **Role: PI**, \$27,000, May 2022 - Dec 2022, Sponsor: *Maine Department of Transportation (MaineDOT)*, Comparative Study of Pavement Design Approaches Suitable to Maine Conditions.
11. **Role: UMaine PI**, \$50,018. Jun 2021 - Dec 2023, Sponsor: *New England Transportation Consortium (NETC)*. Current Status of Transportation Data Analytics and a Pilot Case Study Using Artificial Intelligence (AI). [Lead: UMass-Lowell, total: \$200,000]
12. **Role: PI**, \$129,650, Nov 2020 - Aug 2022, Sponsor: *Transportation Infrastructure Durability Center (TIDC)*. Safety Assessment of New England Roadways during the COVID-19 Pandemic.

UMaine Co-PI (~\$196,000)

13. **Role: Co-PI**, \$103,637, (20% responsibility), Jun 2020- Dec 2021, Sponsor: *Maine Department of Transportation (MaineDOT)*, Road Salt Impact Assessment.
14. **Role: Co-PI**, \$66,995, (20% responsibility), Aug 2020 - Dec 2021, Sponsor: *Transportation Infrastructure Durability Center (TIDC)*, Road Salt Impact Assessment.
15. **Role: Co-PI**, \$25,000, Jan 2021- Aug 2022, Sponsor: *UMaine Seed Grants*. An Intelligent Hybrid Biomechanical-Environmental Method to Predict Falls Pre-Impact.
16. **Role: Co-PI**, \$693,378 (canceled due to COVID-19), Sep 2020 - Aug 2003. Sponsor: *Jetport Airport, MaineDOT, and TIDC*. Jetport Automated Shuttle: Demonstration for Durability and Safety.

DOCTORAL AND MASTER'S DEGREE RESEARCH

Texas A&M University

2013 - 2018

Ph.D. Dissertation

Topic: Advanced Statistical Methods for Analyzing Crash Datasets with Many Zero Observations and a Long Tail: Semiparametric Negative Binomial Dirichlet Process Mixture and Model Selection Heuristics

- o Proposed an innovative semiparametric Bayesian model using a Dirichlet process mixture.
- o Derived the formulation and characteristics of the semiparametric Negative Binomial Model.
- o Investigated the proposed model for analyzing data with many zeros and a heavy tail.
- o Introduced an innovative Model Selection approach using Simulation and Machine Learning.
- o Investigated the clustering properties of the Dirichlet process for analyzing crash data.
- o Developed Heuristics for model selection for several modeling distributions.

Texas A&M Transportation Institute

Jun. 2017- Sep. 2018

Graduate Assistant Research

Jun. 2014 - Jan. 2017

- Select Projects (Lead Student)

- o Big Data Methodologies for Simplifying Traffic Safety Analyses
- o Evaluating Curve Speed Behavior Using SHRP2 Data
- o Improved Guidelines for Estimating the Highway Safety Manual Calibration Factors
- o Safety Analysis in Support of Traffic Operations, Interagency Cooperative Contract
- o Evaluating the Use of Cellphones for Recording Data Forces During Driving Conditions

Sharif University of Technology, Tehran, Iran

2009- 2011

M.Sc. Thesis

Topic: Solving the Toll Pricing Problem in Real Transportation Networks

- o Coded Cutting Plane and DW Decomposition to solve the Minimum Toll Revenue problem.
- o Proposed a path-generation algorithm to solve the Minimum Toll Problem in real networks.
- o Used dynamic penalty function method to estimate the minimal tolls in large-scale networks.
- o Coded the proposed methods in C++, and CPLEX.
- o Applied the proposed methods to various real-world and simulated networks.
- o Conducted sensitivity analysis on toll review and percentage of network improvement.

TEACHING EVALUATIONS

-Average Instructor Evaluation Score reported below. (Detailed Scores are available upon request).

