

## Adel W. Sadek, Ph.D.

Professor, Civil, Structural and Environmental Engineering  
Associate Director, Stephen Still Institute for Sustainable Transportation and Logistics (ISTL)  
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### ACADEMIC BACKGROUND

- **University of Virginia**, Charlottesville, VA  
Doctor of Philosophy, Civil Engineering (Transportation) May 1998  
**Dissertation:** Case-Based Reasoning for Real-time Traffic Management
- **University of Virginia**, Charlottesville, VA  
Master of Science, Civil Engineering (Transportation) May 1995  
**Thesis:** Performance Prediction Modeling of Virginia's Interstates
- **University of Alexandria**, Alexandria, Egypt  
Bachelor of Science, Civil Engineering May 1991  
Distinction with Degree of Honor

### PROFESSIONAL EXPERIENCE

- **University at Buffalo, The State University of New York**, Department of Civil, Structural and Environmental Engineering, School of Engineering and Applied Science  
Professor Sep. 2012 - present  
Associate Professor Aug. 2008 – Aug. 2012
- **Founding Director**, Stephen Still Institute for Sustainable Transportation & Logistics Jan. 2013 – Nov. 2017
- **Associate Director**, Stephen Still Institute for Sustainable Transportation & Logistics Nov. 2017 – present
- **Director**, Transportation Informatics Tier I University Transportation Center October 2013 - present
- **Chair**, UB2020 Strategic Initiative in Extreme Events: Mitigation and Response Aug. 2009 - Feb. 2015
- **University of Vermont**, School of Engineering, College of Engineering & Mathematical Sciences  
Associate Professor Aug. 2003 – Aug. 2008  
Assistant Professor Aug. 1998 – Aug. 2003
- **University of Vermont**, Computer Science Department, College of Engineering & Mathematical Sciences  
Associate Professor (secondary appointment) Jan. 2004 – present
- **University of Vermont**, Complex Systems Center, College of Engineering & Mathematical Sciences  
Co-Director Nov. 2006 – present
- **University of Vermont**, School of Engineering, College of Engineering & Mathematical Sciences  
Civil Engineering Program Director Sep. 2006 – present
- **Clemson University**, Department of Civil Engineering, Clemson, South Carolina  
Adjunct Associate Professor Sep. 2006 – present
- **Virginia Transportation Research Council**, Charlottesville, VA  
Graduate Research Assistant Sep. 1993 – May 1998
- **University of Alexandria**, Alexandria, Egypt  
Assistant Lecturer, Department of Civil Engineering Sep. 1991 - Aug. 93
- **The Consulting Engineering Office**, Alexandria, Egypt  
Design Engineer Jan. 1992 - Aug. 93

### AWARDS

- **National Science Foundation CAREER Award**, 2002 – 2007.
- **Milton Pikarsky Award** for best Ph.D. dissertation in the field of transportation science and technology, January 1999.
- **ASCE's Transportation and Development Institute Research Committee Research Commendation** for research on the operational benefits of retiming signals during inclement weather, *January 2006 Issue of ASCE News*.
- **TRB's Committee on Operational Effects of Geometrics** best paper award, January 2007.
- **Intelligent Transportation Society of New York (ITS-NY) Outstanding ITS Project of the Year**, June 2010.
- **IBM Smarter Planet Industry Skills Innovation Award**, 2011.
- **2012 ACM/IEEE/IFAB/TRB International Conference on Connected Vehicles & Expo (ICCVE 2012)**, best short paper award, December 2012.

## FUNDED RESEARCH PROJECTS

- ***Complete Trip Deployment in Buffalo, NY.*** Funded by the US Department of Transportation's Complete Trip – ITS4US Deployment Program. January 2021 – June 2025 (\$10,003,661). Principal Investigator of the UB Team, with C. Qiao, V. Paquet, J. Maisel, and E. Steinfeld.
- ***S&CC: Towards Quality Aware Crowdsourced Road Sensing for Smart Cities.*** Funded by the National Science Foundation. September 2017 – August 2020. (\$1,000,000). Co-Principal Investigator with L. Su (PI), C. Qiao, and A. Anas. Percent Effort: 15 %.
- ***MRI: Development of iCAVE2 (Instrument for Connected and Autonomous Vehicle Evaluation and Experimentation).*** Funded by the National Science Foundation. September 1, 2016 – August 2019. (\$1,714,286). Co-Principal Investigator with C. Qiao (PI), S. Wu, Q. He, and K. Hulme. Percent Effort: 8%.
- ***Self-Driving Electric Vehicles for Smart and Sustainable Mobility: Evaluation and Feasibility Study for Educational & Medical Campuses.*** Funded by New York State Energy and Research Development Authority and New York State Department of Transportation. July 2017 – June 2019. Principal Investigator. (\$695,941).
- ***Transportation Informatics University Transportation Center (TransInfo UTC): Harnessing the Power of Big Data in Support of USDOT Strategic Goals.*** Funded by the U.S. Department of Transportation, the Research and Innovative Technology Administration. October 2013 – September 2018. Principal Investigator (\$6,392,565).
- ***CHS: Small: Modeling Cyber Transportation and Human Interaction in Connected and Automated Vehicles.*** Funded by the National Science Foundation. December 2014 – November 2017. (\$499,952). Co-Principal Investigator with Sean Wu (PI), Chunming Qiao, Kevin Hulme. Percent Effort: 25%.
- ***Applications of Knowledge Discovery in Massive Transportation Data: The Development of a Transportation Research Informatics Platform (TRIP).*** Funded by the Federal Highway Administration Exploratory Research Program. (\$989,000). (March 2015 – February 2017). Co-Principal Investigator with CUBRC and Panagiotis Ch. Anastasopoulos (PI on the UB side). Percent Effort: 10%.
- ***IMS Staten Island Web and Smartphone Development, Deployment and Evaluation.*** Funded by New York State Department of Transportation. June 2012 – December 2014. Principal Investigator (\$616,501). Percent Effort: 20%.
- ***Exploring Novel Applications of Archived Transportation Data: Predicting Freeway Crash Risk, Border Crossing Delay and Inclement Weather Impacts.*** Funded by the U.S. Department of Transportation through Region II University Transportation Research Center. April 2012 – October 2013. Principal Investigator (\$150,000). Percent Effort: 50%.
- ***Addressing Design and Human Factors Challenges in Cyber-Transportation Systems.*** National Science Foundation. September 2010 – August 2013. (\$707,508). Co-Principal Investigator with Dr. Chunming Qiao, Kevin Hulme, and Changxu (Sean) Wu (Principal Investigator: Chunming Qiao). Percent Effort: 25%.
- ***An Evaluation of Likely Environmental Benefits of Lowest Fuel Consumption Route Guidance in the Buffalo-Niagara Metropolitan Area.*** Funded by the Federal Highway Administration. October 2010 – September 2011. Principal Investigator (\$40,000). Percent Effort: 100%.
- ***Using TRANSIMS for On-line Transportation System Management during Emergencies.*** Funded by the Federal Highway Administration. November 2009 – May 2010. Principal Investigator (\$226,000). Percent Effort: 70%.
- ***Reducing Vehicle Miles Traveled through Smart Land-use Design.*** Funded by New York State Energy Research and Development Authority. June 2009 – May 2011. Principal Investigator (\$103,622). Percent Effort: 60%.
- ***A Prototype Decision Support System for Optimally Routing Border Crossing Traffic Based on Predicted Border Crossing Times.*** Funded by the U.S. Department of Transportation through Region II University Transportation Research Center. January 2010 – December 2010. Principal Investigator (\$100,000). Percent Effort: 60%.

