Natalia Zuniga-Garcia

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Argonne National Laboratory
Transportation and Power Systems Division
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Education

Ph.D. in Civil Engineering, Transportation Engineering *December 2020*

Department of Civil, Architectural and Environmental Engineering, University of Texas at Austin *Austin, TX*

Dissertation: Characterizing emerging transportation modes: Statistical models and methods. *Advisor:* Randy B. Machemehl.

M.Sc. in Statistics and Data Sciences *May 2018*

Department of Statistics and Data Sciences, University of Texas at Austin *Austin, TX*

Thesis: Spatial pricing evaluation of ride-sourcing trips using the graph-fused lasso. *Advisor:* James G. Scott.

M.Sc. in Civil Engineering, Infrastructure Materials Engineering *May 2017*

Department of Civil, Architectural and Environmental Engineering, University of Texas at Austin *Austin, TX*

Thesis: Predicting pavement friction with improved texture characterization. *Advisor:* Jorge A. Prozzi.

Bachelor's and Licentiate in Civil Engineering *December 2012*

School of Civil Engineering, University of Costa Rica *San Jose, Costa Rica*

Thesis: Methodology to evaluate the performance of pavement surface treatments in laboratory. *Advisor:* Fabian Elizondo.

Academic Appointments

Research Scientist - Computational Transportation Engineer R&D *Jan. 2022 - Present*

Argonne National Laboratory (ANL) *Chicago, Illinois*

Scientist - Consortium for Advanced Science and Engineering (CASE) *May 2024 - Present*

University of Chicago *Chicago, Illinois*

Postdoctoral Researcher *Jan. 2021 - Dec. 2021*

Argonne National Laboratory (ANL) *Chicago, Illinois*

Center for Transportation Research (CTR), University of Texas at Austin *Austin, Texas*

Graduate Research Assistant *Jan. 2015 - Dec. 2020*

Department of Civil, Architectural and Environmental Engineering, University of Texas at Austin *Austin, Texas*

Research Associate *Jan. 2013 - Dec. 2014*

School of Civil Engineering, University of Costa Rica *San Jose, Costa Rica*

Teaching Experience

Teaching Assistant - Department of Civil Engineering, University of Texas at Austin

CE 392M Public Transportation Engineering (Instructor: Dr. Randy B. Machemehl) *Fall 2018 / Fall 2019 / Fall 2020*

CE 367P Pavement Design and Performance (Instructor: Dr. Jorge A. Prozzi) *Spring 2016 / Fall 2016*

Adjunct Assistant Professor - School of Civil Engineering, University of Costa Rica

IC 0810 Geometric Design: Led weekly sessions for fourth-year civil engineering students. *II Semester 2014*

Grants & Funding

U.S. Department of Energy (DOE) Advanced Research Projects Agency-Energy (ARPA-E) INcreasing Transportation Efficiency and Resiliency through MODeling Assets and Logistics (INTERMODAL): Integrated intermodal freight models and tools for efficiency and resiliency. $1,500,000 USD. 2023-2025. *Project Co-PI and Argonne PI* (with project PI: Yanfeng Ouyang, University of Illinois at Urbana-Champaign, and Co-PI: Stephen Ritchie, University of California, Irvine).

Argonne Laboratory Directed Research and Development (LDRD): AI-powered data-driven rare event prediction and uncertainty modeling for interdependent transportation and power systems in decarbonization. $300,000 USD. 2024-2025. *Senior Personnel* (PI: Zhi Zhou).

Argonne Laboratory Directed Research and Development (LDRD): Machine learning data fusion for online estimation of traffic state in urban road networks. $50,000 USD. 2023. *Co-Principal Investigator* (with Arindam Fadikar).

Airport Cooperative Research Program (ACRP) Graduate Research Award: Impact of transportation network companies on ground access to airports. $12,000 USD. 2019. *Principal Investigator.*

Honors & Awards

2024	**Impact Argonne Award, Diversity & Inclusion Results** Argonne National Laboratory (ANL)
2023	**Best Poster Award,** Transportation Research Board (TRB) Innovations in Travel Analysis and Planning Conference. Indianapolis, IN, June, 2023
2023	**Best Paper Award,** Standing Committee on Transportation Air Quality & GHG Mitigation (AMS10), Transportation Research Board (TRB) Annual Meeting. Washington, DC, January 2023
2022	**Impact Argonne Award, Extraordinary Effort** Argonne National Laboratory (ANL)
2021	**Postdoctoral Performance Award, Engineering Research** Argonne National Laboratory (ANL)
2020	**Graduate Research Award,** Airport Cooperative Research Program (ACRP), Transportation Research Board (TRB) at The National Academies of Sciences, Engineering & Medicine (NASEM)
2020	**Mentor Award - Graduates Linked to Undergraduates in Engineering (GLUE),** Women in Engineering Program (WEP), UT-Austin
2020	**Mary Kate Collins Memorial Endowed Presidential Scholarship in Civil Engineering,** UT-Austin
2019	**Study in Intelligent Transportation Systems (ITS) Scholarship,** Intelligent Transportation Society (ITS) Texas
2019	**Graduate Engineering Travel Grant,** Graduate Engineering Council (GEC), UT-Austin
2018	**Diane Woodend Jones Leadership Legacy Scholarship,** Women's Transportation Seminar (WTS), International
2018	**WTS Leadership Legacy Scholarship,** Women's Transportation Seminar, Heart of Texas (WTS-HOT) Chapter
2018	**Leadership Collaborative Leader Award,** Women in Engineering Program (WEP), UT-Austin
2017	**Professional Development Award,** Department of Civil, Architectural and Environmental Engineering, UT-Austin
2016	**Innovation and Human Capital Program for Competitiveness Scholarship,** Inter-American Development Bank (IDB) and Ministry of Science and Technology (Costa Rica)

Publications (h-index: 12. i-10 index: 14. Citations: 500+.)