-First time teaching the course is marked by *

<u>Institution</u>	<u>Time</u>	<u>Course</u>	<u>Level</u>	<u>Avg. Evaluation</u>
University of Maine	Spring 2024	<u>CIE 225</u> : Transportation Engineering	Undergrad (60 Students)	TBD
	Spring 2024*	<u>CIE 598-004</u> *: Urban Planning and Operations	Graduate	5.0/5.0
	Fall 2023	<u>CIE 521</u> : Civil Eng. Systems and Optimization	Graduate	5.0/5.0
	Spring 2023	<u>CIE 225</u> : Transportation Engineering	Undergrad (55 Students)	4.5/5.0
	Spring 2023*	<u>CIE 598-002</u> *: Advanced Transportation Safety	Graduate	5.0/5.0
	Fall 2022	<u>CIE 521</u> : Civil Eng. Systems and Optimization	Graduate	5.0/5.0
	Spring 2022	<u>CIE 225</u> : Transportation Engineering	Undergrad (56 Students)	4.6/5.0
	Spring 2022*	<u>CIE 598-002</u> *: Advanced Transportation Planning	Graduate	4.7/5.0
	Fall 2021	<u>CIE 521</u> : Civil Eng. Systems and Optimization	Graduate	5.0/5.0
	Spring 2021	<u>CIE 225</u> : Transportation Engineering	Undergrad (61 students)	4.7/5.0
	Fall 2020	<u>CIE 598-005</u> : Civil Eng. Systems and Optimization	Graduate	5.0/5.0
	Spring 2020*	<u>CIE 225</u> *: Transportation Engineering	Undergrad (67 students)	N/A (Due to Covid-19)
	Fall 2019*	<u>CIE 598-006</u> *: Civil Eng. Systems and Optimization	Graduate	4.6/5.0
Texas A&M University	Spring 2017*	<u>CVEN 322</u> *: Civil Engineering Systems	Undergrad (25 students)	4.7/5.0

TEACHING AWARDS

- Recipient of the 2023 Early Career Teaching Award, College of Engineering, UMaine.

TEACHING CERTIFICATE

Texas A&M University Teaching Certificate Program

Sep 2016 - May 2017

Academy of Future Faculty (AFF), Texas A&M University, College Station, TX

- **Certificate:** The AFF program includes seminars, workshops, and mentoring to improve participants teaching skills and prepare them for teaching in academia.

JOURNAL PUBLICATIONS

Underlined names are my students (co-advised/committee member underlined and marked with *)

1. Gil-Marín, J.K., **Shirazi**, M. & Ivan, J. (2024). Assessing the Negative Binomial-Lindley Model for Crash Hotspot Identification: Insights from Monte Carlo Simulation Analysis. *Accident Analysis & Prevention*, 199, 107478.
2. Vergara, E., Aviles-Ordóñez, J., Xie, Y., & **Shirazi**, M. (2024). Understanding Speeding Behavior on Interstate Horizontal Curves and Ramps Using Networkwide Probe Data, *Journal of Safety Research* (in press.)
3. Marshall, E., **Shirazi**, M., & Ivan, J.N. (2024). COVID-19 and Transport Safety. *Transport Reviews*, 44(2), 518-543.
4. Dezinyela*, R., **Shirazi**, M., Lord, D., Das, S. (2024) The Negative Binomial -Lindley Model with Time-Dependent Parameters: Accounting for Temporal Variations and Excess Zero Observations in Crash Data. *Submitted in Accident Analysis and Prevention* (in press.)
5. Marshall, E., **Shirazi**, M., Shahlaee, A., & Ivan, J. N. (2023). Leveraging probe data to model speeding on urban limited access highway segments: Examining the impact of operational performance, roadway characteristics, and COVID-19 pandemic. *Accident Analysis & Prevention*, 187, 107038.
6. Islam, A. M., **Shirazi**, M., & Lord, D. (2023). Grouped Random Parameters Negative Binomial-Lindley for accounting unobserved heterogeneity in crash data with preponderant zero observations. *Analytic Methods in Accident Research*, 37, 100255.
7. Khodadadi*, A., **Shirazi**, M., Geedipally, S., & Lord, D. (2023). Evaluating alternative variations of Negative Binomial-Lindley distribution for modelling crash data. *Transportmetrica A: transport science*, 19(3), 2062480.
8. Sawtelle, A., **Shirazi**, M., Garder, P. E., & Rubin, J. (2023). Driver, roadway, and weather factors on severity of lane departure crashes in Maine. *Journal of safety research*, 84, 306-315.
9. Shahlaee, A., **Shirazi**, M., Marshall, E., & Ivan, J. N. (2022). Modeling the impact of the COVID-19 pandemic on speeding at rural roadway facilities in Maine using short-term speed and traffic count data. *Accident Analysis & Prevention*, 177, 106828.
10. Islam, A. M., **Shirazi**, M., & Lord, D. (2022). Finite mixture Negative Binomial-Lindley for modeling heterogeneous crash data with many zero observations. *Accident Analysis & Prevention*, 175, 106765.
11. Khodadadi*, A., Tsapakis, I., **Shirazi**, M., Das, S., & Lord, D. (2022). Derivation of the Empirical Bayesian method for the Negative Binomial-Lindley generalized linear model: Application in various safety analyses, *Accident Analysis & Prevention*, 170, 106638
12. Sawtelle, A., **Shirazi**, M., Garder, P. E., & Rubin, J. (2022). Exploring the impact of seasonal weather factors on frequency of lane-departure crashes in Maine. *Journal of Transportation Safety & Security*, 15(5), 445-466.
13. **Shirazi**, M., & Geedipally, S. R. (2022). A simulation analysis to explore when using a calibration function is preferred over a scalar factor for calibrating safety performance functions. *Journal of Transportation Safety & Security*, 15(4), 335-349.
14. **Shirazi**, M., Geedipally, S.R., & Lord, D. (2021). A Simulation Analysis to Study the Temporal and Spatial Aggregations of Safety Datasets with Excess Zero Observations. *Transportmetrica A: Transport Science*, 17(4), 1305-1317.
15. Wu, L., Dadashova, B., Geedipally, S., Pratt, M. P., & **Shirazi**, M. (2021). Using naturalistic driving study data to explore the association between horizontal curve safety and operation on rural two-lane highways. *Journal of Transportation Safety & Security*, 13(8), 896-913.