- ***Using TRANSIMS to Model University Campus Transportation Systems.*** Funded by the Federal Highway Administration. January 2009 – December 2009. Principal Investigator. (\$60,000). Percent Effort: 70%.
- ***Transportation System Management under Multiple Hazards – Phase II.*** Funded by the Federal Highway Administration. July 2009 – June 2010. Principal Investigator (35,000). Percent Effort: 65%.
- ***Freight Travel Demand Modeling under Multiple Hazards.*** Funded by the Federal Highway Administration. July 2009 – June 2010. Co-principal Investigator (\$35,000). Percent Effort: 35%.
- ***Transportation System Management under Multiple Hazards – Phase I.*** Funded by the Federal Highway Administration. October 2008 – June 2009. Principal Investigator (\$55,000). Percent Effort: 65%.
- ***Integrated Land-use, Transportation and Environmental Modeling: Complex Systems Approaches and Advanced Policy Applications.*** Funded by the University of Vermont Transportation Center. September 2007 – August 2010. (\$416,535). Principal Investigator. Percent Effort: 30%.
- ***Implementing the TRANSIMS Model in Chittenden County.*** Funded by the U.S. Department of Transportation. November 2006 – February 2008. (\$250,000) A joint proposal with Resource Systems Group, Inc. Principal Investigator of the UVM team. Percent Effort: 30%.
- ***Practicable Calibration Procedures to Enhance the Accuracy of Analytical and Micro-simulation Software for Modern Four-Legged Single-Lane Roundabouts.*** Funded by the New England University Transportation Center (NETC). January 2006 – August 2007. (\$75,000). Principal Investigator (Co-Principal Investigators: Lisa Aultman-Hall and Per Garder). Percent Effort: 80%.
- ***Identification of Crash-Prone Traffic Flow States on Freeways Using Real-Time Surveillance Data.*** Funded by the New England University Transportation Center (NEUTC). January 2006 – January 2007. (\$130,000). Co-Principal Investigator (Principal Investigator: John Ivan). Percent Effort: 30%.
- ***Warrants for Exclusive Left-turn Lanes at Unsignalized Intersections and Driveways.*** Funded by the New England University Transportation Center (NETC). May 2006 – November 2007. (\$100,000). Co-Principal Investigator (Principal Investigator: John Ivan). Percent Effort: 50%.
- ***A Systems Approach for Civil and Environmental Engineering Education: Integrating Systems Thinking, Inquiry-Based Learning and Catamount Community Service-Learning Projects.*** Funded by the National Science Foundation. September 2005 – August 2008. (\$798,309). Co-Principal Investigator with Mandar Dewoolker, Maureen Newmann, and Donna Rizzo (Principal Investigator: Nancy Hayden). Percent Effort: 20%.
- ***Evaluation of the Effectiveness of Experimental Green Markings on the Bicycle Lanes on Williston Road.*** Funded by the Vermont Agency of Transportation. (July 2004 – June 2006). (\$13,000). Principal Investigator. Percent Effort: 100%.
- ***Extended Kalman Filter for the On-line Calibration of Traffic Simulation Models.*** Funded by the New England University Transportation Center (NEUTC). September 2003 – August 2004. (\$56,000). Principal Investigator (Co-Principal Investigator: Donna Rizzo). Percent Effort: 75%.
- ***Development of a Decision Support System for the Design of Phytoremediation Strategies.*** Funded by the Vermont NSF EPSCoR Program. June 2003 – August 2004. (\$25,000). Principal Investigator. Percent Effort: 100%.
- ***CAREER: Harnessing the Power of Computational Intelligence for Infrastructure Management and Control.*** Funded by the National Science Foundation. 2002 – 2007. (\$375,000). Principal Investigator. Percent Effort: 100%.
- ***Intelligent Adaptive Control for Dynamic Route Guidance.*** Funded by the New England University Transportation Center (NEUTC). September 2002 – August 2003. (\$36,000). Principal Investigator. Percent Effort: 100%.