REFEREED JOURNAL PUBLICATIONS [**Google Scholar profile**]

1. **Zuniga-Garcia, N.** V. Freyermuth, M. Stinson, and O. Sahin. (2024). Trucks tour chaining for electric demand estimation. In *Procedia Computer Science.* `https://doi.org/10.1016/j.procs.2024.06.094`

2. Akinlana, D., A. Fadikar, S. Wild, **N. Zuniga-Garcia** and J.A. Auld. (2024). O'Hare airport roadway traffic prediction via data fusion and Gaussian process regression. *Journal of Traffic and Transportation Engineering.* `https://doi.org/10.1016/j.jtte.2023.11.006`

3. **Zuniga-Garcia, N.**, A. Fadikar, D. Akinlana, and J.A. Auld. (2023). O'Hare airport short-term ground transportation modal demand forecast using Gaussian processes. *Journal of Transportation Engineering, Part A: Systems*, 150(3), 04023143. `https://doi.org/10.1061/JTEPBS.TEENG-7918`

4. **Zuniga-Garcia, N.**, A. Ismael, and M. Stinson. (2023). A freight asset choice model for agent-based simulation models. *Procedia Computer Science, 220*, 704-709. `https://doi.org/10.1016/j.procs.2023.03.092`

5. Sahin, O., **N. Zuniga-Garcia**, and M. Stinson. (2023). Equity analysis of freight transportation using a large-scale agent-based modeling framework. *Procedia Computer Science*, 220, 692-697. `https://doi.org/10.1016/j.procs.2023.03.090`

6. **Zuniga-Garcia, N.** V. Freyermuth, M. Stinson, and O. Sahin. (2023, April). Impacts of freight fleet electrification. In *2023 IEEE Conference on Technologies for Sustainability (SusTech)* (pp. 168-169). IEEE. `https://doi.org/10.1109/SusTech57309.2023.10129590`

7. Dean, M.D. and **N. Zuniga-Garcia**. (2023). Shared e-scooter trajectory analysis during the COVID-19 pandemic in Austin, Texas. *Transportation Research Record: COVID-19 Pandemic Special Issue.* `https://doi.org/10.1177/03611981221083306.`

8. Charm, T., H. Wang, **N. Zuniga-Garcia,**, M. Ahmed, and K.M. Kockelman. (2023). Predicting crash occurrence at intersections in Texas: An opportunity for machine learning. *Transportation Planning and Technology*, 1-21. `https://doi.org/10.1080/03081060.2023.2177651.`

9. Zhao, B., **N. Zuniga-Garcia**, L. Xing, and K.M. Kockelman. (2023). Predicting pedestrian crash occurrence and injury severity in Texas using tree-based machine learning models. *Transportation Planning and Technology*, 1-22. `https://doi.org/10.1080/03081060.2023.2216202`

10. **Zuniga-Garcia, N.**, J.G. Scott, M. Tec, and R.B. Machemehl. (2022). Evaluation of e-scooters as transit last-mile solution. *Transportation Research Part C: Emerging Technologies*, 139, 103660. `https://doi.org/10.1016/j.trc.2022.103660.`

11. **Zuniga-Garcia, N.**, K.M. Gurumurthy, C.N. Yahia, K.M. Kockelman, and R.B. Machemehl.(2022). Integrating shared mobility services with public transit in areas with low demand. *Journal of Public Transportation*, 24, 100032. `https://doi.org/10.1016/j.jpubtr.2022.100032`.

12. **Zuniga-Garcia, N.**, K.A. Perrine, and K.M. Kockelman.(2022). Analysis of pedestrian crashes at intersection and midblock segment levels in Texas. *Sustainability*, 14 (12), 7164.`https://doi.org/10.3390/su14127164`.

13. Huang, Y., **N. Zuniga-Garcia**, and K.M. Kockelman.(2022). Long-distance travel impacts of COVID-19 across the United States. *Findings*, 36454. `https://doi.org/10.32866/001c.36454`.

14. Bassil, M., **N. Zuniga-Garcia**, N. Ruiz-Juri, J. Duthie, K.A. Perrine, and R.B. Machemehl. Quantifying multimodal metrics of performance on arterial corridors using Intelligent Transportation Systems (ITS) data. *International Conference on Transportation and Development 2022* (pp. 93-103). `https://doi.org/10.1061/9780784484319.009`.

15. **Zuniga-Garcia, N.** and R.B. Machemehl. (2021). Impact of transportation network companies on ground access to airports: A case study in Austin, Texas. *Transportation Research Record*. `https://doi:10.1177/03611981211031205`.

16. **Zuniga-Garcia, N.**, N. Ruiz-Juri, K. Perrine, and R.B. Machemehl. (2021). E-scooters in urban infrastructure: Understanding sidewalk, bike lane, and roadway usage from trajectory data. *Case Studies on Transport Policy*. `https://doi.org/10.1016/j.cstp.2021.04.004`.

17. **Zuniga-Garcia, N.**, R.B. Machemehl, N.A. Khwaja, K.D. Pruner, and M. Fu. (2020). Estimating road user costs in data-limited or time-constrained environments. *ASCE's Journal of Construction Engineering and Management*, 147(3), 04020182.

18. Gurumurthy, K.M., K.M. Kockelman, and **N. Zuniga-Garcia**. (2020). First-mile-last-mile collector-distributor system using shared autonomous mobility. *Transportation Research Record*. `https://doi.org/10.1177/0361198120936267`.

19. **Zuniga-Garcia, N.**, M. Tec, J.G. Scott, N. Ruiz-Juri, and R.B. Machemehl. (2020). Evaluation of ride-sourcing search frictions and driver productivity: A spatial denoising Approach. *Transportation Research Part C: Emerging Technologies*, 110, 346–367. `https://doi.org/10.1016/j.trc.2019.11.021`.

20. **Zuniga-Garcia, N.** and J.A. Prozzi. (2019). High-definition field texture measurements for predicting pavement friction. *Transportation Research Record*, 2673(1), 246–260. `https://doi.org/10.1177/0361198118821598`.

21. **Zuniga-Garcia, N.**, H.W. Ross, and R.B. Machemehl. (2018). Multimodal level of service methodologies: Evaluation of the multimodal performance of arterial corridors. *Transportation Research Record*, 2672(15), 142–154. `https://doi.org/10.1177/0361198118776112`.

22. Kouchaki, S., H. Roshani, J.A. Prozzi, **N. Zuniga-Garcia**, and J.B. Hernandez. (2018). Field investigation of the relationship between pavement surface texture and friction. *Transportation Research Record*, 2672(40), 395–407. `https://doi.org/10.1177/0361198118777384`.