16. Geedipally, S. R., Pratt, M. P., Dadashova, B., Wu, L., & **Shirazi**, M. (2020). Examining the Feasibility of Using Naturalistic Driving Study Data for Validating Speed Prediction Models. *Transportation Research Procedia*, 48, 1084-1094.
17. **Shirazi**, M., & Lord, D. (2019). Characteristics-based heuristics to select a logical distribution between the Poisson-gamma and the Poisson-lognormal for crash data modelling. *Transportmetrica A: Transport Science*, 15(2), 1791-1803.
18. Pratt, M., Geedipally, S.R., Dadashova, B., Wu, L., & **Shirazi**, M. (2019). Familiar versus unfamiliar drivers on curves: naturalistic data study. *Transportation Research Record*, 2673(6), 225-235.
19. Shaon, M.R.R., Qin, X., **Shirazi**, M., Lord, D., & Geedipally, S.R. (2018). Developing a random parameters Negative Binomial-Lindley model to analyze highly over-dispersed crash count data. *Analytic Methods in Accident Research*, 18, 33-44.
20. **Shirazi**, M., Dhavala, S.S., Lord, D., & Geedipally, S. R. (2017). A methodology to design heuristics for model selection based on characteristics of data: Application to investigate when the Negative Binomial Lindley (NB-L) is preferred over the Negative Binomial (NB). *Accident Analysis and Prevention*, 107, pp.186-194.
21. **Shirazi**, M., Geedipally, S.R., & Lord D. (2017). A Monte-Carlo simulation analysis for evaluating the severity distribution functions (SDFs) calibration methodology and determining the minimum sample-size requirements. *Accident Analysis and Prevention*, 98, pp.303–311.
22. **Shirazi**, M., Aashtiani, H.Z., & Quadrifoglio, L. (2017). Estimating the minimal revenue tolls in large-scale roadway networks using the dynamic penalty function method. *Computers and Industrial Engineering*, 107, pp. 120-127.
23. Geedipally, S.R., **Shirazi**, M., & Lord, D. (2017). Exploring the need for region-specific calibration factors, *Transportation Research Record*, 2636, pp. 73–79.
24. **Shirazi**, M., Geedipally, S.R., & Lord, D. (2017). A procedure to determine when safety performance functions should be recalibrated. *Journal of Transportation Safety and Security*, 9(4), pp.457-469.
25. **Shirazi**, M., Lord, D., & Geedipally, S.R. (2016). Sample-size guidelines for recalibrating crash prediction models: Recommendations for the highway safety manual. *Accident Analysis and Prevention*, 93, pp. 160-168.
26. **Shirazi**, M., Lord, D., Dhavala, S.S., & Geedipally, S.R. (2016). A Semiparametric negative binomial generalized linear model for modeling over-dispersed count data with a heavy tail: Characteristics and applications to crash data. *Accident Analysis and Prevention*, 91, pp. 10-18.
27. Khodakarami, M., Zhang, Y., Wang, B.X., **Shirazi**, M., & Dastgiri, M.S. (2016). Using a prospect theory approach to studying the car-following model. *Advances in Human Aspects of Transportation*. pp. 287-300.
28. **Shirazi**, M., & Aashtiani, H.Z. (2015). Solving the minimum toll revenue problem in real transportation networks. *Optimization Letters*, 9(6), pp.1187-1197.