- ***Calibrating Traffic Simulation Models to Inclement Weather Travel Conditions with Applications to Arterial Coordinated Signal Systems.*** Funded by the New England Transportation Consortium (NETC). September 2002 – August 2004. (\$75,000). Principal Investigator (Co-Principal Investigator: Wael El-Dessouki. Percent Effort: 80%.
- ***Intelligent Transportation Systems Applications to Ski Resorts in New England and Northeastern New York State.*** Funded by the New England Transportation Consortium (NETC). September 2002 – February 2004. (\$60,000). Principal Investigator (Co-Principal Investigator: Randy Knapick). Percent Effort: 60%.
- ***A Research-Based Undergraduate Experience Focused on Systems Thinking, Information Technology and Laboratory Applications.*** Funded by the National Science Foundation. September 2002 – August 2003. (\$100,000). Co-Principal Investigator with Cully Hession and Donna Rizzo (Principal Investigator: Nancy Hayden). Percent Effort: 25%.
- ***A Case Study of Intelligent Transportation Systems Deployment in Rural Vermont.*** Funded by the Vermont Agency of Transportation (VTrans). October 1, 2001 – December 31, 2002. (\$30,000). Principal Investigator. Percent Effort: 100%.
- ***Using Simulation to Evaluate the Effects of Prohibiting Left-turn and the Resulting U-turn Movement.*** Funded by the Ohio Department of Transportation (ODOT). September 1, 2001 – December 31, 2002. (\$100,000). Co-Principal Investigator (Principal Investigator: Mashrur Chowdhury). Percent Effort: 15%.
- ***A Real-time Risk-Based Highway Accident Prevention System (RiskHAPS): A Proactive Safety Approach.*** Funded by the New England University Transportation Center (NEUTC). September 1, 2001 – August 2002. (\$128,000). Co-Principal Investigator with Emmanouil N. Anagnostou (Principal Investigator: Wael El-Dessouki). Percent Effort: 20%.
- ***Using Simulation to Test Alternative Intelligent Transportation Systems Solutions for the Susie Wilson Road Corridor.*** Funded by Chittenden County Metropolitan Planning Organization (CCMPO) and the town of Essex. February 2001 – May 2001. (\$30,000). Co-Principal Investigator. (Principal Investigator: Robert Chamberlin). Percent Effort: 50%.
- ***Deriving Land-use Limits as a Function of Infrastructure Capacity.*** Funded by the New England University Transportation Center (NEUTC). September 1, 2000 – August 2001. (\$131,000). Principal Investigator (Co-Principal Investigator: John Ivan). Percent Effort: 70%.
- ***Intelligent Transportation Systems Strategic Planning at the State Level.*** Funded by the Vermont Agency of Transportation (VTrans). August 2000 – December 2000. (\$30,000). Principal Investigator. Percent Effort: 100%.
- ***Development of an Integrated Transportation Management System for Chittenden County.*** Funded by Chittenden County Metropolitan Planning Organization (CCMPO). January 2000 – May 2001. (\$47,000). Principal Investigator. Percent Effort: 100%.
- ***Incorporating Intelligent Transportation Systems Deployment in Strategic Planning.*** Funded by the New England University Transportation Center (NEUTC). September 1, 1999 - August 2000. (\$100,000). Co-Principal Investigator (Principal Investigator: John Ivan). Percent Effort: 50%.
- ***A Simulation Test-bed for Studying Alternative Approaches to Real-time Adaptive Traffic Routing.*** Funded by the University of Vermont Committee on Research and Scholarship (UCRS). May 1999 - May 2000. (\$4,000). Principal Investigator. Percent Effort: 100%.
- ***Development of an Intelligent Transportation Systems (ITS) Strategic Plan for Chittenden County, Vermont.*** Funded by Chittenden County Metropolitan Planning Organization (CCMPO). May 1999 - March 2000. (\$30,000). Principal Investigator. Percent Effort: 100%.

## PUBLICATIONS AND PRESENTATIONS

### TEXTBOOKS:

[1] L. A. Hoel, N. J. Garber, and A. W. Sadek. (2008). *Transportation Infrastructure Engineering – A Multi-modal Integration*. Cengage Learning.

[2] M. Chowdhury and A. W. Sadek. (2003). *Fundamentals of Intelligent Transportation Systems Planning*. Artech House, Inc. Norwood, MA.

### TRB CIRCULARS:

[1] A. W. Sadek (Editor). (2007). *Artificial Intelligence in Transportation: Information for Application*. Transportation Research Board Circular (E-C113), TRB, National Research Council, Washington, D.C. Available online at: <http://onlinepubs.trb.org/onlinepubs/circulars/ec113.pdf>

[2] M. Chowdhury and A.W. Sadek (Editors). (2012). *Artificial Intelligence Applications to Critical Transportation Issues*. Transportation Research Board Circular (E-C168), TRB, National Research Council, Washington, D.C. Available online at: <http://www.trb.org/Main/Blurbs/168134.aspx>

### Book Chapters:

[1] Y. Zhao, Y. Hou, A. Wagh, S. Huang, K. Hulme, C. Qiao, A.W. Sadek. (2014). A Partial Reality Experimental System for human-in-the-loop testing of Connected and Automated Vehicle Applications: Development, Validation and Applications. In *Springer Lecture Series in Mobility: Road Vehicle Automation*.

[2] Y. Zhao and A. W. Sadek. (2013). Large-Scale Agent-based Models for Transportation Network Management under Unplanned Events. In *Data Science and Simulation for Transportation Research (DATASIM)*, IGI Global.

[3] A.W. Sadek. (2007). Artificial Intelligence Applications in Transportation. In *Artificial Intelligence in Transportation: Information for Application*, TRB Circular E-C113, TRB, National Research Council, Washington, D.C., pp. 1-6.

[4] S. Huang and A.W. Sadek. (2012). Artificial Intelligence and Microscopic Traffic Simulation Models: Applications to Parameter Calibration and Origin–Destination Estimation. In *Artificial Intelligence Applications to Critical Transportation Issues*, TRB Circular E-C168, TRB, National Research Council, Washington, D.C., pp. 65-69.

