Shi'an Wang, Ph.D.

Curriculum Vitæ

Civil, Environmental & Architectural Engineering
The University of Kansas
1450 Jayhawk Blvd
Lawrence, KS 66045

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Education

- **Doctor of Philosophy**, Civil Engineering (Transportation) Dec. 2022
  University of Minnesota Twin Cities, Minneapolis, United States
  Dissertation: *Planning, operation, and management of automated transportation systems: A control-theoretic perspective* (*2023 IEEE ITS Best Dissertation Award–First Prize*, IEEE ITS Society)
  Advisor: Michael W. Levin (also worked closely with Raphael Stern)
- **Master of Applied Science**, Electrical Engineering (Systems and Control) Apr. 2018
  University of Ottawa, Ottawa, Canada (Received full scholarship)
  Advisor: Nasir Uddin Ahmed
- **Bachelor of Engineering**, Automation (Traffic Information & Control) July 2016
  Chang'an University, Xi'an, P.R. China (Highest Honors)

Academic Appointments

- **Assistant Professor** Aug. 2025–present
  Department of Civil, Environmental, and Architectural Engineering
  Department of Electrical Engineering and Computer Science (Courtesy)
  The University of Kansas
- **Assistant Professor** Jan. 2023–Aug. 2025
  Department of Electrical and Computer Engineering
  The University of Texas at El Paso

Academic Employment

- **Graduate Research/Teaching Assistant** July 2019–Dec. 2022
  Department of Civil, Environmental, and Geo- Engineering
  University of Minnesota – Twin Cities
- **Graduate Research/Teaching Assistant** Sep. 2016–Apr. 2018
  School of Electrical Engineering and Computer Science
  University of Ottawa

Honors and Awards

- University Research Institute Award, University of Texas at El Paso, $5,000 2025
- Best Paper Runner-Up Award, IEEE Forum for Innovative Sustainable Transportation Systems 2024
- Ralph E. Powe Junior Faculty Enhancement Awards, Oak Ridge Associated Universities (ORAU), UTEP Nominee 2023
- IEEE ITS Best Dissertation Award–First Prize, IEEE Intelligent Transportation Systems Society, $2,000 (For the best dissertation in any ITS area that is innovative and relevant to practice) 2023
- Best Dissertation Award for the Dept. of Civil, Environmental, and Geo- Eng., Univ. of Minnesota, $500 (The only awardee of the CEGE Dept., for dissertations submitted between 7/1/2021 and 4/5/2023) 2023
- Rising STARs (Science and Technology Acquisition and Retention) Award, The University of Texas System, $280,000 (For recruiting the best qualified faculty) 2023

- Doctoral Dissertation Fellowship Conference Presentation Grant, University of Minnesota, $1,000 2022
- Hsiao Shaw-Lundquist Fellowship, University of Minnesota, $2,000 2022
- Doctoral Dissertation Fellowship, University of Minnesota, $25,000 2022
  (Awarded to the University's most accomplished Ph.D. candidates; the only awardee of the CEGE department for the 2022–23 academic year)
- Matthew J. Huber Award, University of Minnesota, $1,500 2022
  (For excellence in Transportation Research and Education; one doctoral winner per year)
- Transportation Research Board (TRB) Student Travel Award, University of Minnesota, $1,000 2020–2022
- 2021 American Control Conference Student Travel Grant (without travel due to Covid-19) 2021
- 2020 ITS Minnesota Graduate Student Scholarship Award, ITS Minnesota, MnDOT, $1,000 2020
  (To reward exceptional students for their interest in the transportation industry, particularly intelligent transportation systems; two graduate winners per year)
- Departmental Fellowship, University of Minnesota, $47,000 2019
  (Awarded to the best incoming Ph.D. students in Civil, Environmental, and Geo- Engineering)
- Full Scholarship, University of Ottawa 2016–2018
- CUPE Employees Financial Aid Fund, University of Ottawa 2016, 2017, 2018
- Financial Aid Bursary (international students), University of Ottawa 2016, 2017
- Outstanding Undergraduate Student (with highest honors), Chang'an University 2016
- "Merit Student" Scholarship (top 6%), Chang'an University 2015
- "Ruihuaying" Scholarship (top 3%), First Prize for Academic Excellence, Chang'an University 2014
- National Endeavor Scholarship (top 3% nationwide), Ministry of Education of P.R. China 2014
- National Scholarship (top 0.2% nationwide), Ministry of Education of P.R. China 2013
  (Awarded to undergraduates with the highest academic achievements)

Peer-Reviewed Books

2. Ahmed, N. U. & S. Wang. Measure–Valued Solutions for Nonlinear Evolution Equations on Banach Spaces and Their Optimal Control. *Springer*, 2023 (227 pages). URL:
1. Ahmed, N. U. & S. Wang. Optimal Control of Dynamic Systems Driven by Vector Measures: Theory and Applications. *Springer*, 2021 (320 pages). URL:

Peer-Reviewed Journal Articles

(Underline indicates student supervised/mentored)