REVIEWED BOOK CHAPTERS

29. **Shirazi**, M., and Lord, D. (2021). Use/analysis of crash data and under-reporting of crashes, *Encyclopedia of Transportation*, 726-730, Elsevier.

JOURNAL PUBLICATIONS (IN REVIEW / TO BE SUBMITTED)

Underlined names are my students (co-advised/committee member underlined and marked with *)

30. Marshall, E., **Shirazi**, M., & Ivan. J (2024), Exploring the Long-Term Effects of the COVID-19 Pandemic on Crash Occurrence. Submitted in *Journal of Transportation Safety and Security* (in review - 2nd round).

31. Blair, M. **Shirazi**, M., & Geedipally S.R. (2024) Assessing the Importance of Functional Form Selection in Developing Calibration Functions for the Highway Safety Manual Predictive Models. Submitted in *Journal of Safety Research* (in review- 2nd round)
32. Gil-Marin, J.K., Sawtelle, A., Garder, P., **Shirazi**, M. (2024). Examining the Impact of Centerline Rumble Strips on Reducing Rural Two-Lane Head-On Collisions in Maine. Submitted in *Journal of Safety Research* (in review.)
33. Ahen, Z; **Shirazi**, M., Corry, P. & Paz, A. (2024) Extensive hypothesis testing for the estimation of crash frequency models considering complex data characteristics and random parameters with heterogeneous means. *Accident Analysis and Prevention* (to be submitted)
34. Rubin, J., Jain, S., **Shirazi**, M., Sawtelle, A., Parajuli, D., McKee, P., & Baily., M. (2024). Winter Road Maintenance in Maine: Managing for Cost, Safety, and Sustainability, *Case Studies in Transport Policy* (to be submitted)
35. Khodadadi*, A., **Shirazi**, M., Lord, D. (2024). Multivariate Negative-Binomial Lindley Generalized Linear Model, *Analytic Methods in Accident Research* (to be submitted)

PEER-REVIEWED TRB CONFERENCE PAPERS / PRESENTATIONS

Underlined names are my students (co-advised/committee member underlined and marked with *)

1. Marshall, E., **Shirazi**, M., & Ivan, J. (January 2024). COVID-19 and Roadway Safety: Review of Studies, Lessons Learned, and Research Gaps. *103rd Annual Meeting of Transportation Research Board (TRB)*, Washington DC.
2. Ahen, Z., **Shirazi**, M., Corry, P., & Paz, A. (January 2024). An Efficient Optimization Framework for Estimating Crash Data Count Models: Addressing Complexity, Heterogeneity, and Multiple Objectives. *103rd Annual Meeting of Transportation Research Board (TRB)*, Washington DC.
3. Marshall, E., **Shirazi**, M., & Ivan, J. (January 2024). Exploring the Long-Term Effects of the COVID-19 Pandemic on Crash Occurrence. *103rd Annual Meeting of Transportation Research Board (TRB)*, Washington DC.
4. Gil-Marin., J. K., & **Shirazi**, M. (January 2023). Comparative Analysis of Negative Binomial and Negative Binomial-Lindley Models in Crash Hotspot Identification. *102nd Annual Meeting of Transportation Research Board*, Washington DC.
5. Marshall, E., **Shirazi**, M., Shahlaee, A., & Ivan, J.N. (January 2023) Leveraging Probe Data to Model Speeding on Urban Limited Access Highway Segments during the COVID-19 Pandemic. *102nd Annual Meeting of Transportation Research Board*, Washington DC.
6. Blair, M. **Shirazi**, M., & Geedipally S.R. (January 2023) Exploring the Impact of Different Parameterizations on Developing Calibration Functions. *102nd Annual Meeting of Transportation Research Board*, Washington DC.
7. Islam, A. M., **Shirazi**, M., & Lord, D. (January 2023). Accounting for Regional Heterogeneity in Crash Data with Excess Zero Observations: A Grouped Random Parameters Negative Binomial-Lindley Approach. *102nd Annual Meeting of Transportation Research Board*, Washington DC.
8. Sawtelle, A., **Shirazi**, M., Garder., P.E., & Rubin., J. (January 2023). Severity of Lane Departure Crashes in Maine: Examining the Impact of Driver, Roadway, and Weather Factors. *102nd Annual Meeting of Transportation Research Board*, Washington DC.
9. Shahlaee, A., **Shirazi**, M., Marshall, E., & Ivan, J. N. (January 2023). Modeling the impact of the COVID-19 pandemic on speeding at rural roadway facilities in Maine using short-term speed and traffic count data. *102nd Annual Meeting of Transportation Research Board*, Washington DC.