### REFEREED JOURNALS (PUBLISHED AND ACCEPTED FOR PUBLICATION):

(Underlined names are those of the students working under my direct supervision)

[1] Y. Shi, A.P. Bartlett, R. Dmowski, D. Duchscherer, Q. He, C. Qiao, and A.W. Sadek. (2021). Safety Evaluation of a Self-Driving, Low-speed Shuttle: Test Scenario Design & Preliminary Data Analysis. *ASCE Journal of Transportation Engineering – Part A Systems*, Volume 147, Issue 8. DOI: 10.1061/JTEPBS.0000535

[2] R.S. Chauhan, Y. Shi, A.P. Bartlett and A.W. Sadek. (2020). Short-Term Traffic Delay Prediction at the Niagara Frontier Border Crossings: Comparing Deep Learning and Statistical Modeling Approaches. *Journal of Big Data Analytics in Transportation*, Volume 2, Issue 2, 93-114.

[3] S. M.S. Seliman, A.W. Sadek and Q. He. (2020). Automated Vehicle Control at Freeway Lane-drops: A Deep Reinforcement Learning Approach. *Journal of Big Data Analytics in Transportation*, Volume 2, Issue 2, 147-166.

[4] S. Seliman, A.W. Sadek and Q. He. (2020) Optimal Variable, Lane-based, Speed Limits at Freeway Lane-drops: A Multi-Objective Approach. *ASCE Journal of Transportation Engineering – Part A Systems*, Volume 146, Issue 8.

- [5] A. Bartlett, C. Qiao, Q. He, and A.W. Sadek. (2020). Factors Affecting International Border Crossing Delays Based Upon a Rich Bluetooth Dataset. *Journal of Big Data Analytics in Transportation*, Volume 2, Issue 1, 33-47
- [6] L. Tang, Y. Shi, Q. He, A.W. Sadek, and C. Qiao. (2020). The Performance Test of Autonomous Vehicle Lidar Sensors under Different Weather Conditions. *Journal of the Transportation Research Board*, Vol 2674, Issue 1.
- [7] L. Lin, J.C. Handley, X. Wen, and A.W. Sadek. (2018). Hybrid Machine Learning Model for Interval Prediction of Short-term Traffic Volume and its Application to Optimal Staffing Level Plan Development. *Transportation Research Part C* 92, pp. 323–348.
- [8] Y. Hou, S.Seliman, E. Wang, J. Gonder, E. Wood, Q. He, A.W. Sadek, L. Su, and C. Qiao. (2018). Cooperative and Integrated Vehicle and Intersection Control for Energy Efficiency (CIVIC-E<sup>2</sup>), *IEEE Intelligent Transportation Systems Transactions*, Vol. 19 (7), pp. 2325 – 2337.
- [9] P. Anastasopoulos, T. Sarwar, G. Fountas, A.W. Sadek, and M. Karlaftis. (2017). Sustainable transport habits of travelers using newly emerged modes: A random parameters hazard-based analysis of travel distance. *Transportation Research - Part C*, Vol. 77, pp. 516-528.
- [10] Y. Hou, W. Zhong, L. Su, K.F. Hulme, A.W. Sadek, and C. Qiao. (2016). TAsE: Improving the Efficiency of Electric Taxis with Transfer-Allowed Rideshare, *IEEE Transactions on Vehicular Technology*, Volume: 65, Issue: 12, pp. 9518 - 9528.
- [11] L. Lin, Q. Wang, and A.W. Sadek. (2016). A Combined M5P Tree and Hazard-based Duration Model for Predicting Urban Freeway Traffic Accident Durations. *Accident Analysis and Prevention*, Volume 91, Pages 114–126
- [12] Y. Zhao, A. Wagh, K. Hulme, C. Qiao, and A.W. Sadek. (2016). Integrated Traffic-Driving-Networking Simulator for the Design of Connected Vehicle Applications: Eco-signal Case Study. *Journal of Intelligent Transportation Systems: Technology, Planning and Operations*, Vol. 20, Issue 1, pp. 75 – 87.
- [13] Y. Zhang, C. Wu, C. Qiao, A. Sadek, and K. Hulme. (2015). Addressing the Safety of Transportation Cyber-Physical Systems: Development and Validation of a Verbal Warning Utility Scale for Intelligent Transportation Systems. *Mathematical Problems in Engineering*, Vol. 2015, Article ID 126947.
- [14] Y. Hou, Y. Zhao, A. Wagh, L. Zhang, C. Qiao, K.F. Hulme, C. Wu, A.W. Sadek, and X. Liu. (2015). Simulation Based Testing and Evaluation Tools for Transportation Cyber-Physical System. *IEEE Transactions on Vehicular Technology*, Vol. 65, Issue 3, pp. 1098 -1108.
- [15] L. Lin, Q. Wang and A.W. Sadek. (2015). A Novel Variable Selection Method based on Frequent Pattern Tree for Real-time Traffic Accident Risk Prediction. *Transportation Research – Part C*, Vol. 55, pp. 444–459.
- [16] L. Lin, M. Ni, Q. He, J. Gao and A.W. Sadek. (2015). Modeling the Impacts of Inclement Weather on Freeway Traffic Speed: An Exploratory Study Utilizing Social Media Data. *Journal of the Transportation Research Board – Record no. 2482*, Transportation Research Board, Washington, D.C., pp. 82-89.
- [17] L. Lin, Q. Wang, and A.W. Sadek. (2014). Data Mining and Complex Network Algorithms for Traffic Accident Analysis. *Journal of the Transportation Research Board – Record no. 2460*, Transportation Research Board, Washington, D.C., pp 128-136.
- [18] Y. Hou, Y. Zhao, K. Hulme, S. Huang, Y. Yang, Adel W. Sadek, and C. Qiao. (2014). An Integrated Traffic-Driving Simulation Framework: Design, Implementation, and Validation. *Transportation Research – Part C*, Vol. 45, pp. 138 – 153.
- [19] L. Lin, Q. Wang, and A.W. Sadek. (2014). Border Crossing Delay Prediction using Transient Multi-server Queueing Models with Erlang Service Times. *Transportation Research – Part A*, Vol. 64, pp. 65-91.
- [20] L. Lin, Q. Wang, and A.W. Sadek. (2014). On-line Prediction of Border Crossing Traffic using the Spinning Network Method. *Transportation Research – Part C*, Vol. 43, pp. 158-173.