23. **Zuniga-Garcia, N.**, W. Martinez-Alonso, A. de Fortier Smit, F. Hong, and J.A. Prozzi. (2018). Economic analysis of pavement preservation techniques. *Transportation Research Record*, 2672(12), 10–19. `https://doi.org/10.1177/0361198118768515`.

Magazine Publications

1. **Zuniga-Garcia, N.** and J.A. Prozzi (2018, Sept.). Análisis probabilístico del costo del ciclo de vida de técnicas de preservación de pavimentos. Revista Asfalto y Pavimentación, VIII(30), 23-31. `https://www.asefma.es/wp-content/uploads/2018/10/Revista-Asfalto-y-Pavimentaci%C3%B3n-30.pdf`

Under Review

1. **Zuniga-Garcia, N.**, J. Zill, T. McCoy, J. Ponce, and J. Auld. Using e-scooters to reduce Chicago parking-related congestion: A multimodal integration deployment study. Under review for publication.

2. **Zuniga-Garcia, N.** K.M. Gurumurthy, A. Ismael, O. Sahin and J.A. Auld. Understanding the impacts of on-demand delivery of prepared meals and groceries. Under review for publication. `http://dx.doi.org/10.2139/ssrn.4755521`

3. **Zuniga-Garcia, N.** and P. Camargo. Synthesizing activity locations in the context of integrated activity-based models. Under review for publication.

4. Huang, Y., **N. Zuniga-Garcia**, and K.M. Kockelman. Long-distance travel impacts of automated vehicles: A survey of American households. Under review for publication.

5. Auld, J., **N. Zuniga-Garcia**, P. Waddell, F. de Souza, and D. Chou. Interactions between climate policy and technology-influenced travel behavior: Mitigating induced demand from Cooperative Adaptive Cruise Control (CACC). Under review for publication.

6. Uhm, H., A. Ismael, **N. Zuniga-Garcia**, O. Sahin, J. Cook, J.A. Auld, and M. Stinson. Fleet-mix electric vehicle routing problem for the e-commerce delivery with limited off-hour delivery implementation. Under review for publication. `https://doi.org/10.48550/arXiv.2408.00663`

7. Huang, Y., K.M. Gurumurthy, **N. Zuniga-Garcia** and J. Auld. Fleet electrification for ride-sharing services: An analysis of energy and emissions. Under review for publication.

8. Sahin, O., B. Borlaug, T. Cokyasar, **N. Zuniga-Garcia** and C. Mansour. Analysis of load profiles for medium and heavy-duty electric vehicles: Implications for grid integration. Under review for publication.

9. Osorio-Fuenmayor, J., H. Uhm, A. Ismael, O. Sahin, and **N. Zuniga-Garcia**. A continuous approximation model for large-scale delivery alternative optimization: A case study in Chicago using an agent-based simulation framework. Under review for publication.

10. Verbas, O., T. Cokyasar, P. Veiga de Camargo, K.M. Gurumurthy, **N. Zuniga-Garcia** and J. Auld. Modeling transit in a fully integrated agent-based framework: Methodology and large-scale application. Under review for publication. `https://doi.org/10.48550/arXiv.2408.05176`

11. Auld, J., J. Cook, K.M. Gurumurthy, N. Khan, C. Mansour, A. Rousseau, O. Sahin, F. de Souza, O. Verbas, and **N. Zuniga-Garcia**. Large-scale evaluation of mobility, technology, and demand scenarios in the Chicago region using POLARIS. Under review for publication. `https://doi.org/10.48550/arXiv.2403.14669`

Conference Presentations

1. Rivera-Gonzalez, C., **N. Zuniga-Garcia** A. Ismael, and O. Sahin. (2025). Decoding logistical clusters in metropolitan areas: A panel data approach. Under review for presentation at the *10th International Urban Freight Conference (I-NUF) - METRANS Transportation Consortium*. Los Angeles, CA, April 2025.

2. Mansour, C., J. Gebrael, V. Freyermuth, E. Islam, R. Vijayagopal, H. Borhan, O. Mourlan, O. Sahin, **N. Zuniga-Garcia**, A. Rousseau. (2025). Cost analysis of battery electric and fuel cell powertrains for Class 8 heavy-duty trucks in real-world scenarios. A 2023, 2025, and 2050 perspective. Under review for presentation at the *Society of Automobile Engineers (SAE) 2025 International World Conference Experience (WCX)*. Detroit, MI, April 2025.

3. **Zuniga-Garcia, N.**, J. Zill, T. McCoy, J. Ponce, and J. Auld. (2025). Using e-scooters to reduce Chicago parking-related congestion: A multimodal integration deployment study. Accepted for presentation at the *104th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2025.

4. Auld, J., **N. Zuniga-Garcia**, P. Waddell, F. de Souza, and D. Chou. (2025). Interactions between climate policy and technology-influenced travel behavior: Mitigating induced demand from Cooperative Adaptive Cruise Control (CACC). Accepted for presentation at the *104th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2025.

5. Sahin, O., B. Borlaug, T. Cokyasar, **N. Zuniga-Garcia** and C. Mansour. (2025). Analysis of load profiles for medium and heavy-duty electric vehicles: Implications for grid integration. Accepted for presentation at the *104th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2025.

6. Ismael, A., O. Sahin, H. Uhm, H. Shen, **N. Zuniga-Garcia**, Y. Huang, Taner Cokyasar, K.M. Gurumurthy, J. Auld, and M. Stinson. (2025). Integration and application of a freight agent-based simulation framework. Accepted for presentation at the *104th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2025.

7. Osorio-Fuenmayor, J., H. Uhm, A. Ismael, O. Sahin, and **N. Zuniga-Garcia**. (2025). A continuous approximation model for large-scale delivery alternative optimization: A case study in Chicago using an agent-based simulation framework. Accepted for presentation at the *104th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2025.

8. Al Haddad, R., C. Mansour, M. Nemer, **N. Zuniga-Garcia**, and J. Auld. (2025). Effect of weather conditions, battery size, and commuter types on the performance and charging needs of electric vehicles. Accepted for presentation at the *104th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2025.