28. Guo, J., S. Wang, S. He, M. Zamanpour, & Z. Sun. Energy-efficient control of connected autonomous electric vehicles in mixed traffic with human-driven vehicles. *Transportation Research Record: Journal of the Transportation Research Board*.
27. Wang, S., M. W. Levin, & R. Stern. String stable control design for automated vehicles under cyberattacks. *Journal of Intelligent Transportation Systems*, 1–13. URL:
26. Pang, S., D. Patel, Y. Liu, S. Wang, C. Lin, S. He, & T. Li (2026). Large language models for car following in automated driving: Opportunities and challenges. *Artificial Intelligence for Transportation*, 6, 100047. URL:
25. He, S., S. Wang, Y. Shao, Z. Sun, & M. W. Levin (2026). A connectivity–based real–time traffic prediction considering lane–changing maneuvers with application to eco-driving control of electric vehicles. *IEEE Transactions on Vehicular Technology*, 75(1), 168–181. URL:
24. Pan, M., W. Li, C. Wang, S. Wang, F. Li, J. Dong, & J. New (2025). Evaluating system responses to electric vehicle charging infrastructure expansion through data–driven simulation. *Sustainable Energy Technologies and Assessments*, 82, 104565. URL:

23. Aguilar, J. A. & S. Wang (2025). Dynamic modeling and optimal planning for integrating electric vehicles and renewable energy into coupled traffic-power systems. *IEEE Transactions on Intelligent Transportation Systems*, 26(11), 19214–19226. URL:
22. Wang, S. (2025). An analytical framework for modeling and synthesizing malicious attacks on adaptive cruise control vehicles. *Transportation Research Record: Journal of the Transportation Research Board*, 2679(5), 142–156. URL:
21. Aguilar, J. A. & S. Wang (2025). Impacts of electric vehicles on traffic–power systems: A review. *International Journal of Sustainable Transportation*, 19(2), 103–120. URL:
20. Li, T., M. Shang, S. Wang, & R. Stern (2024). Detecting subtle cyberattacks on adaptive cruise control vehicles: A machine learning approach. *IEEE Open Journal of Intelligent Transportation Systems*, 6, 11–23. URL:
19. Ahmed, S. & S. Wang (2024). A systematic review of the impacts of electric vehicles on evolving transportation systems. *Digital Transportation and Safety*, 3(4), 220–232. URL:
18. Wang, S. (2024). Autonomous vehicle control through socially compliant human–robot interactions with an application to eco–driving. *IEEE Transactions on Intelligent Transportation Systems*, 25(11), 17821–17830. URL:
17. Wang, S., M. Shang, & R. Stern (2024). Analytical characterization of cyberattacks on adaptive cruise control vehicles. *IEEE Transactions on Intelligent Transportation Systems*, 25(11), 16409–16420. URL:
16. Shang, M., S. Wang, & R. Stern (2024). A two–condition continuous asymmetric car–following model for adaptive cruise control vehicles. *IEEE Transactions on Intelligent Vehicles*, 9(2), 3975–3985. URL:
15. Wang, S., M. W. Levin, & R. Stern (2023). Optimal feedback control law for automated vehicles in the presence of cyberattacks: A min–max approach. *Transportation Research Part C: Emerging Technologies*, 153, 104204. URL:
14. Shang, M., S. Wang, & R. Stern (2023). Extending ramp metering control to mixed autonomy traffic flow with varying degrees of automation. *Transportation Research Part C: Emerging Technologies*, 151, 104119. URL:
13. Wang, S., A. Mahlberg, & M. W. Levin (2023). Optimal control of automated vehicles for autonomous intersection management with design specifications. *Transportation Research Record: Journal of the Transportation Research Board*, 2677(2), 1643–1658. URL:
12. Wang, S., M. Shang, M. W. Levin, & R. Stern (2023). A general approach to smoothing nonlinear mixed traffic via control of autonomous vehicles. *Transportation Research Part C: Emerging Technologies*, 146, 103967. URL:
11. Wang, S., Z. Li, & M. W. Levin (2022). Optimal policy for integrating autonomous vehicles into the auto market. *Transportation Research Part C: Emerging Technologies*, 143, 103821. URL:
10. Sun. W., S. Wang, Y. Shao, Z. Sun, & M. W. Levin (2022). Energy and mobility impacts of connected autonomous vehicles with co–optimization of speed and powertrain on mixed vehicle platoons. *Transportation Research Part C: Emerging Technologies*, 142, 103764. URL:
9. Wang, S., R. Stern, & M. W. Levin (2022). Optimal control of autonomous vehicles for traffic smoothing. *IEEE Transactions on Intelligent Transportation Systems*, 23(4), 3842–3852. URL:
8. Ahmed, N. U. & S. Wang (2021). Optimal control of nonlinear hybrid systems driven by signed measures with variable intensities and supports. *SIAM Journal on Control and Optimization*, 59(6), 4268–294. URL:
7. Wang, S., M. W. Levin, & R. J. Caverly (2021). Optimal parking management of connected autonomous vehicles: A control–theoretic approach. *Transportation Research Part C: Emerging Technologies*, 124, 102924. URL:
6. Ahmed, N. U. & S. Wang (2021). Measure–driven nonlinear dynamic systems with applications to optimal impulsive controls. *Journal of Optimization Theory and Applications*, 188(1), 26–51. URL:

5. Wang, S. & N. U. Ahmed (2021). Optimal control and stabilization of building maintenance units based on minimum principle. *Journal of Industrial and Management Optimization*, 17(4), 1713–1727. URL:
4. Wang, S. & N. U. Ahmed (2019). Optimal relaxed control for a class of nonlinear and nonconvex dynamic systems. *Dynamics of Continuous, Discrete and Impulsive Systems Series A: Mathematical Analysis*, 26(4), 279–290. URL:
3. Wang, S., N. U. Ahmed, & T. H. Yeap (2019). Optimum management of urban traffic flow based on a stochastic dynamic model. *IEEE Transactions on Intelligent Transportation Systems*, 20(12), 4377–4389. URL:
2. Wang, S. & N. U. Ahmed (2019). Optimum management of the network of city bus routes based on a stochastic dynamic model. *Journal of Industrial and Management Optimization*, 15(2), 619–631. URL:
1. Wang, S. & N. U. Ahmed (2017). Dynamic model of urban traffic and optimum management of its flow and congestion. *Dynamic Systems and Applications*, 26, 575–587. URL:

Peer-Reviewed Conference Proceedings

21. Ahmed, S., S. Wang., & A. Kondyli. Examining the effectiveness of traffic-smoothing autonomous vehicle controllers in the presence of lane-changing maneuvers. *The 37th IEEE Intelligent Vehicles Symposium (IV 2026).*
20. Li, T., S. Wang, M. Shang, S. Choi, & R. Stern (2024). A customizable neural network based framework for autonomous vehicle control with human-guided learning. *The 27th IEEE International Conference on Intelligent Transportation Systems (ITSC 2024)*, 3064–3069. URL:
19. Aguilar, J. A., F. Sepulveda, & S. Wang (2024). An impact evaluation of strategic cyberattacks on autonomous vehicles: Safety, mobility, and energy consumption. *The 27th IEEE International Conference on Intelligent Transportation Systems (ITSC 2024)*, 2524–2529. URL:
18. Aguilar, J. A. & S. Wang (2024). A simple and efficient speed control method for autonomous vehicles to improve traffic performance. *The 27th IEEE International Conference on Intelligent Transportation Systems (ITSC 2024)*, 1348–1353. URL:
17. Caballero, H., Y. Sang, & S. Wang (2024). An energy–efficient routing algorithm for electric delivery trucks considering battery constraints and traffic flow. *The 56th North American Power Symposium (NAPS 2024).* URL:
16. Aguilar, J. A., S. Wang, & M. Velez-Reyes (2024). Impacts of electric adaptive cruise control vehicles on emergent traffic flow: A simulation study. *The 56th North American Power Symposium (NAPS 2024).* URL:
15. Shang, M., S. Wang, T. Li, & R. Stern (2024). Interaction–aware model predictive control for autonomous vehicles in mixed–autonomy traffic. *The 35th IEEE Intelligent Vehicles Symposium (IV 2024)*, 317–322. URL:
14. Li, T., S. Wang, M. Shang, & R. Stern (2024). Can cyberattacks on adaptive cruise control vehicles be effectively detected? *The 35th IEEE Intelligent Vehicles Symposium (IV 2024)*, 323–328. URL:
13. Aguilar, J. A. & S. Wang (2024). Energy impacts of traffic–smoothing cruise controllers on mixed traffic. *The 4th IEEE Forum for Innovative Sustainable Transportation Systems (FISTS 2024)*, 1–6. URL: *(Best Paper Runner-Up Award)*
12. Shang, M., S. Wang, & R. Stern (2023). Capacity implications of personalized adaptive cruise control. *The 26th IEEE International Conference on Intelligent Transportation Systems (ITSC 2023)*, 3168–3173. URL:
11. Li, T., B Rosenblad, S. Wang, M. Shang, & R. Stern (2023). Exploring energy impacts of cyberattacks on adaptive cruise control vehicles. *The 34th IEEE Intelligent Vehicles Symposium (IV 2023).* URL:

10. Wang, S. (2023) A novel framework for modeling and synthesizing stealthy cyberattacks on driver–assist enabled vehicles. *The 34th IEEE Intelligent Vehicles Symposium (IV 2023)*. URL:
9. He, S., S. Wang, Y. Shao, Z., Sun, & M. W. Levin (2023). Real–time traffic prediction considering lane changing maneuvers with application to eco–driving control of electric vehicles. *The 34th IEEE Intelligent Vehicles Symposium (IV 2023)*. URL:
8. Li, T., M. Shang, S. Wang, M. Filippelli, & R. Stern (2022). Detecting stealthy cyberattacks on automated vehicles via generative adversarial networks. *The 25th IEEE International Conference on Intelligent Transportation Systems (ITSC 2022)*, 3632–3637. URL:
7. Shang, M., S. Wang, & R. Stern (2022). Modeling adaptive cruise control vehicles: a continuous asymmetric car–following perspective. *The 25th IEEE International Conference on Intelligent Transportation Systems (ITSC 2022)*, 923–928. URL:
6. Wang, S., M. Shang, M. W. Levin, & R. Stern (2022). Smoothing nonlinear mixed traffic with autonomous vehicles: control design. *The 25th IEEE International Conference on Intelligent Transportation Systems (ITSC 2022)*, 661–666. URL:
5. Wang, S. & Z. Li (2021). Optimal policy for integration of automated vehicles into the auto market: A control–theoretic perspective. *The 24th IEEE International Conference on Intelligent Transportation Systems (ITSC 2021)*, 3470–3475. URL:
4. Sun. W., S. Wang, Y. Shao, Z. Sun, & M. W. Levin (2021). Traffic prediction for connected vehicles on a signalized arterial. *The 24th IEEE International Conference on Intelligent Transportation Systems (ITSC 2021)*, 1968–1973. URL:
3. Wang, S., M. W. Levin, & R. J. Caverly (2021). Optimal parking management of connected autonomous vehicles. *The 2021 American Control Conference (ACC 2021)*, 1022–1027. URL:
2. Wang, S. & N. U. Ahmed (2018). Stochastic dynamic model of city bus routes and their optimum management. *The 4th IEEE International Conference on Control Science and Systems Engineering (ICCSSE 2018)*, 427–432. URL:
1. Wang, S. & N. U. Ahmed (2018). Dynamic model of bank queuing system and its optimal management. *The 4th IEEE International Conference on Control Science and Systems Engineering (ICCSSE 2018)*, 510–514. URL:

Teaching Experience

- **Instructor, The University of Kansas**
  CE 883: Transportation Cyber-Physical Systems
  – Fall 2026
  CE 240: Geomatics
  – Spring 2026
  CE 786: Highway Safety
  – Fall 2025
- **Instructor, The University of Texas at El Paso**
  ECE 5380/6380: Linear Systems Analysis, Spring 2025
  ECE 4390/5390: Transportation Cyber-Physical Systems, Spring 2024, 2025
  ECE 4338/5390: Systems and Controls, Fall 2024
  ECE 4364/5390: Systems and Controls, Fall 2023
- **Teaching Assistant, University of Minnesota**
  CEGE 3201: Transportation Engineering (35 students; course rating: 5.68/6.0), Spring 2021
  Responsibilities: Ran weekly 2-hour discussion sections, held weekly office hours.
- **Teaching Assistant, University of Ottawa**
  ELG 4159: Integrated Control Systems (92 students), Spring 2018
  Responsibilities: Delivered bi-weekly 2-hour tutorials, held regular office hours, graded assignments and exams.

ELG 4156: Linear Systems (59 students), Fall 2017
Responsibilities: Taught bi-weekly 2-hour tutorial sections, graded assignments and exams, met with groups regularly to answer their questions on lecture and projects.
ELG 3155: Introduction to Control Systems (81 students), Spring 2017
Responsibilities: Delivered bi-weekly 2-hour tutorials, graded assignments and exams.

- **Lab Instructor, University of Ottawa**
  ELG 2336: Electric Circuits and Machines for Mechanical Engineering (96 students), Spring 2017
  Responsibilities: Led weekly lab experiments, graded lab reports.

Invited Talks

17. Wang, S. The future of transportation: Emerging cyber-physical systems. ASCE Student Chapter at the University of Kansas, Lawrence, Kansas, April 24, 2026.
16. Wang, S. Towards transportation cyber-physical systems: Integrating vehicle control with traffic priors. Graduate Research Seminar at Texas A&M University, College Station, Texas, April 15, 2026. (virtual)
15. Wang, S. A unified framework for integrating vehicle control and traffic priors in transportation cyber-physical systems. Guest lecture for EECS 690/700 at the University of Kansas, Lawrence, Kansas, November 18, 2025.
14. Wang, S. Automation and Electric Vehicles: Shaping the Future of Safety, Mobility, and the Environment. Lawrence Electric Vehicle Showcase, Lawrence, Kansas, October 12, 2025
13. Wang, S. Harmonizing vehicle control and traffic priors in transportation cyber-physical systems (T-CPS): A unified framework. CEAE Seminar at the University of Kansas, Lawrence, Kansas, February 28, 2025.
12. Wang, S. Harmonizing vehicle control and traffic priors in transportation cyber-physical systems (T-CPS): A unified framework. CEAE Seminar at Worcester Polytechnic Institute, Worcester, Massachusetts, February 21, 2025.
11. Wang, S. A unified framework for harmonizing vehicle control and traffic priors in transportation cyber-physical systems (T-CPS). CEE Seminar at Utah State University, Logan, Utah, January 31, 2025.
10. Wang, S. Bridging vehicle control and traffic flow: A system science approach with traffic priors. CEE Seminar at Temple University, Philadelphia, Pennsylvania, January 15, 2025.
9. Wang, S. Harmonizing systems science and traffic priors: Advancing the path to autonomy in transportation systems. BCEE Seminar at Concordia University, Montreal, Canada, February 22, 2024.
8. Wang, S. Harmonizing systems science and traffic priors: Advancing the path to autonomy in transportation systems. CAEE Seminar at the University of Texas at Austin, Austin, Texas, February 7, 2024.
7. Wang, S. Leveraging emerging vehicular technologies to improve mixed autonomy traffic. ECE Junior Professional Orientation, The University of Texas at El Paso, April 14, 2023.
6. Wang, S. A general approach to smoothing nonlinear mixed traffic via control of autonomous vehicles. New Mexico Transportation and Construction Conference (2023 NM TransCon), Las Cruces, New Mexico, April 13, 2023.
5. Wang, S. Leveraging connected automated vehicle technologies to improve mixed autonomy traffic: lessons learned and challenges ahead. Guest Lecturer at Texas A&M University, College Station, Texas, March 9, 2023. (virtual)
4. Wang, S. Optimal feedback control law for automated vehicles in the presence of cyberattacks: A min–max approach. Invited Session on Modeling and Control of Traffic in a Smart–Cities Environment at the 2022 INFORMS Annual Meeting, Indianapolis, IN, October 17, 2022.
3. Wang, S. Mixed-autonomy traffic: A control-theoretic perspective. ECE Seminar at The University of Texas at El Paso, El Paso, Texas, January 13, 2022.

2. Wang, S. Stochastic dynamic model of urban traffic and optimum management of its flow and congestion. Institute for Systems Theory and Automatic Control, University of Stuttgart, Stuttgart, Germany, January 31, 2019.
1. Wang, S. Stochastic dynamic model of urban traffic and optimum management of its flow and congestion. Max Planck Institute for Intelligent Systems, Stuttgart, Germany, January 30, 2019.