10. Khodadadi*, A., Tsapakis, I., **Shirazi**, M., Das, S., Lord, D. (January 2023). Empirical Bayes estimate of the Negative Binomial-Lindley model applicable to all Poisson-compound distributions used in traffic safety. *102nd Annual Meeting of Transportation Research Board*, Washington DC.
11. Islam, M, **Shirazi**, M., & Lord, D (January 2022), Finite Mixture Negative Binomial-Lindley for Modeling Heterogeneous Crash Data with Many Zero Observations, *101st Annual Meeting of Transportation Research Board*, Washington DC.
12. Khodadadi*, A., **Shirazi**, M., Geedipally, S.G., & Lord, D. (January 2022). A Comparative Study to Evaluate the Application of Different Negative Binomial-Lindley Variations in Crash Data Modeling, *101st Annual Meeting of Transportation Research Board*, Washington DC.
13. **Shirazi**, M., & Geedipally, S.R. (January 2022) Is Using a Calibration Function Better than the Scalar Factor when Calibrating Safety Performance Functions? *101st Annual Meeting of Transportation Research Board*, Washington DC.
14. **Shirazi**, M., Geedipally, S.R., & Lord, D. (January 2020). A Simulation Analysis to Study the Temporal and Spatial Aggregations of Safety Datasets with Excess Zero Observations. *99th Annual Meeting of Transportation Research Board*, Washington DC.
15. Pratt, M., Geedipally, S.R., Dadashova, B., Wu, L., & **Shirazi**, M. (January 2019). Familiar versus Unfamiliar Drivers, a Naturalistic Study. *98th Annual Meeting of Transportation Research Board*, Washington DC.
16. **Shirazi**, M., & Lord, D. (January 2018). Characteristics-based heuristics to select a logical distribution between the Poisson-gamma and the Poisson-lognormal for crash data modeling. *97th Annual Meeting of Transportation Research Board*, Washington DC.
17. Shaon, M.R.R., Qin, X., **Shirazi**, M., Lord, D., & Geedipally, S. R. (January 2018). Developing a random parameters Negative Binomial-Lindley model to analyze highly over-dispersed crash count data. *97th Annual Meeting of Transportation Research Board*, Washington DC.
18. Pratt, M., Geedipally, S.R., Dadashova, B., Wu, L., & **Shirazi**, M. (January 2018). Validating curve speed prediction models using naturalistic data. *97th Annual Meeting of Transportation Research Board*, Washington DC.
19. Wu, L., Dadashova, B., Geedipally, S.R., Pratt, M., & **Shirazi**, M. (January 2018). Assessing curve severity and crash occurrence at horizontal curves on rural two-lane highways using SHRP 2 safety data. *97th Annual Meeting of Transportation Research Board*, Washington DC.
20. **Shirazi**, M., Geedipally, S.R., & Lord, D. (January 2017). A Monte-Carlo simulation analysis for evaluating the severity distribution functions (SDFs) calibration methodology and determining the minimum sample-size requirements. *96th Annual Meeting of Transportation Research Board*, Washington DC.
21. Geedipally, S.R., **Shirazi**, M., & Lord, D. (January 2017). Exploring the need for having region-specific calibration factors. *96th Annual Meeting of Transportation Research Board*, Washington DC.
22. **Shirazi**, M., Aashtiani, H.Z., & Quadrifoglio, L. (January 2016). A penalty function method for finding minimal revenue tolls in large scale networks. *95th Annual Meeting of the Transportation Research Board*, Washington DC
23. **Shirazi**, M, Lord, D., & Geedipally, S.R. (January 2016). Sample-size guidelines for recalibrating crash prediction models: Recommendations for the Highway Safety Manual. *95th Annual Meeting of the Transportation Research Board*, Washington DC.