9. Auld, J., J. Cook, K.M. Gurumurthy, N. Khan, C. Mansour, A. Rousseau, O. Sahin, F. de Souza, O. Verbas, and **N. Zuniga-Garcia**. (2025). Large-scale evaluation of mobility, technology, and demand scenarios in the Chicago region using POLARIS. Accepted for presentation at the *104th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2025.

10. Uhm, H., A. Ismael, **N. Zuniga-Garcia**, O. Sahin, J. Cook, J. Auld, and M. Stinson. (2024). Implementation and analysis of urban freight electrification for the e-commerce delivery using POLARIS transportation framework. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Seattle, WA, October 2024.

11. **Zuniga-Garcia, N.** and J. Osorio-Fuenmayor. (2024). Integrated intermodal freight models and tools for efficiency and resiliency: Use of POLARIS agent-based simulation tool. *2024 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Seattle, WA, October 2024.

12. Huang, Y., K.M. Gurumurthy, **N. Zuniga-Garcia** and J. Auld. (2024). Fleet electrification for ride-sharing services: An analysis of energy and emissions. *2024 Transportation Research Board (TRB)'s Transportation Symposium on Environment, Energy, and Livable Economies*, Denver, CO, August 2024.

13. Auld, J., **N. Zuniga-Garcia**, P. Waddell, F. de Souza, and D. Chou. (2024). Interactions between climate policy and technology-influenced travel behavior: Mitigating induced demand from Cooperative Adaptive Cruise Control (CACC). *17th International Conference on Travel Behavior Research from the International Association for Travel Behaviour Research (IATBR)*, Vienna, Austria, July 2024.

14. Auld, J., **N. Zuniga-Garcia**, P. Waddell, F. de Souza, D. Loughlin, and D. Chou. (2024). Interactions between climate policy and technology-influenced travel behavior: Mitigating induced demand from Cooperative Adaptive Cruise Control (CACC). *2024 World Society of Transport and Land Use Research (WSTLUR)*, Bogota, Colombia, June 2024.

15. Auld, J., J. Cook, K.M. Gurumurthy, N. Khan, C. Mansour, A. Rousseau, O. Sahin, F. de Souza, O. Verbas, and **N. Zuniga-Garcia**. (2024). Large-scale evaluation of mobility, technology, and demand scenarios in the Chicago region using POLARIS. *2024 World Society of Transport and Land Use Research (WSTLUR)*, Bogota, Colombia, June 2024.

16. **Zuniga-Garcia, N.**, V. Freyermuth, M. Stinson, O. Sahin and J. Auld. (2024). Trucks tour chaining for electric demand estimation. *13th International Workshop on Agent-based Mobility, Traffic, and Transportation Models (ABMTRANS* held in conjunction with the *15th International Conference on Ambient Systems, Networks, and Technologies (ANT)*, Hasselt, Belgium, April 2024.

17. **Zuniga-Garcia, N.**, C. Mansour, J. Auld and F. de Souza. (2024). Exploring the potential of Adaptive Cruise Control (ACC) and Cooperative ACC (CACC) technologies on light-duty and medium/heavy-duty vehicles in future transportation systems. *37th International Electric Vehicle Symposium and Exhibition (EVS37)*, Seoul, South Korea, April 2024.

18. Sahin, O., C. Mansour, T. Cokyasar and **N. Zuniga-Garcia**. (2024). Analyzing load profiles of medium and heavy-duty electric vehicles: Implications for grid integration. *37th International Electric Vehicle Symposium and Exhibition (EVS37)*, Seoul, South Korea, April 2024.

19. Huang, Y., O. Verbas, K.M. Gurumurthy, O. Sahin, T. Cokyasar, **N. Zuniga-Garcia** and J. Auld. (2024). Future transportation electrification: Operations and impacts. *2024 Intelligent Transportation Systems (ITS) America Conference and Expo*, Phoenix, AZ, April 2024.

20. Mansour, C., M. Alhajjar, A. Kancharla, P. Phillips and **N. Zuniga-Garcia**. (2024). Comprehensive techno-economic analysis of electrified and fuel-cell vehicle technologies for sustainable transportation: Insights from TechScape. *11th IEEE Conference on Technologies for Sustainability (SusTech)*, Portland, OR, April 2024.

21. **Zuniga-Garcia, N.**, K.M. Gurumurthy, A. Ismael, O. Sahin and J.A. Auld. (2024). Understanding the impacts of on-demand delivery of prepared meals and groceries. *103th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2024.

22. Camargo, P. and **N. Zuniga-Garcia**. (2024). Synthesizing truck tours from trip lists: A simulation-optimization approach. *103th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2024.

23. Auld, J., **N. Zuniga-Garcia**, C. Mansour, F. de Souza, J. Caicedo and P. Waddell. (2024). Mobility, energy, and land use impacts of the adoption of connected and automated vehicle technologies. *103th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2024.

24. Mansour, C., O. Sahin, **N. Zuniga-Garcia**, R. Vijayagopal and H. Borhan. (2024). From diesel to electric and hydrogen: Assessing the viability of advanced powertrains for long-haul trucks. *103th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2024.

25. Uhm, H., A. Ismael, **N. Zuniga-Garcia**, O. Sahin, J. Cook, J.A. Auld and M. Stinson. (2024). Fleet-mix electric vehicle routing problem for the e-commerce delivery with limited off-hour delivery implementation. *103th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2024.

26. **Zuniga-Garcia, N.**, A. Ismael, O. Sahin and M. Stinson. (2023). Developing a freight asset choice model for agent-based simulation models. *2023 Innovations in Freight Data Workshop*. Washington, DC, September 2023.

27. Mansour, C., O. Sahin, **N. Zuniga-Garcia**, R. Vijayagopal and H. Borhan. (2023). Assessment of advanced long-haul truck powertrains: Comparative study of consumption, emissions, and cost with diesel trucks. *39th FISITA World Congress*. Barcelona, Spain, September 2023.

28. Auld, J., **N. Zuniga-Garcia**, C. Mansour, F. de Souza, J. Caicedo, and P. Waddell. (2023). Mobility, energy, and land use impacts of the adoption of connected and automated vehicle technologies. *26th IEEE Intelligent Transportation Systems Conference (ITSC)*. Bilbao, Bizkaia, Spain, September 2023.