- [21] A. Wagh, Y. Hou, C. Qiao, L. Zhang, Xu Li, A.W. Sadek, K. Hulme, C. Wu, H-L. Xu, and L-S. Huang. (2014). Emerging Applications for Cyber Transportation Systems. *Journal of Computer Science and Technology*, Vol. 29(4), pp. 562-575.
- [22] L. Guo, S. Huang, A.W. Sadek. (2013). A Novel Agent-based Transportation Model of a University Campus with Application to Quantifying the Environmental Cost of Parking Search. *Transportation Research – Part A*, Vol. 50, pp. 86-104. DOI: 10.1016/j.tra.2013.01.045.
- [23] L. Guo, S. Huang, and A.W. Sadek. (2013). An Evaluation of Likely Environmental Benefits of a Time-dependent Green Routing System in the Greater Buffalo-Niagara Region. *Journal of Intelligent Transportation Systems: Technology, Planning and Operations*, Vol. 17, Issue 1, pp. 18-30. (DOI: 10.1080/15472450.2012.704336)
- [24] L. Guo, S. Huang, J. Zhuang, and A.W. Sadek. (2013). Modeling Parking Behavior under Uncertainty: A Static Game Theoretic versus a Sequential Neo-additive Capacity Modeling Approach. *Networks and Spatial Economics*, Vol. 13(3), pp. 327-350. DOI: 10.1007/s11067-012-9183-1.
- [25] S. Huang, A.W. Sadek and L. Guo. (2013). A Computational-based Approach to Estimating Travel Demand in Large-scale Microscopic Traffic simulation Models. *ASCE Journal of Computing in Civil Engineering*, Vol. 27(1), pp. 78 – 86.
- [26] L. Lin, Q. Wang, and A.W. Sadek. (2013). Evaluating Short-term Traffic Volume Forecasting Models Based on Multiple Datasets and Data Diagnosis Measures. *Journal of the Transportation Research Board – Record no. 13-3691*, pp. 40 – 47.
- [27] X. Li, C. Qiao, A. Wagh, R.S. Sudhaakar, S. Addepalli, C. Wu, and A.W. Sadek. (2013). A Holistic Approach to Service Delivery in Driver-in-the-loop Vehicular Cyber Physical Systems. *IEEE Journal on Selected Areas in Communications*, Vol. 31, Issue 9, pp. 513 – 522. DOI: 10.1109/JSAC.2013.SUP.0513046.
- [28] A. Troy, D. Azaria, B. Voigt, and A.W. Sadek. (2012). Integrating a Traffic Router and Microsimulator into a Land Use and Travel Demand Model. *Transportation Planning and Technology*, Vol. 35(8), pp. 737 – 751.
- [29] S. Huang, A.W. Sadek and Y. Zhao. (2012). Assessing the mobility and environmental benefits of reservation-based intelligent intersections using an integrated simulator. *IEEE Transaction on Intelligent Transportation Systems*, Vol. 13, Issue 3, pp. 1201-1214 (DOI: 10.1109/TITS.2012.2186442).
- [30] S. Huang, L. Guo, Y. Yang, I. Casas, and A.W. Sadek. (2012). Dynamic Demand Estimation and Microscopic Traffic Simulation of a University Campus Transportation Network. *Transportation Planning and Technology*, Vol. 35, Issue 4, pp. 449 – 467 (DOI: 10.1080/03081060.2012.680818).
- [31] J. Ring and A.W. Sadek. (2012). Predicting Lane Utilization and Merge Behavior at Signalized Intersections with Auxiliary Lanes: A Buffalo, New York, Study. *ASCE Journal of Transportation Engineering*, Vol. 138, Issue 9, pp. 1143 – 1150.
- [32] Y. Zhao, A.W. Sadek, and D.P. Fuglewicz. (2012). Modeling Inclement Weather Impact on Freeway Traffic Speed at the Macroscopic and Microscopic Levels. *Journal of the Transportation Research Board – Record no. 2272*, TRB, National Research Council, Washington, D.C., pp. 173 – 180.
- [33] Y. Ma, M. Chowdhury, A.W. Sadek, and M. Jeihani. (2012). Integrated Traffic and Communication Performance Evaluation of an Intelligent Vehicle Infrastructure Integration (VII) System for Online Travel Time Prediction. *IEEE Transaction on Intelligent Transportation Systems*, Vol. 13, Issue 3, pp. 1369-1382 (DOI 10.1109/TITS.2012.2198644).
- [34] A.W. Sadek, Y. Zhao, S. Huang, D. Fuglewicz, K. Hulme, and C. Qiao. (2011). Advanced Transportation Simulation Modeling for Transportation System Evaluation and Management during Emergencies. Special online Issue of the *Journal of Homeland Security on Catastrophes and Complex Systems: Transportation*.