Presentations

49. Geffen, G., J. Zhao, M. Shang, S. Wang, & Y-J. Wu. Impacts of driver-assistance-enabled electric vehicles on safety, mobility, and the environment: An empirical study. Presented at the *ASCE International Conference on Transportation and Development (ICTD 2026)*, June 2026 in Detroit, MI.
48. Ahmed, S., S. Wang., & A. Kondyli. Effectiveness of traffic-smoothing autonomous vehicle controllers in the presence of lane-changing maneuvers. Presented at the *37th IEEE Intelligent Vehicles Symposium (IV 2026)*, June 2026 in Detroit, MI.
47. Geffen, G., J. Zhao, M. Shang, S. Wang, & Y-J. Wu. Impacts of driver-assistance-enabled electric vehicles on safety, mobility, and the environment: An empirical study. Presented at the *2026 Safe Mobility Conference*, March 2026 in Seattle, WA.
46. Geffen, G., J. Zhao, M. Shang, S. Wang, & Y-J. Wu. Impacts of driver-assistance-enabled electric vehicles on safety, mobility, and the environment: An empirical study. Presented at the *105th Annual Meeting of the Transportation Research Board*, January 2026 in Washington, D.C.
45. Li, T. & S. Wang. Exploring the macroscopic impacts of electric ACC: Insights from microscopic vehicle trajectory data. Presented at the *ASCE International Conference on Transportation and Development (ICTD 2025)*, June 2025 in Glendale, AZ.
44. Aguilar, J. A. & S. Wang. Dynamic modeling and optimal planning for the simultaneous integration of electric vehicles and renewable energy sources into the traffic-power system. Presented at the *104th Annual Meeting of the Transportation Research Board*, January 2025 in Washington, D.C.
43. Guo, J., S. Wang, & Z. Sun. An optimization framework for safety-critical longitudinal control of connected autonomous electric vehicles in mixed traffic. Presented at the *104th Annual Meeting of the Transportation Research Board*, January 2025 in Washington, D.C.
42. Wang, S., J. A. Aguilar, & M. Velez-Reyes. Traffic smoothing via automated vehicle control with optimal parameter selection. Presented at the *104th Annual Meeting of the Transportation Research Board*, January 2025 in Washington, D.C.
41. Caballero, H., Y. Sang, & S. Wang. An energy-efficient routing algorithm for electric delivery trucks considering battery constraints and traffic flow. Presented at the *56th North American Power Symposium (NAPS 2024)*, October 2024 in El Paso, TX.
40. Aguilar, J. A., S. Wang, & M. Velez-Reyes. Impacts of electric adaptive cruise control vehicles on emergent traffic flow: A simulation study. Presented at the *56th North American Power Symposium (NAPS 2024)*, October 2024 in El Paso, TX.
39. Aguilar, J. A., F. Sepulveda, & S. Wang. An impact evaluation of strategic cyberattacks on autonomous vehicles: Safety, mobility, and energy consumption. Presented at the *27th IEEE International Conference on Intelligent Transportation Systems (ITSC 2024)*, September 2024 in Edmonton, Canada.
38. Aguilar, J. A. & S. Wang. A simple and efficient speed control method for autonomous vehicles to improve traffic performance. Presented at the *27th IEEE International Conference on Intelligent Transportation Systems (ITSC 2024)*, September 2024 in Edmonton, Canada.
37. Li, T., S. Wang, M. Shang, S. Choi, & R. Stern. A customizable neural network based framework for autonomous vehicle control with human-guided learning. Presented at the *27th IEEE International Conference on Intelligent Transportation Systems (ITSC 2024)*, September 2024 in Edmonton, Canada.

36. Shang, M., S. Wang, T. Li, & R. Stern. Interaction–aware model predictive control for autonomous vehicles in mixed-autonomy traffic. Presented at the *35th IEEE Intelligent Vehicles Symposium (IV 2024)*, June 2024 in Jeju Island, Korea.
35. Li, T., S. Wang, M. Shang, & R. Stern. Can cyberattacks on adaptive cruise control vehicles be effectively detected? Presented at the *35th IEEE Intelligent Vehicles Symposium (IV 2024)*, June 2024 in Jeju Island, Korea.
34. Aguilar, J. A. & S. Wang. Energy impacts of traffic–smoothing cruise controllers on mixed traffic. Presented at the *New Mexico Transportation and Construction Conference (2024 NM TransCon)*, April 2024 in Las Cruces, NM.
33. Sepulveda, F., J. A. Aguilar, & S. Wang. An impact evaluation of strategic cyberattacks on autonomous vehicles: Safety, mobility, and energy consumption. Presented at the *New Mexico Transportation and Construction Conference (2024 NM TransCon)*, April 2024 in Las Cruces, NM.
32. Aguilar, J. A. & S. Wang. Energy impacts of traffic–smoothing cruise controllers on mixed traffic. Presented at the *4th IEEE Forum for Innovative Sustainable Transportation Systems (FISTS 2024)*, February 2024 in Riverside, CA. *(Best Paper Runner-Up Award)*
31. Wang, S. Socially compliant human–robot interactions: Application to eco–driving control of autonomous vehicles. Presented at the *103rd Annual Meeting of the Transportation Research Board*, January 2024 in Washington, D.C.
30. Guo, J., S. Wang, M. Zamanpour, S. He, & Z. Sun. Optimizing the energy benefits of connected autonomous electric vehicles while considering human–driven vehicles. Presented at the *103rd Annual Meeting of the Transportation Research Board*, January 2024 in Washington, D.C.
29. Wang, S., M. Shang, & R. Stern. Analytical characterization of cyberattacks on adaptive cruise control vehicles. Presented at the *103rd Annual Meeting of the Transportation Research Board*, January 2024 in Washington, D.C.
28. Wang, S. Control, learning, and optimization for smart autonomous mobility systems. Lightning talk at the *NSF CISE Southwest Conference*, December 2023 in Tucson, AZ.
27. Shang, M., S. Wang, & R. Stern. Capacity implications of personalized adaptive cruise control. Presented at the *26th IEEE International Conference on Intelligent Transportation Systems (ITSC 2023)*, September 2023 in Bizkaia, Spain.
26. Li, T., B Rosenblad, S. Wang, M. Shang, & R. Stern. Exploring energy impacts of cyberattacks on adaptive cruise control vehicles. Presented at the *34th IEEE Intelligent Vehicles Symposium (IV 2023)*, June 2023 in Anchorage, AK.
25. Wang, S. A novel framework for modeling and synthesizing stealthy cyberattacks on driver–assist enabled vehicles. Presented at the *34th IEEE Intelligent Vehicles Symposium (IV 2023)*, June 2023 in Anchorage, AK.
24. He, S., S. Wang, Y. Shao, Z., Sun, & M. W. Levin. Real–time traffic prediction considering lane changing maneuvers with application to eco–driving control of electric vehicles. Presented at the *34th IEEE Intelligent Vehicles Symposium (IV 2023)*, June 2023 in Anchorage, AK.
23. Shang, M., S. Wang, & R. Stern. Modeling adaptive cruise control vehicle dynamics: A double–condition continuous asymmetric car-following model. Presented at the *102nd Annual Meeting of the Transportation Research Board*, January 2023 in Washington, D.C.
22. Wang, S., M. W. Levin, & R. Stern. String stable control design for automated vehicles in the presence of cyberattacks. Presented at the *102nd Annual Meeting of the Transportation Research Board*, January 2023 in Washington, D.C.
21. Li, T., M. Shang, S. Wang, & R. Stern. Understanding and detecting malicious cyberattacks on adaptive cruise control vehicles: A machine learning approach. Presented at the *102nd Annual Meeting of the Transportation Research Board*, January 2023 in Washington, D.C.
20. Li, T., M. Shang, S. Wang, & R. Stern. Understanding and detecting malicious cyberattacks on adaptive cruise control vehicles: A machine learning approach. Presented at the *NSF AI Transportation Workshop*, December 2022 in Gainesville, FL.