29. Uhm, H., A. Ismael, **N. Zuniga-Garcia**, O. Sahin, J. Auld and M. Stinson. Fleet-mix vehicle routing problem for the e-commerce delivery with limited off-hour delivery implementation. *23rd Conference of the International Federation of Operational Research Societies*. Santiago, Chile, July 2023.

30. **Zuniga-Garcia, N.**, A. Ismael and M. Stinson. (2023). A freight asset choice model for agent-based simulation models. *2023 Transportation Research Board (TRB) Conference on Innovations in Travel Analysis and Planning Conference*. Indianapolis, IN, June 2023.

31. Sahin, O., **N. Zuniga-Garcia**, and and M. Stinson. (2023). Equity analysis of freight transportation in Atlanta. *2023 Transportation Research Board (TRB) Conference on Innovations in Travel Analysis and Planning Conference.* Indianapolis, IN, June 2023.

32. **Zuniga-Garcia, N.**, A. Ismael and M. Stinson. (2023). A freight asset choice model for agent-based simulation models. *2023 Institute of Industrial and Systems Engineers Annual Conference and Expo.* New Orleans, LA, May 2023.

33. Brown, K., J. Christopher, **N. Zuniga-Garcia** and K. Henne. (2023). Mitigating burnout by improving Postdoctoral Association (PDA)'s Efficiency. *2023 National Postdoctoral Association,* Philadelphia, PA, April 2023.

34. **Zuniga-Garcia, N.**, A. Ismael, and M. Stinson. (2023). A freight asset choice model for agent-based simulation models. *12th International Workshop on Agent-based Mobility, Traffic, and Transportation Models in conjunction with 14th International Conference on Ambient Systems, Networks, and Technologies.* Leuven, Belgium, March 2023.

35. Sahin, O., **N. Zuniga-Garcia**, and M. Stinson. (2023). Equity analysis of freight transportation using a large-scale agent-based modeling framework. *12th International Workshop on Agent-based Mobility, Traffic, and Transportation Models in conjunction with 14th International Conference on Ambient Systems, Networks, and Technologies.* Leuven, Belgium, March 2023.

36. **Zuniga-Garcia, N.** and P. Camargo. (2023). Synthesizing activity locations in the context of integrated activity-based models. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

37. Charm, T., H. Wang, **N. Zuniga-Garcia**, M. Ahmed, and K.M. Kockelman. (2023). Predicting crash occurrence at intersections in Texas: An opportunity for machine learning. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

38. Sahin, O., **N. Zuniga-Garcia**, and and M. Stinson. (2023). Equity analysis of freight transportation in Atlanta. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

39. Akinlana, D., A. Fadikar, S. Wild, **N. Zuniga-Garcia** and J.A. Auld. (2023). O'Hare airport roadway traffic prediction via data fusion and Gaussian process regression. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

40. Huang, Y., **N. Zuniga-Garcia**, and K.M. Kockelman. (2023). Long-distance travel impacts of automated vehicles: A survey of American households. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

41. Zhao, B., **N. Zuniga-Garcia**, L. Xing, and K.M. Kockelman. (2023). Predicting pedestrian crash occurrence and injury severity in Texas using tree-based machine learning models. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

42. Dean, M.D. and **N. Zuniga-Garcia**. (2023). Shared e-scooter trajectory analysis during the COVID-19 pandemic in Austin, Texas. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

43. **Zuniga-Garcia, N.** V. Freyermuth, M. Stinson, and O. Sahin. (2023). Impacts of freight fleet electrification in the Atlanta – Chattanooga region. *102th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2023.

44. Gurumurthy, K.M., **N. Zuniga-Garcia**, F. de Souza and J. Auld. (2022). Simulating human driver trip acceptance and relocation behavior in ride-hailing fleets. *16th International Conference on Travel Behavior Research (IATBR).* Santiago, Chile, December 2022.

45. Huang, Y., **N. Zuniga-Garcia**, K.M. Kockelman. (2022). Long-distance travel impacts of automated vehicles: A survey of American households. *16th International Conference on Travel Behavior Research (IATBR).* Santiago, Chile, December 2022.

46. Zhou, Z., L. Wang, V. Freyermuth, **N. Zuniga-Garcia**, O. Sahin and M. Stinson. Grid and market impact from transportation electrification: A case study of heavy-duty freight electrification in the Atlanta-Chattanooga region. *2022 Informs Annual Meeting.* Indianapolis, IN, October 2022.

47. **Zuniga-Garcia, N.**, A. Fadikar, D. Akinlana, and J.A. Auld. (2022). O'Hare airport short-term multimodal demand forecast using Gaussian processes. *101th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2022.

48. **Zuniga-Garcia, N.**, K.A. Perrine, and K.M. Kockelman. Analysis of pedestrian crashes at intersection and midblock segment levels in Texas. *101th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2022.

49. **Zuniga-Garcia, N.**, K.M. Gurumurthy, C.N. Yahia, K.M. Kockelman, and R.B. Machemehl. (2022). Integrating shared mobility services with public transit in areas with low demand. *101th Annual Meeting of the Transportation Research Board (TRB),* Washington, DC, January 2022.

50. **Zuniga-Garcia, N.**, Zhao,B. Xing, L., and K.M. Kockelman. (2021). Predict pedestrian crash ocurrence and injury severity in Texas using tree-based machine learning models *3rd Bridging Transportation Researchers (BTR) Conference.* TRB Virtual Event, August 2021.

51. **Zuniga-Garcia, N.**, K.M. Gurumurthy, C.N. Yahia, K.M. Kockelman, and R.B. Machemehl. (2021). Integrating shared mobility services with public transit in areas with low demand. *3rd Bridging Transportation Researchers (BTR) Conference*. TRB Virtual Event, August 2021.

52. **Zuniga-Garcia, N.**, M. Bassil, N. Ruiz-Juri, and R.B. Machemehl. (2021). Computation of multimodal metrics of corridor performance. *Transportation Planning Applications Conference (TRBAppcon)*, TRB Virtual Event, June 2021.

53. **Zuniga-Garcia, N.**, N. Ruiz-Juri, K. Perrine, and R.B. Machemehl. (2021). E-scooters in urban infrastructure: Understanding sidewalk, bike lane, and roadway usage from trajectory data. *100th Annual Meeting of the Transportation Research Board (TRB)*. TRB Virtual Event, January 2021.