- [35] A. J. Tracy, P. Su, A. W. Sadek, Q. Wang. (2011). Assessing the Impact of the Built Environment on Travel Behavior: A Case Study of Buffalo, New York. *Transportation*, Vol. 38, Issue 4, pp. 663-668.
- [36] N.J. Hayden, D.M. Rizzo, M. Dewoolkar, M.D. Neumann, S. Lathem, and A.W. Sadek. (2011). Incorporating a Systems Approach into Civil and Environmental Engineering Curricula: Effect on Student Work, and Student and Faculty Attitudes. *Advances in Engineering Education*, Volume 2, Issue 4.
- [37] H. Zhou, J. Ivan, A.W. Sadek, and N. Ravishanker. (2010). Safety Effects of Exclusive Left Turn Lanes at Unsignalized Intersections and Driveways. *Journal of Transportation Safety and Security*, Vol. 2, Issue 3, pp. 221-238.
- [38] S. Huang and A.W. Sadek. (2009). A novel forecasting approach inspired by human memory: The example of short-term traffic volume forecasting. *Transportation Research Part C*, Vol. 17(5), pp. 510-525.
- [39] Ma, Y., Chowdhury, M., A.W. Sadek, and M. Jeihani. (2009). Real-time Highway Traffic Condition Assessment Framework Using Vehicle-Infrastructure Integration (VII) with Artificial Intelligence (AI). *IEEE Transactions on Intelligent Transportation Systems*, Vol. 10(4), pp. 615-627.
- [40] S. Lawe, J. Lobb, A.W. Sadek, S. Huang, and C. Xei. (2009). TRANSIMS Implementation in Chittenden County, Vermont: Development, Calibration and Preliminary Sensitivity Analysis. *Journal of the Transportation Research Board – Record 2132*, TRB, National Research Council, Washington, D.C.
- [41] M. Smith, A. W. Sadek and S. Huang. (2008). Large-scale Microscopic Simulation: Toward an Increased Resolution of Transportation Models. *ASCE Journal of Transportation Engineering*, Vol. 134, No. 7, pp. 273-281.
- [42] Gagnon, C., A. W. Sadek, A. Touchette, and M. Smith. (2008). Calibration Potential of Common Analytical and Micro-simulation Roundabout Models: A New England Case Study. *Journal of the Transportation Research Board – Record 2071*, TRB, National Research Council, Washington, D.C.
- [43] S. Ranade, A. W. Sadek and J. Ivan. (2007). A Decision Support System for Predicting the Benefits of Left-turn Lane Installations at Unsignalized Intersections. *Journal of the Transportation Research Board – Record no. 2023*, TRB, National Research Council, Washington, D.C.
- [44] P. Bhavsar, M. Chowdhury, A. W. Sadek, W. Sarasua, and J. Ogle. (2007). A Decision Support System for Predicting Traffic Diversion Impacts across Transportation Networks using Support Vector Regression. *Journal of the Transportation Research Board – Record no. 2024*, TRB, National Research Council, Washington, D.C.
- [45] M. Chowdhury, A. W. Sadek, Y. Mal, N. Kanhere, and P. Bhavsar. (2006). Application of Artificial Intelligence Paradigms to Decision Support in Real-Time Traffic Management. *Journal of the Transportation Research Board – Record no. 1968*, TRB, National Research Council, Washington, D.C.
- [46] S. J. Agbolosu-Amison, A. W. Sadek and B. Henry. (2005). Factors Affecting the Benefits of Implementing Special Timing Plans for Inclement Weather Conditions. *Journal of the Transportation Research Board – Record no. 1925*, TRB, National Research Council, Washington, D.C.
- [47] M. Chowdhury, N. Derov, P. Tan and A. W. Sadek. (2005). Prohibiting Left-turn Movements at Mid-block Unsignalized Driveways: A Simulation Analysis. *Journal of Transportation Engineering, ASCE*, Vol. 131(4).
- [48] A. J. Porter, A. W. Sadek, and N. J. Hayden. (2005). Fuzzy Geographic Information System for Phytoremediation Plant Selection. *Journal of Environmental Engineering, ASCE* Vol. 132(1).
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## REFEREED JOURNALS (UNDER REVIEW)

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[2] A.P. Bartlett, L. Kenney, Y. Shi, R. Dmowski, C. Qiao, and A.W. Sadek. (2020). Changing Public Attitudes toward Autonomous Vehicles: Insights from Three Exercises in Western New York. Submitted to *Transportation Research – Part A*.

## BOOK REVIEWS:

[1] A. W. Sadek. (2004). Review of “Statistical and Econometric Methods for Transportation Data Analysis” by Washington, Karlaftis, and Mannering. *ASCE Journal of Transportation Engineering*, Vol. 130(5), pg. 684.

## REFEREED CONFERENCE PROCEEDINGS:

(Underlined names are those of the students working under my direct supervision)

[1] A. Gupta, A. Khare, H. Jin, A.W. Sadek, L. Su and C. Qiao. (2020). Estimation of Road Transverse Slope Using Crowd-Sourced Data from Smartphones. *28th ACM SIGSPATIAL International Conference on Advances in Geographic Information Systems*, Seattle, WA. (Acceptance Rate: 22.1%).

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- [28] J. B. Ring and A.W. Sadek. (2011). Predicting Lane Utilization and Merge Behavior at Signalized Intersections with Auxiliary Lanes: A Western New York Study. *Proceedings of the 90<sup>th</sup> Annual Transportation Research Board Meeting*, Washington, D.C.
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- [32] C. Qiao, A. W. Sadek, K. Hulme and C. Wu. (2010). Addressing Design and Human Factors Challenges in Cyber-Transportation Systems with an Integrated Traffic-Driving-Networking Simulator. *NSF/NIST/USCAR Workshop on Automotive Cyber-Physical Systems*, Troy, Michigan.
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- [42] Shoukry, S., M. Riad, and A. W. Sadek. (2007). Prediction of Straining Actions in Rigid Pavements Dowel Bars Through Artificial Neural Networks. *Proceedings of the 2007 ANNIE Conference*, Saint Louis, Missouri.
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- [45] M. Smith, and A. W. Sadek. (2006). Challenges Calibrating a Large-scale Microscopic Simulation Model of a Diverse Urban, Suburban & Rural Network: A Practical Guide. *Proceedings of the 85<sup>th</sup> Annual Transportation Research Board Meeting*, Washington, D.C.
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- [62] A. W. Sadek and A. Kvasnak. (2001). Development of an Integrated Metropolitan Transportation Management System for Chittenden County, Vermont. *Proceedings of the ITE 2001 Annual Meeting and Exhibit*, Chicago, Illinois.
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## **ABSTRACT-REFEREED CONFERENCE PAPERS AND PRESENTATIONS**

- [1] Y. Zhao, Y. Hou, A. Wagh, K. F. Hulme, C. Qiao and A. W. Sadek, "Evaluation of an Eco-Signal Application Using an Integrated Traffic-Driving-Networking Simulator," *TRB Workshop on the Future of Road Vehicle Automation*, Stanford University, Palo Alto, CA, July, 2013.
- [2] Y. Zhao, Y. Hou, A. Wagh, K. F. Hulme, C. Qiao and A. W. Sadek. (2013). Cooperative Infrastructure and Vehicle Intersection Control: Evaluation and Design using an Integrated Traffic-Driving-Networking Simulator. *INFORMS Annual Meeting*, Minneapolis-St. Paul, Minnesota.