OTHER CONFERENCE PRESENTATIONS

Underlined names are my students (co-advised/committee member underlined and marked with *)

24. Marshall, E., & **Shirazi**, M. (June 2023 - Accepted). Safety Analysis of New England Roadways during the Covid-19 Pandemic. *2023 International Conference on Transportation & Development (ICTD)*, American Society of Civil Engineers (ASCE), Austin, TX.
25. Gil-Marín, J., & **Shirazi**, M. (June 2023). Assessing the Impact of Rumble Strips Installations in Prevention of Lane Departure Crashes in Maine. *2023 International Conference on Transportation & Development (ICTD)*, American Society of Civil Engineers (ASCE), Austin, TX.
26. Gil-Marín, J., & **Shirazi**, M. (June 2023). Evaluating the Negative Binomial-Lindley Model for Crash Hotspot Identifications. *2023 International Conference on Transportation & Development (ICTD)*, American Society of Civil Engineers (ASCE), Austin, TX.
27. Shahlaee, A., **Shirazi**, M., Marshall, E., & Ivan, J. N. (June 2022). Speeding in Maine during Covid-19 pandemic. *2022 International Conference on Transportation & Development (ICTD)*, American Society of Civil Engineers (ASCE), Seattle, Washington.
28. Khodadadi*, A., Tsapakis, I., **Shirazi**, M., Das, S., & Lord, D. (June 2022). Derivation of the Empirical Bayesian method for the Negative Binomial-Lindley generalized linear model: Application in various safety analyses, *2022 International Conference on Transportation & Development (ICTD)*, American Society of Civil Engineers (ASCE), Seattle, Washington.
29. Geedipally, S. R., Pratt, M. P., Dadashova, B., Wu, L., & **Shirazi**, M. (2019). Examining the Feasibility of Using Naturalistic Driving Study Data for Validating Speed Prediction Models. *World Conference of Transportation Research*, Mumbai, India.
30. **Shirazi**, M., & Lord, D. (October 2017). An approach towards automation of model selection. *INFORMS Annual Meeting*, Houston, TX.
31. Khodakarami, M., Zhang, Y., Wang, B.X., **Shirazi**, M., & Dastgiri, M.S. (2016). Using a prospect theory approach to studying the car-following model. *AHFE 2016, International Conference on Human Factors in Transportation*, Florida.
32. **Shirazi**, M., Lord, D. & Geedipally, S.R. (June 2016). Recommendations for calibrating the Highway Safety Manual safety performance functions. *ATLAS Traffic Safety Conference*, College Station, Texas.
33. **Shirazi**, M., Lord, D., & Geedipally, S.R. (June 2015). Required sample size for calibrating Highway Safety Manual safety performance functions. *ATLAS Traffic Safety Conference*, Corpus Christie, Texas.

TECHNICAL REPORTS

Underlined names are my students (co-advised/committee member underlined and marked with *)

1. **Shirazi**, M., Garder, P., & Gill-Marín, J.K. (May 2024). Exploring the Safety Impact of Rumble Strips on Prevention of Lane Departure Crashes in Maine. Maine Department of Transportation.
2. Xie, Y., Ge, T., Chen, D., & **Shirazi**, M. (Dec. 2023). Data-Driven Approach for Traffic Operations Project Performance Evaluation and Understanding the Causes of Non-Recurring Congestion. New England Transportation Consortium (NETC).
3. **Shirazi**, M. Ivan J., Marshall, E., & Shahlaee, A. (May 2023). Safety analysis of Roadways in New England during the Covid-19 pandemic. Transportation Infrastructure Durability Center.
4. Rubin, J., **Shirazi**, M., & Sawtelle, A. (2022) Road Salt Impact Assessment: Safety Study of Lane departure crashes. Transportation Infrastructure Durability Center.

5. Rubin, J., Jain, S., **Shirazi**, M., & **Sawtelle**, A. A., Parauli, D., McKee, P., & Bailey, M. (2022). Road Salt in Maine: An Assessment of Practices, Impacts and Safety. Maine DOT.
6. Laval, J., Roupail, N. M., Turochy, R., Yin, Y, Aghdashi, B, Seo, T, **Shirazi**, M, & Xu, T. (2019). Freeway Management for Optimal Reliability. STRIDE University Transportation Center (STRIDE Center).
7. Lord, D., Geedipally, S.R., Guo, F., Jahangiri, A., **Shirazi**, M., Mao, H., & Deng, X. (2019). Analyzing Highway Safety Datasets: Simplifying Statistical Analyses from Sparse to Big Data. Safe-D University Transportation Center (Safe-D Center).
8. Geedipally, S.R., Pratt, M., Dadashova, B., Wu, L., & **Shirazi**, M. (2017). Evaluating curve speed behavior using SHRP 2 data. ATLAS University Transportation Center (ATLAS Center).
9. Lord, D., Geedipally, S.R., & **Shirazi**, M. (2016) Improved guidelines for estimating the Highway Safety Manual calibration factors. ATLAS University Transportation Center (ATLAS Center).
10. Dixon, K., Dadashova, B., & **Shirazi**, M. (2016). Task E – Incorporating evolving safety procedures into the Texas DOT highway safety improvement process. Safety Center IAC, Texas Department of Transportation (TX DOT).