54. **Zuniga-Garcia, N.** and R.B. Machemehl. (2021). Impact of Transportation Network Companies on ground access to airports: A case study in Austin, Texas. *100th Annual Meeting of the Transportation Research Board (TRB)*. TRB Virtual Event, January 2021.

55. **Zuniga-Garcia, N.**, R.B. Machemehl, N. Khwaja, K. Pruner, and M. Fu. (2020). Estimating road user costs in data-limited or time-constrained environments. *99th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2020.

56. **Zuniga-Garcia, N.** and R.B. Machemehl. (2020). Dockless electric scooters and transit use in an urban/university environment. *99th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2020.

57. Gurumurthy, K.M., K.M. Kockelman, and **N. Zuniga-Garcia**. (2020). First-mile-last-mile collector-distributor system using shared autonomous mobility. *99th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2020.

58. El Hachem, Y., **N. Zuniga-Garcia**, and J.A. Prozzi. (2019). Uso de Láser 3D para ajustar la dosis de ligante asfáltico en tratamientos superficiales. *XX Congreso Ibero Latinoamericano del Asfalto (CILA)*, Guadalajara, Mexico, November 2019.

59. Gurumurthy, K.M., K.M. Kockelman, and **N. Zuniga-Garcia**. (2019). First-mile-last-mile collector-distributor system using shared autonomous mobility. *Automated Vehicles Symposium*, Orlando, FL, July 2019.

60. **Zuniga-Garcia, N.**, H.W. Ross, and R.B. Machemehl. (2019). Evaluation of the multimodal performance of arterial corridors. *Transportation Planning Applications Conference (TRBAppcon)*, Portland, OR, June 2019.

61. **Zuniga-Garcia, N.**, M. Tec, J.G. Scott, N. Ruiz-Juri, and R.B. Machemehl. (2019). Evaluation of ride-sourcing search frictions and driver productivity. *98th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2019.

62. **Zuniga-Garcia, N.** and J.A. Prozzi. (2019). High-definition field texture measurements for predicting pavement friction. (2019). *98th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2019.

63. **Zuniga-Garcia, N.**, M. Tec, J.G. Scott, N. Ruiz-Juri, and R.B. Machemehl. (2018). Evaluating spatial pricing in ride-sourcing systems: A graph fused lasso denoising approach. *2018 Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting*, Phoenix, AZ, November 2018.

64. **Zuniga-Garcia, N.**, H.W. Ross, and R.B. Machemehl. (2018). Multimodal level of service methodologies: Evaluation of the multimodal performance of arterial corridors. *97th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2018.

65. **Zuniga-Garcia, N.**, S. Kouchaki, H. Roshani, J.A. Prozzi, and J.B. Hernandez. (2018). Field investigation of relationship between pavement surface texture and friction. *97th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2018.

66. **Zuniga-Garcia, N.**, W. Martinez-Alonso, A. de Fortier Smit, F. Hong, and J.A. Prozzi. (2018). Economic analysis of pavement preservation techniques. *97th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2018.

67. **Zuniga-Garcia, N.**, A. de Fortier Smit, and J.A. Prozzi. (2018). Predicting friction with improved texture characterization. *97th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2018.

68. **Zuniga-Garcia, N.**, J.A. Prozzi, and A. de Fortier Smit. (2017). Cuantificación de la macro- y micro-textura del pavimento para la estimación de fricción. *XIX Congreso Ibero Latinoamericano del Asfalto (CILA)*, Medellín, Colombia, November 2017.

69. **Zuniga-Garcia, N.**, J.A. Prozzi, and W. Martinez-Alonso. (2017). Análisis estocástico del costo del ciclo de vida de técnicas de preservación de pavimentos. *XIX Congreso Ibero Latinoamericano del Asfalto (CILA)*, Medellín, Colombia, November 2017.

70. Martinez-Alonso, W., **N. Zuniga-Garcia**, A. de Fortier Smit, and J.A. Prozzi. (2017). Life-cycle cost analysis of pavement preservation techniques in Texas. *96th Annual Meeting the Transportation Research Board (TRB)*, Washington, DC, January 2017.

71. **Zuniga-Garcia, N.**, A. de Fortier Smit, M. Trevino, P. Buddhavarapu, and J.A. Prozzi. (2016). Laboratory design of quieter asphalt surfaces. *95th Annual Meeting of the Transportation Research Board (TRB)*, Washington, DC, January 2016.

72. **Zuniga-Garcia, N.**, A. de Fortier Smit, M. Trevino, P. Buddhavarapu, and J.A. Prozzi. (2015). Laboratory design of quieter asphalt surfaces. *27th Annual Road Profile Users' Group (RPUG) Meeting*, Raleigh, NC, November 2015.

73. **Zuniga-Garcia, N.**, and F. Elizondo-Arrieta (2013). Propuesta de una metodología para la evaluación del desempeño de tratamientos superficiales. *XVII Congreso Ibero Latinoamericano del Asfalto (CILA)*, Antigua, Guatemala, November 2013.

Invited Presentations

1. **Zuniga-Garcia, N.**, K.M. Kockelman., K.A. Perrine, M. Pleason, M. Bernhardt, and M. Vellimana. (2023). Pedestrian crash factors, trends, & treatments: Lessons from Texas & US. *TRB Webinar: Pedestrian Crash Factors, Trends, and Treatments*, sponsored by the TRB's Standing Technical Committees on Safety Performance and Analysis and Pedestrians. June 2023.

2. **Zuniga-Garcia, N.**, K.A. Perrine, and K.M. Kockelman. (2021). Finding and treating Texas' pedestrian-crash hot spots: TxDOT research for prediction and cost-effective reduction of crash counts and their severities. *2021 Texas Statewide Pedestrian Safety Forum by Texas A&M Transportation Institute*, College Station, TX, August 2021.

3. **Zuniga-Garcia, N.**, H.W. Ross, and R.B. Machemehl. (2018). Multimodal level of service methodologies: Evaluation of the multimodal performance of arterial corridors. *Highway Capacity and Quality of Service Committee Workshop at the 97th Annual Meeting of the Transportation Research Board*, Washington, DC, January 2018.