19. Wang, S., M. W. Levin, & R. Stern. Optimal feedback control law for automated vehicles in the presence of cyberattacks: A min-max approach. Presented at the *2022 INFORMS Annual Meeting*, October 2022 in Indianapolis, IN.

18. Li, T., M. Shang, S. Wang, M. Filippelli, & R. Stern. Detecting stealthy cyberattacks on automated vehicles via generative adversarial networks. Presented at the *25th IEEE International Conference on Intelligent Transportation Systems (ITSC 2022)*, October 2022 in Macau, China.

17. Shang, M., S. Wang, & R. Stern. Modeling adaptive cruise control vehicles: a continuous asymmetric car–following perspective. Presented at the *25th IEEE International Conference on Intelligent Transportation Systems (ITSC 2022)*, October 2022 in Macau, China.

16. Wang, S., M. Shang, M. W. Levin, & R. Stern. Smoothing nonlinear mixed traffic with autonomous vehicles: control design. Presented at the *25th IEEE International Conference on Intelligent Transportation Systems (ITSC 2022)*, October 2022 in Macau, China.

15. Li, T., M. Shang, S. Wang, & R. Stern. Detecting malicious cyberattacks on adaptive cruise control vehicles: A machine learning approach. Presentation at the *2022 Mid-Continent Transportation Research Symposium*, September 2022 in Ames, IA.

14. Wang, S. Smoothing nonlinear mixed traffic via control of automated vehicles. Presented at the *TRB Doctoral Student Session in Transportation Operations and Traffic Control of the 101st Annual Meeting of TRB*, January 2022 in Washington, D.C.

13. Wang, S., Z. Li, & M. W. Levin. Optimal policy for integration of autonomous vehicles into the auto market. Presented at the *101st Annual Meeting of the Transportation Research Board*, January 2022 in Washington, D.C.

12. Sun. W., S. Wang, Y. Shao, Z. Sun, & M. W. Levin. Energy and mobility impacts of connected autonomous vehicles with co–optimization of speed and powertrain on mixed vehicle platoons. Presented at the *101st Annual Meeting of the Transportation Research Board*, January 2022 in Washington, D.C.

11. Wang, S. Regulating mixed traffic flow: the power of automated vehicles. Presented at the *3–Minute Thesis Competition*, Department of Civil, Environmental, and Geo- Engineering, University of Minnesota, October 2021 in Minneapolis, MN.

10. Wang, S. & Z. Li. Optimal policy for integration of automated vehicles into the auto market: A control–theoretic perspective. Presented at the *24th IEEE International Conference on Intelligent Transportation Systems (ITSC 2021)*, September 2021 in Indianapolis, IN.

9. Sun. W., S. Wang, Y. Shao, Z. Sun, & M. W. Levin. Traffic prediction for connected vehicles on a signalized arterial. Presented at the *24th IEEE International Conference on Intelligent Transportation Systems (ITSC 2021)*, September 2021 in Indianapolis, IN.

8. Wang, S., M. W. Levin, & R. J. Caverly. Optimal parking management of connected autonomous vehicles. Presented at the *2021 American Control Conference*, May 2021 in New Orleans, LA.

7. Wang, S., R. Stern, & M. W. Levin. A compartmental model for traffic smoothing via optimal control of autonomous vehicles. Presented at the *100th Annual Meeting of the Transportation Research Board*, January 2021 in Washington, D.C.