THESIS AND DISSERTATION

1. **Shirazi**, M., (2018). Advanced Statistical Methods for Analyzing Crash Datasets with Many Zero Observations and a Long Tail: Semiparametric Negative Binomial Dirichlet Process Mixture and Model Selection Heuristics, Ph.D. Dissertation, TX A&M University, TX, U.S.
2. **Shirazi**, M. (2011). Solving the Toll Pricing Problem in Real Transportation Networks, MS Thesis, Sharif University of Technology, Tehran, Iran.

SELECT INVITED TALKS

1. **Shirazi**, M. (April 24th, 2023) Bayesian Flexible Models and Model Selection Heuristics for Crash Data Analysis, Invited by University of Pittsburgh.
2. **Shirazi**, M. (March 31st, 2023) Semiparametric Models and Model Selection Heuristics. Invited by the University of Connecticut.
3. **Shirazi**, M. (November 2nd, 2020) Towards Automated Model Selection. Webinar invited by the University of Connecticut.
4. **Shirazi**, M. (February 5th, 2020) Heuristics for Model Selection based on Characteristics of Data., Webinar invited by Safe-D University Transportation Center.
5. **Shirazi**, M (March 28th, 2018). An Innovative method towards Automation of Model Selection using Big Data and Machine Learning, Invited by the University of South Carolina.

RESEARCH IN MEDIA AND NEWS

1. **UMaine News:**
<https://umaine.edu/news/blog/2022/11/21/the-pandemic-led-to-more-speeding-on-maines-rural-roadways-umaine-study-finds/>
2. **WBAI.TV:**
<https://www.wabi.tv/2022/11/30/new-study-drivers-speed-during-pandemic/>
3. **Daily Bulldog:**
<https://dailybulldog.com/news/umaine-study-finds-speeding-on-rural-highways-increased-during-the-pandemic/>
4. **Bangor Daily News:**
<https://www.bangordailynews.com/2022/11/28/bdn-maine/the-pandemic-led-to-more-speeding-on-maines-rural-roadways-umaine-study-finds/>

SERVICE AND PROFESSIONAL ACTIVITIES

Advisory Board: Maine State Transportation Innovation Council (STIC)	Aug 2021- present
University of Maine TRB Representative	Jan 2020- present
Member of AI/Automation Cluster Hiring Committee	Sep 2020- June 2021
UMaine AI	Sep 2019 -present
Undergrad advising (10 to 20 students/semester), University of Maine	Sep 2019 - present
Data Science and Engineering Faculty Council	Oct. 2022 - present
Faculty Search Committee Member, University of Maine	
o Assistant Professor in Civil and Environmental Engineering	July 2022 - Dec 2022
o Assistant Professor in Civil and Environmental Engineering	Oct 2021 - April 2022
Paper Review Coordinator	2019-2021
o 2021 International Symposium on Transportation Data and Modeling (ISTDM 2021)	
o 2020 International Symposium on Transportation Data and Modeling (ISTDM 2020) (Canceled due to Covid-19)	
Conference Organizing Committee Member	2019-2021
o 2021 International Symposium on Transportation Data and Modeling (ISTDM 2021)	
o 2020 International Symposium on Transportation Data and Modeling (ISTDM 2020) (Canceled due to Covid-19)	
Moderator	
o 72 nd Maine Transportation Conference	Dec 2022
o 71 st Maine Transportation Conference	Dec 2021
o 2021 International Symposium on Transportation Data and Modeling	June 2021
Journal Reviewer (Select Journals)	
o Accident Analysis and Prevention	
o Transportation Research Part C	
o Transportation Research Part E	
o Transportation Science	
o European Journal of Operational Research	
o Safety Science	
o Risk Analysis	
o Journal of Safety Research	
o Transportation Research Record (<i>Journal of Transportation Research Board</i>)	
o IATSS Research	
o Journal of Transportation Engineering	
o Journal of Intelligent Transportation Systems	
o Transportation Letters	
o Traffic Injury Prevention	
o Journal of Statistical Computation and Simulation	
o International Journal of Urban Sciences	
o Case Studies on Transport Policy	
o Journal of Advanced Transportation	
o IEEE Access	
o Transportation Research Board	
Guest Lecturer	
o CIE 100: Intro to Civil Eng. (Fall 2023), University of Maine, Invited by Dr. Shaleen Jain	
o CIE 100: Intro to Civil Eng. (Fall 2022), University of Maine, Invited by Dr. Shaleen Jain	
o CIE 100: Intro to Civil Eng. (Fall 2021), University of Maine, Invited by Dr. Shaleen Jain	
o CIE 100: Intro to Civil Eng. (Fall 2020), University of Maine, Invited by Dr. Shaleen Jain	
o CIE 100: Intro to Civil Eng. (Fall 2019), University of Maine, Invited by Dr. Shaleen Jain	
o CVEN456: Highway Design (Spring 2018), TX A&M University, Invited by Dr. Dominique Lord.	
o CVEN322: Civil Eng. Syst. (Spring 2018), TX A&M University, Invited by Dr. Luca Quadrifoglio.	
o CVEN322: Civil Eng. Syst. (Fall 2014), TX A&M University, Invited by Dr. Bruce Wang.	
Project Coordinator, TAMU ITE Student Chapter, TX A&M University	Jan 2015 - Dec 2015