Research Experience

RESEARCHER SCIENTIST - COMPUTATIONAL TRANSPORTATION ENGINEER R&D

Argonne National Laboratory (ANL) *January 2022 - Present*

Supervisor: Dr. Joshua A. Auld

- Use statistics and econometric models, AI/machine learning and stochastic methods, and simulation tools to understand the mobility and energy impact of new transportation technologies, such as electric vehicles (EVs), connected and autonomous vehicles (CAVs), and transportation network companies (TNCs).
- Accomplishments:
  - **High involvement with proposal development:** Actively participated in 15+ proposals with a total of $40M+ of likely total award size. Among those, she was involved in 5 proposals as PI/co-PI from ANL with an 80% acceptance rate, bringing in a total of $1.7M awarded funds to the team.
  - **Developed an impactful mentoring experience:** Natalia led the mentoring experience of students during the past summer. She designed an experience to provide diverse learning opportunities and accommodate individuals' interests. The interns worked 50% of their time in required time-sensitive tasks and the other 50% in their own interests. This allowed them to gain a robust experience from the team. Both students successfully participated in multiple projects, professional development activities, and proposal writing, providing them with the tools and expertise to continue their degrees.
  - **Builds strong relations with partners and stakeholders:** Develops relationships with relevant stakeholders such as Uber Freight, Smarking, INRIX allowing collaborations and data sharing agreements that can help advance several projects and proposal development. Leads project with university partners (GMU, UIUC, ASU, UCI), stakeholders (GM, SpotHero, Smarking, Ridy), and other partners (Civic Infrastructure Collaborative). Two ANL LDRD projects with multidisciplinary collaboration across the laboratory involving the MCS, DIS, and ESIA divisions were awarded.
  - **Extensive professional development efforts:** Develops academic contributions as an affiliate researcher at the University of Texas at Austin and as a scientist for CASE at UChicago. Serves in the peer-review process of multiple research papers. She was appointed as the co-chair for the Communications Subcommittee for the TRB Artificial Intelligence and Advanced Computing Applications (AED50) committee and member of the TRB Geographic Information Science (AED40) committee.
  - **Provides significant services to the laboratory:** Working directly with the Laboratory Director, Paul Kearns, as the AET directorate representative member of the Benefits Advisory Committee (BAC), ensuring that inputs from Argonne employees are considered in Argonne management's benefit plan determinations. Advancing postdocs' development as an Advisory Board Member of the Postdoctoral Society of Argonne (PSA), implementing strategies to mitigate burnout by improving postdoctoral associations' efficiency.
  - **High involvement in DEIA efforts:** Participation in STEM educational outreach for students from underrepresented backgrounds in diverse communities in Chicago as part of the Argonne Hispanic Latino Club's activities. Serves as the TAPS division representative of the newly formed AET DEIA Council and is currently developing the directorate's DEIA goals. She actively participates in activities aiming to increase minority participation in the energy industry.

POSTDOCTORAL RESEARCHER

Argonne National Laboratory (ANL)   *June 2021 - December 2021*

Supervisor: Dr. Joshua A. Auld

- Projects: (1) Maximizing Mobility Energy Productivity in Chicago after O'Hare Transportation Hub Expansion using Distributed Sensing and High Performance Computing, and (2) Systems and Modeling for Accelerated Research in Transportation (SMART) Mobility. (*Both sponsored by US DOE*).
- Received the 2021 Postdoctoral Performance Award for Engineering Research for successfully implementing a Gaussian Process regression model to predict the demand for multiple ground transportation modes at the O'Hare airport.

Center for Transportation Research (CTR), University of Texas at Austin   *January 2021 - June 2021*

Supervisor: Dr. Kara M. Kockelman

- Performed evaluations using data analysis, machine learning, and spatial econometric methods.
- Projects: (1) Understanding the Impact of Autonomous Vehicles on Long-Distance Travel, and (2) Identify Risk Factors that Lead to Increase in Fatal Pedestrian Crashes. (*Both sponsored by TxDOT*).

Graduate Research Assistant

Center for Transportation Research (CTR), University of Texas at Austin   *January 2015 - December 2020*

Supervisors: Dr. Randy B. Machemehl and Dr. Jorge A. Prozzi

- Performed data analysis and transport-operation evaluations for several funded research projects.
- Responsible for delivering oral and written presentations to the sponsors, including final or partial products.
- Led and collaborated in the preparation of several research proposals (budget of $300k+ each) with an awarded rate of 75%.
- Leveraged contributions from multidisciplinary areas, including community and regional planning, statistics and machine learning, computer science, and business and risk analysis.
- Published 5 first-authored and 2 co-authored peer-reviewed papers, and 19 conference proceeding.
- Received 10+ competitive scholarships and awards for research, teaching, and leadership excellence.

Research Associate

Sustainable Urban Development Program (ProDUS), University of Costa Rica

Transportation Engineer – Supervisors: Dr. Rosendo Pujol and Dr. Jonathan Aguero   *January 2013 - December 2014*

- Collaborated in the preparation of urban planning evaluations for several public-funded projects.
- Designed, implemented, and analyzed surveys and field data collection processes for transportation and urban studies.
- Led more than 50 undergraduate research assistants in the development of field data collection activities.

Undergraduate Research Assistant

Sustainable Urban Development Program (ProDUS), University of Costa Rica

Supervisor: Dr. Jonathan Aguero   *January 2010 - December 2012*

- Collaborated in data collection, analysis, and processing for urban planning projects.
- Used Geographic Information Systems (GIS) and remote sensing in land-use analyses to suggest urban development policies.
- Evaluated transit demand and performance using field data collection and stated preference surveys.

National Laboratory of Materials (LanammeUCR), University of Costa Rica

Supervisors: Fabian Elizondo, MBA   *January 2012 - December 2012*

- Implemented image analysis techniques to evaluate chip seals' bleeding.
- Evaluated laboratory performance of pavement maintenance treatments.
- Suggested revisions to Costa Rican specifications for chip seal design and construction.

Pedagogical Training

Graduate Certificate in Engineering Education   *May 2020*

Cockrell School of Engineering, University of Texas at Austin   *Austin, TX*

Completed a 16-credits training in teaching engineering offered by the Cockrell School of Engineering. The program allows current engineering student to gain experience in teaching undergraduate engineering courses, learn more about research on teaching and learning, and develop their own ideas and philosophy on teaching. *Graduate coursework:* Knowing and Learning in STEM Education, Supervised Teaching in Civil Engineering, Assessment and Curriculum Design in Engineering, Engineering Teaching Practicum, Teaching Portfolio Preparation.