- [3] Y. Zhao and A.W. Sadek. (2011). Large-scale Traffic Simulation under Inclement Weather Conditions. Presented at the *2011 IEEE International Conference on Super-networks and System Management (ICSSM2011)*, Shanghai, China.
- [4] A.W. Sadek and Q. Wang. (2009). Reducing Vehicle Miles Traveled through Smart Land-Use Design. Presented at the *Annual Conference of the ITE NY Upstate Section*, Canandaigua, NY.
- [5] Q. Wang and A.W. Sadek. (2009). Transportation System Management under Multiple Hazards. Presented at the *Annual Conference of ITE NY Upstate Section*, Canandaigua, NY.
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- [7] Hayden, N. J., Neumann, M., Rizzo, D. M., Dewoolkar, M. M., and Sadek, A. (2006), "Integrating Catamount Community Service-learning Projects within Civil and Environmental Engineering Programs at the University of Vermont", *Conf. Proc. on Innovations in Engineering Education*, ASEE, Worcester, MA.
- [8] Dewoolkar, M., Hayden, N., Rizzo, D., Sadek, A., and Neumann, M. (2006), "Catamount Communities Integrated Service-Learning Projects within Civil and Environmental Engineering Curricula at the University of Vermont", *National Conf. on Service Learning in Engineering*, Washington DC.
- [9] A. W. Sadek and R. J. Knapick. (2004). Addressing Ski Resort Transportation Problems with Intelligent Transportation Systems Applications. Presented at the *District 1 ITE Meeting*, Burlington, VT.
- [10] A. W. Sadek. (1999). Deterioration Prediction Modeling. Presented at the *Northeast Pavement Management Conference*, Killington, Vermont.
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## **CONFERENCE WORKSHOPS**

- [1] G. Spring, A. W. Sadek, A. Faghri, B. Williams, and S. Kikuchi. (2002). Challenges and Opportunities of Artificial Intelligence. A workshop presented at the *81<sup>st</sup> Annual Transportation Research Board Meeting*, Washington, D.C.
- [2] A. W. Sadek, M. Robinson and P. Shuldiner. (2001). A Workshop on Rural Intelligent Transportation Systems and Safety. Presented at the *2001 Rural Advanced Technology and Transportation Systems Conference*, Burlington, Vermont.

## **DISTINGUISHED LECTURER SERIES**

- [1] A.W. Sadek. (2003). Computational Intelligence Applications in Transportation. A lecture presented to the faculty and graduate students of the Transportation Program at Penn State, as a part of the *Mid-Atlantic University Transportation Center 2003 Distinguished Lecturer Series*.

## **INVITED TALKS**

- [1] A.W. Sadek. (2019). Automated Vehicle Research in New York State: UB's Self-Driving Electric Shuttle, Olli. ITS-NY 26<sup>th</sup> Annual Meeting, Saratoga Springs, NY.
- [2] A. W. Sadek. (2013). Sustainable Transportation Systems: Indicators, Approaches and Challenges. US-Korea Conference on Science, Technology and Entrepreneurship 2013, New York/New Jersey.
- [3] A. W. Sadek. (2013). On-line Prediction of Border Crossing Delay in support of Advanced Traveler Information Systems and Border Crossing Management. A lecture presented to the faculty and students of the *Cross-Border Transportation Centre* and the transportation group of the *Department of Civil and Environmental Engineering* at the University of Windsor, Windsor, Ontario, Canada.