6. Wang, S., M. W. Levin, & R. J. Caverly. Optimal parking management of connected autonomous vehicles: A control-theoretic approach. Presented at the *100th Annual Meeting of the Transportation Research Board*, January 2021 in Washington, D.C.

5. Wang, S., R. Chen, & M. W. Levin. Optimal distributed control of connected automated vehicles at autonomous intersections. Presented at the *99th Annual Meeting of the Transportation Research Board*, January 2020 in Washington, D.C.

4. Wang, S., R. Chen, & M. W. Levin. Optimal distributed control of connected automated vehicles at autonomous intersections. Presented at the *25th Annual ITS Minnesota Fall Forum*, November 2019 in Maplewood, MN.

3. Wang, S. & N. U. Ahmed. Stochastic dynamic model of city bus routes and their optimum management. Presented at the *IEEE 4th International Conference on Control Science and Systems Engineering (ICCSSE)*, August 2018 in Wuhan, China.
2. Wang, S. & N. U. Ahmed. Dynamic model of bank queuing system and its optimal management. Presented at the *IEEE 4th International Conference on Control Science and Systems Engineering (ICCSSE)*, August 2018 in Wuhan, China.
1. Wang, S. & N. U. Ahmed. Optimum management of the network of city bus routes based on a stochastic dynamic model. Presented at the *Graduate Research Poster Competition*, University of Ottawa, March 2018 in Ottawa, Canada.

Masters Supervisions Completed

1. Jose Carlos Acedo Aguilar (UTEP). *Dynamic modeling and optimal planning for the simultaneous integration of electric vehicles and renewable energy sources into the traffic-power system*, Spring 2025. *(UTEP Outstanding Thesis Nominee)*

M.S. Supervisions in Progress

Logan Pittman

Doctoral Committee Member

7. Saurav Shrestha (KU), *TBD*
6. Bahareh Bakhti (KU), *TBD*
5. Mahgam Tabatabaei (KU), *TBD*
4. Sabbir Ahmed (UTEP), *TBD*
3. Saima Zaheen (UTEP), *Converting crash narratives into intersection crash diagrams using machine learning and large language models*
2. Tasnim Anika Majumder (TXST), *Managing mixed traffic with electric vehicles—Lessons for future traffic control/operations*
1. Md Mahede Hasan Khan (TXST), *Lateral distribution of mixed powertrain traffic*

Master's Thesis Reader

3. Carson Payne, *TBD*
2. Aayush Maan Karki, *Evaluating the impact of single and double center line rumble strips (CLRS) on driver behavior*
1. (Co-chair) Jose Arvizu Astorga (UTEP), *Digital twin for real-time monitoring and control of conveyor systems using FlexSim, AI, and PLC integration*, Summer 2025

Undergraduate Research Assistants Supervised

Albert Agah (UGRA), Haveeair Caballero, Fernando Sepulveda

Honors and Awards for Supervised Students

- Undergraduate Research Award (UGRA): Albert Agah — May 2026
- UTEP Outstanding Thesis Nominee: Jose Carlos Acedo Aguilar — Apr. 2026
- Texas Instruments Foundation (TIF) Endowed Graduate Scholarship: Sabbir Ahmed — Feb. 2025
- Texas Instruments Foundation (TIF) Endowed Graduate Scholarship: Sabbir Ahmed — Sep. 2024

- IEEE ITSS 2024 conference support program for ITSC 2024: Jose Carlos Acedo Aguilar Aug. 2024
- The HITEC Foundation Scholarship: Fernando Sepulveda July 2024
- Best Paper Runner-Up Award of IEEE FISTS 2024: Jose Carlos Acedo Aguilar Feb. 2024
- Graduate Students Travel Award, College of Engineering at UTEP: Jose Carlos Acedo Aguilar Feb. 2024
- UTEP Mike Loya Center Miners Pitch Competition – First Place: Fernando Sepulveda Oct. 2023
- Oracle Developer Scholarship: Fernando Sepulveda Sep. 2023
- The Organization of American States (OAS) Academic Scholarship: Jose Carlos Acedo Aguilar Sep. 2023
- Dwight David Eisenhower Transportation Fellowship: Jacob Margolis Dec. 2021

Students Mentored (University of Minnesota)

4. Jacob Margolis, Master student in Civil Engineering, University of Minnesota
   Research on fuel efficient speed control for connected corridor deployment, July 2021–Aug. 2022
   Placement after graduation: IBI Group
3. Aidan Mahlberg, Sophomore in Computer Science, University of Minnesota
   Research on optimal control of autonomous vehicles at signal-free intersections, Mar. 2020–Dec. 2022
2. Claire Palmquist, Sophomore in Industrial and Systems Engineering, University of Minnesota
   Research on modeling and analysis of autonomous intersection management, Oct. 2019–Apr. 2020
   Placement after graduation: Andersen Corp.
1. Zhexian Li, Senior in Civil Engineering, University of Minnesota
   Research on optimal integration of automated vehicles into the auto market, July 2019–June 2020
   Placement after graduation: PhD student at University of Southern California

Technical Reports

1. Cost/benefit analysis of fuel efficient speed control using signal phasing and timing (SPaT) data: evaluation for future connected corridor deployment. Minnesota Department of Transportation. URL:

Professional Development

- Course Design Institute (CDI), KU Center for Teaching Excellence May 2026
- Lunch & Learn Series, Research & Innovation Division of UTEP 2024–2025
- DELTA New Faculty Institute program, American Society for Engineering Education Jan. 2024
- NSF Engineering CAREER Workshop Mock Panel Review Session May 2023
- NSF Engineering CAREER Workshop, National Science Foundation May 2023
- ACUE Fostering a Culture of Belonging Microcredential, Institute for Scholarship, Pedagogy, Innovation and Research Excellence (InSPIRE) at UTEP Spring 2023