Advanced Teaching Preparation Certificate   *Fall 2018*

Faculty Innovation Center, University of Texas at Austin   *Austin, TX*

Completed a series of seven sessions on developing teaching skills, including pedagogical theory, cognitive learning theories, inclusive teaching practices, working with students with disabilities, structuring lesson plans, fostering student participation, and assessment.

Inclusive Classrooms Leadership Certificate   *Nov. 2018*

Division of Diversity and Community Engagement, University of Texas at Austin   *Austin, TX*

Completed a 2-day workshop focused on strategies for developing and sustaining an inclusive classroom climate.

Mentoring Experience

MENTOR

Argonne National Laboratory
Summer Research Interns: Jesus Osorio (UIUC) and Isaac Salvador (UIC)   *Summer 2024*

Women in Engineering Program (WEP), University of Texas at Austin
Graduates Linked with Undergraduates in Engineering (GLUE) Program   *Fall 2017 / Spring, Fall 2019*

Department of Mathematics, University of Texas at Austin
Directed Reading Program (DRP)   *Fall 2018*

Center for Transportation Research (CTR), University of Texas at Austin
University Transportation Center Undergraduate Internship (UTC-UI) Program   *Summer 2015 / Summer 2016*

UNDERGRADUATE STUDENTS SUPERVISED

GLUE Program: Neve Enloe (Fall 2019) / Emily Tyndall (Spring 2019) / Tiffany Tang (Fall 2017), *winner of the GLUE Award.*
DRP Program: Emily Nguyen (Fall 2018), *winner of the 2018 Carey Scholarship.*
UTC-UI Program: Luis Arruti (Summer 2016) / Andres Sanchez (Summer 2015).

Leadership and Relevant Activities

***Communications Co-Chair and Committee Member*, TRB Artificial Intelligence and Advanced Computing Applications (AED50) committee**   *2023 - Present*
Transportation Research Board (TRB)
- In charged of the committee website.

***Committee Member*, TRB Geographic Information Science (AED40) committee**   *2023 - Present*
Transportation Research Board (TRB)
- Active member and paper reviewer.

***Member*, Benefits Advisory Committee (BAC),**   *2023 - Present*
Argonne National Laboratory (ANL)
- Working directly with the Laboratory Director, Paul Kearns, ensuring that inputs from Argonne employees are considered in Argonne management's benefit plan determinations.

***Representative*, Advanced Energy Technologies (AET) DEIA Council**   *2022 - Present*
Argonne National Laboratory (ANL)
- Developing the directorate's DEIA goals.

***Chair*, Committee for Operational Efficiency, Postdoctoral Society of Argonne (PSA)**   *2022 - 2023*
Argonne National Laboratory (ANL)
- In charged of developing changes to the current PSA structure to improve operational efficiency.

***Vice President*, Postdoctoral Society of Argonne (PSA)**   *2021 - 2022*
Argonne National Laboratory (ANL)
- Organized professional development activities for postdoctoral researchers.

***Chair*, Tenant Advisory Board (TAB)**   *2019 - 2020*
University Housing and Dining, University of Texas at Austin
- Lead the proposal of community improvement projects ($500k+) that affected 800+ students residents of the university.

***Committee Member*, University of Texas Shuttle Bus Committee**   *2016 - 2020*
Parking and Transportation Services, University of Texas at Austin
- Advocated for improvements for the university shuttle bus accessing graduate student housing facilities.

***President*, Women in Transportation Seminar (WTS) Student Chapter**   *2017 - 2018*
Cockrell School of Engineering, University of Texas at Austin
- Reactivated the student chapter, successfully engaging 100+ students and professionals by promoting diverse activities.

***Seminar Series Director*, Graduate Engineering Council (GEC)** *2017 - 2018*

Cockrell School of Engineering, University of Texas at Austin

- Implemented a series of professional development seminars for graduate engineering students. Increased student participation by 125% by increasing events' advertisements.

***Committee Chair*, Women in Transportation Seminar (WTS)** *2018 - 2020*

Heart of Texas (WTS-HOT) Professional Chapter

- In charge of the communication between the professional and the student chapters as the Student Liaison. Increased students' participation and help with an increment of 300% of the initial students' budget.

***Friend of Committee*, Transportation Research Board (TRB)** *2017 - 2020*

Artificial Intelligence and Advanced Computing Applications AED50 (formerly ABJ70)

- Improved the communication channels by developing updates to the committee website that reaches 200+ members.

Conference and Journal Referee

Transportation	*2024 - Present*
Transportation Research Part C: Emerging Technologies	*2024 - Present*
Transportation Research Part D: Transport and Environment	*2020 - Present*
International Journal of Transportation Science and Technology	*2020 - Present*
Transport: Proceedings of the Institution of Civil Engineers	*2020 - Present*
International Journal of Pavement Engineering, Taylor & Francis	*2020 - Present*
Transportation Research Record (TRR) Journal, SAGE Journals	*2017 - Present*
Transportation Research Board (TRB) Annual Meeting, NASEM	*2017 - Present*

Graduate Coursework

Transportation Engineering: Public Transportation Engineering, Infrastructure System Management, Sensors and Signal Interpretation, Linear Regression and Discrete Choice Methods, Transportation Network Analysis, Advanced Theory of Traffic Flow.

Statistics and Data Sciences: Design and Analysis of Experiments (ANOVA), Bayesian Statistical Methods, Statistical Consulting Seminar, Statistical Modeling, Statistical Models for Big Data, Mathematical Statistics I and II.

Engineering Education: Knowing and Learning in STEM Education, Supervised Teaching in Civil Engineering, Assessment and Curriculum Design in Engineering, Engineering Teaching Practicum, Teaching Portfolio Preparation.

Infrastructure Materials: Pavement Design and Performance, Paste and Concrete Rheology, Advanced Concrete Materials, Concrete Durability, Computational Methods for Geological Sciences, Advanced Legal Concepts in Civil Engineering.

Additional Skills

Languages	English *(Full professional)* | Spanish *(Native)* | Portuguese *(Elementary)*
Programming	R | Python | SQL | MATLAB | LaTeX