HONORS AND AWARDS

1. Nominated for the national Blavatnik Young Scientist Award (\$250,000 in unrestricted funds) by Provost Office (October 2023), representing UMaine as the sole faculty nominee in the category of Physical Sciences & Engineering for the national competition.
2. Received Early Career Teaching Award, College of Engineering (April 2023), UMaine.
3. Nominated for Early Career Research Award, College of Engineering (April 2023), UMaine.
4. 1st place, Fan Favorite Poster Award for my student Jhan Kevin Gil-Marin (November 2022), Transportation Infrastructure Durability Center (TIDC).
5. Teaching Fellow Award (November 2016), College of Engineering, Texas A&M University.
6. Teaching Certificate (2017). Texas A&M University (TAMU), Teaching Certificate Program Academy of Future Faculty (AFF), Texas A&M University, College Station, TX.
7. Keese-Wootan Transportation Award, (May 2017), Texas A&M Transportation Institute, Texas A&M University.
8. Best Student Presentation Award (June 2016), Traffic Safety Conference (ATLAS), Texas.
9. Ranked 1st in M.S. Program in Transportation Engineering, Sharif University of Technology (Class of 2011)
10. Best Undergrad Thesis (Final Projects) Award (2009), Civil Engineering Department, Iran University of Science and Technology.

TECHNICAL SKILLS

- **Programming:** Visual C++, Python, Julia
- **Statistics:** R, Python, Julia
- **Optimization:** GAMS, CPLEX
- **Transportation:** CORSIM, SYNCHRO, VISSIM

SUPERVISED STUDENTS (Advisor)

Ph.D. Students (Funded on Research Projects)

- Ashok Poudel (May 2024 - Present)
- Julio Cesar Jurado (Jan 2024 - Present)
- Juan Aviles Ordonez (Jan 2023 - Present)
- Miguel Eduardo Vergara (Jan 2023 - Present)

M.Sc. Student (Funded on Research Projects)

- Ennis Marshall (May 2022 - Dec 2023)
- Jhan Kevin Gil-Marin (Jan 2022 - Dec. 2023)
- Amir Shahlaee (Jan 2021 - May 2022)
- A.S.M Mohaiminul Islam (Sep 2020 - Aug 2022)
- Alainie Sawtelle (Sep 2020 - May 2022)

Undergrad Students (Funded on Research Projects)

- Emma White (Oct 2022 - May 2023)
- Madeline Blair (Oct 2021 - May 2022)
- Ennis Marshall (Nov 2020 - May 2022)

SUPERVISED GRADERS/TEACHING ASSISTANTS

Spring 2024 (CIE 225: Transportation Engineering)

- Greg Moulton (Jan 2024- May 2024)
- Jacob Carroll (Jan 2024- May 2024)

Spring 2023 (CIE 225: Transportation Engineering)

- Sean Roberts (Jan 2023- May 2023)
- Schuyler Vandereb (Jan 2023- May 2023)

Spring 2022 (CIE 225: Transportation Engineering)

- Sean Roberts (Jan 2022- May 2022)
- Hayden Libby (Jan 2022 - May 2022)

Spring 2021 (CIE 225: Transportation Engineering)

- Maeve Shea (Jan 2021 - May 2021)
- Kellen Doyle (Jan 2021 - May 2021)