University Services and Outreach

- Judge for the GEA Engineering Research Showcase, University of Kansas Apr. 2025
- Computer Committee, School of Engineering, University of Kansas 2025–
- Electrical and Computer Engineering Faculty Search Committee, UTEP 2024–2025
- FIRST LEGO League (FLL) Challenge, FLL judge, URL: Jan. 2025
- Summer 2024 COURI Symposium, judge for undergraduate researchers, UTEP, URL: Aug. 2024
- FIRST LEGO League (FLL) Challenge, FLL judge, URL: Jan. 2024
- Graduate Studies Committee, Electrical and Computer Engineering, UTEP June 2023–

- Spring 2023 COURI Symposium, judge for undergraduate researchers, UTEP, URL: Apr. 2023
- FIRST Tech Challenge (FTC), FTC judge, URL: Feb. 2023
- Graduate Student Board (Transportation Rep.), Department of Civil, Environmental, and Geo- Engineering, University of Minnesota 2020–2022

Professional Services

- **International Program Committee** (Associate Editor)

  The 37th IEEE Intelligent Vehicles Symposium (IV) 2025
- **Committee Member**

  IEEE ITSS Technical Committee on Automated Mobility in Mixed Traffic 2025–

  IEEE ITSS Technical Committee on Decision and Control in Transportation Systems 2025–

  IEEE Smart Cities Technical Committee of the IEEE Control Systems Society 2024–
- **Session Chair**

  Technical Session 2: Connected and Automated Vehicles, COTA TRB Winter Symposium, January 2025 in Washington D.C.
- **Invited Panelist for the National Science Foundation (NSF)** 2024
- **Organizing Committee**

  Midwest Innovation & Development in Transportation Symposium (MIDTRANS 2026), September 2026 in Lawrence, KS.

  Technical Session: *Resilient cooperative sensing, perception, and control for connected and automated vehicles*, IEEE International Symposium on Robotic and Sensors Environments (IEEE ROSE), May 2026 in Norfolk, VA.

  The 56th North American Power Symposium (NAPS2024), October 2024 in El Paso, TX.
- **Technical Program Committee (TPC)**

  The 3rd International Symposium on Intelligent Technology for Future Transportation (ITFT 2026), October 2026 in Glasgow, United Kingdom

  The 2nd International Symposium on Intelligent Technology for Future Transportation (ITFT 2025), November 2025 in London, United Kingdom

  The 1st International Symposium on Intelligent Technology for Future Transportation (ITFT 2024), October 2024 in Helsinki, Finland
- **Transportation Research Board (TRB), National Academies**

  Friend of the Young Members Coordinating Council (A0010C) 2023–

  Friend of the Network Modeling Committee (AEP40) 2020–

  Friend of the Traffic Flow Theory and Characteristics Committee (ACP50) 2020–

  Friend of the Intelligent Transportation Systems Committee (ACP15) 2020–
- **World Transport Convention (WTC)**

  Member of the Digital Transformation of Transportation Infrastructure Committee 2023

  Co-chair of the Travel Behavior Survey and Analysis Committee 2023
- **Professional memberships**

  Member of the IEEE Control Systems Society 2023–

  Member of the IEEE Intelligent Transportation Systems Society 2023–

  Member of the Institute of Electrical and Electronics Engineers (IEEE) 2023–

  Member of the International Federation of Automatic Control (IFAC) 2018–

Referee Services

- **Editorial Board:** *PLOS ONE* (Engineering and Technology section) 2023–
- **Journals refereed:** *Applied Sciences*, *Cogent Psychology*, *Electronics*, *Energy*, *Expert Systems with Applications*, *IEEE Transactions on Intelligent Transportation Systems*, *International Journal of Human-Computer Interaction*, *Mathematical Problems in Engineering*, *Mathematics*, *Robotics*, *SAE International Journal of Connected and Automated Vehicles*, *Science and Public Policy*, *Scientific Reports*, *Sensors*, *Sustainability*, *Transportation Engineering*, *Transportation Letters*, *Transportation Research Part B: Methodological*, *Transportation Research Part C: Emerging Technologies*, *Transportation Research Part D: Transport and Environment*, *Travel Behaviour and Society*
- **Conferences refereed:** *European Control Conference*, *IEEE Conference on Decision and Control*, *IEEE International Automated Vehicle Validation Conference*, *IEEE Intelligent Vehicles Symposium*, *IEEE International Conference on Intelligent Transportation Systems*, *IFAC Symposium on Fault Detection, Supervision and Safety for Technical Processes*, *Modeling, Estimation, and Control Conference*, *Transportation Research Board Annual Meeting*

Teaching Evaluations

Course (KU)	Semester	Enrollment	Instructor rating	Course rating
CE 786 Highway Safety	Fall 2025	8	4.67/5.0	–
Course (UTEP)	Semester	Enrollment	Instructor rating	Course rating
ECE 5380/6380 Linear Systems Analysis	Spring 2025	9	5.0/5.0	5.0/5.0
ECE 4390/5390 Transportation Cyber-Physical Systems	Spring 2025	6	4.5/5.0	4.5/5.0
ECE 4338/5390 Systems and Controls	Fall 2024	6	5.0/5.0	5.0/5.0
ECE 4390/5390 Transportation Cyber-Physical Systems	Spring 2024	10	4.89/5.0	4.67/5.0
ECE 4364/5390 Systems and Controls	Fall 2023	9	4.88/5.0	4.75/5.0