- [4] A.W. Sadek and L. Guo. (2012). An Evaluation of Environmental Benefits of Time-dependent Green Routing in the Greater Buffalo-Niagara Region. *22<sup>nd</sup> ITS America Annual Meeting and Exposition*, National Harbor, MD.
- [5] A.W. Sadek, K. Hulme, Y. Zhao, and C. Qiao. (2012). An Integrated Traffic-Driving-Network Simulator (ITDNS) for the Design and Testing of Connected Vehicle Applications. *Fourth TRANSLOG2012 Conference*, McMaster University, Burlington, Ontario, Canada.
- [6] L. Lin, Q. Wang and A.W. Sadek. (2012). A Two-step Modeling Approach for Predicting Border-Crossing Delay at the Peace Bridge. *Fourth TRANSLOG2012 Conference*, McMaster University, Burlington, Ontario, Canada.
- [7] A. W. Sadek. (2012). Transportation Modeling for Evaluating System Performance during Emergencies. *Joint meeting of ASCE, SAME, APWA, ITE*, Buffalo, NY.
- [8] A.W. Sadek. (2011). Advanced Technologies for Improving Transportation Efficiency and Sustainability. In a session organized by UB's Office of Business Engagement entitled *Logistics, Distribution and Markets*, Buffalo, NY.
- [9] A.W. Sadek. (2011). Sustainable Transportation: Indicators, Approaches and Challenges. *2011 Business of Energy Series: Sustainable Transportation*, UB Center for Tomorrow, Amherst, NY.
- [10] A.W. Sadek, T. George and A. Hutchins. (2011). The NITTEC-SUNY Buffalo Data Warehousing Project. *ITS-NY Annual Meeting*, Saratoga Springs, NY.
- [11] A.W. Sadek, Y. Zhao, S. Huang, D. Fuglewicz, K. Hulme, and C. Qiao. (2011). Advanced Transportation Simulation Modeling for Transportation System Evaluation and Management during Emergencies. The Department of Homeland Security (DHS) Summit Conference – Fifth Annual University Network Summit, Washington, D.C.
- [12] A. W. Sadek, A. Blatt, D. Fuglewicz, and Y. Zhao. (2010). Using TRANSIMS for On-line Transportation System Management during Emergencies. *INFORMS Annual Meeting*, Austin, Texas.
- [13] A.W. Sadek. (2010). Transportation Systems Engineering: Challenges and Opportunities. *UB Newman Center Bridge Lecture Series*, Amherst, NY.
- [14] A. W. Sadek and S. Huang. (2010). Dynamic Origin-Destination Estimation in TRANSIMS using Parallel Semi-Heuristic Algorithms. *TRANSIMS: Applications and Development Workshop*, Argonne National Laboratory, West Chicago, IL.
- [15] A. W. Sadek, S. Huang, L. Guo, I. Casas and Y. Yang. (2010). TRANSIMS Studies at the University at Buffalo. *TRANSIMS: Applications and Development Workshop*, Argonne National Laboratory, West Chicago, IL.
- [16] A.W. Sadek, I. Casas, and L. Guo. (2009). Modeling University Campuses' Transportation Systems in TRANSIMS. *INFORMS Annual Meeting*, San Diego, CA.
- [17] A.W. Sadek. (2009). Transportation Systems Engineering at the University at Buffalo: Addressing Future Transportation Challenges through Integrative Education and Research. *69<sup>th</sup> New York State Association of Transportation Engineers (NYSATE) Annual Meeting*, Ellicottville, NY.
- [18] Sadek, A.W., R. Gortner, S. Huang, S. Lawe, and J. Lobb. (2007). Developing and Calibrating the TRANSIMS Model: A Case Study of Chittenden County, Vermont. *INFORMS Annual Meeting*, Seattle, WA.
- [17] A. W. Sadek, A. Kvasnak and S. Morse. (2001). Information Technology Applications for Improved Transportation Operations Decision-Making. *Vermont ITE Chapter Meeting*, Montpelier, Vermont.
- [19] A. W. Sadek and J. Segale. (2000). Transportation Research Projects in Chittenden County. *Vermont section ASCE Meeting*, Middlebury, Vermont.

## **OTHER PRESENTATIONS/SEMINARS/COLLOQUIA**



- [1] A.W. Sadek. (2014). A Partial Reality Experimental System for human-in-the-loop testing of Connected and Automated Vehicle Applications: Development, Validation and Applications. *3<sup>rd</sup> Connected Vehicle Workshop*, University at Albany, NY.
- [2] A. W. Sadek. (2013). Integrated Traffic-Driving-Networking Simulator (ITDNS): Development Challenges and Applications. *2<sup>nd</sup> Connected Vehicle Workshop*, Rutgers University, Piscataway, NJ.
- [3] A.W. Sadek. (2012). An Evaluation of Environmental Benefits of Time-dependent Green Routing in the Greater Buffalo-Niagara Region. A seminar presented to the faculty and graduate students in the *Department of Geography at the University at Buffalo, SUNY*.
- [4] A.W. Sadek and L. Guo. (2012). An Evaluation of Environmental Benefits of Time-dependent Green Routing in the Greater Buffalo-Niagara Region. *ITE New York Upstate 2012 Annual Meeting*, Syracuse, NY.
- [5] A.W. Sadek. (2011). Advanced Transportation Simulation Modeling for Transportation System Evaluation and Management during Emergencies. *Joint Institute of Transportation Engineers (ITE) New York Upstate Section 2011 Annual Meeting and the Highway Data Workshop and Conference*, Buffalo, NY.
- [6] A. Hutchins and A.W. Sadek. (2011). The NITTEC-SUNY Buffalo Data Warehousing Project. *Joint Institute of Transportation Engineers (ITE) New York Upstate Section 2011 Annual Meeting and the Highway Data Workshop and Conference*, Buffalo, NY.
- [7] A. W. Sadek. (2010). Toward an Increased Resolution of Transportation Models. A seminar presented to the faculty and graduate students in the *Department of Systems and Industrial Engineering at the University at Buffalo, SUNY*.
- [8] A. W. Sadek. (2009). Toward an Increased Resolution of Transportation Models: Experiences with TRANSIMS. A seminar presented to transportation faculty and students in the *Department of Civil and Environmental Engineering at Rensselaer Polytechnic Institute (RPI)*.
- [9] S. Huang, A.W. Sadek, R. Gortner, S. Lawe and J. Lobb. (2008) Calibrating the TRANSIMS Model with Genetic Algorithms: The Example of Origin-Destination Matrix Adjustment. Presented to the *TRB Committee on Artificial Intelligence and Advanced Computing Applications*, Washington, D.C.
- [10] A. W. Sadek. (2006). Complex Systems Analysis and Transportation. A seminar presented to the faculty and graduate students in the *Department of Civil Engineering at the University of Virginia*.
- [11] A. W. Sadek. (2006). Two Case Studies of Calibrating Microscopic Traffic Simulation Models: A County-wide Model and a Modern Roundabout. A seminar presented to the transportation faculty and graduate students in the *Department of Civil and Environmental Engineering at the University of Connecticut*.
- [12] A. W. Sadek. (2005). Civil and Environmental Engineering Informatics: Two Case Studies. A seminar presented to the faculty and graduate students of the *Department of Computer Science, University of Vermont, Burlington, Vermont*.
- [13] A. W. Sadek. (2002). Computational Intelligence and Transportation. A seminar presented to the faculty and graduate students of the *Department of Computer Science, University of Vermont, Burlington, Vermont*.
- [14] A. W. Sadek. (2001). Transportation and Land Use Modeling: State-of-the-practice and state-of-the-art. Presented to the *Chittenden County Metropolitan Planning Organization (CCMPO)*, South Burlington, Vermont.
- [15] A. W. Sadek. (2001). Development of an Intelligent Transportation Systems Strategic Plan for Vermont. Presented to the *Vermont Agency of Transportation Research Advisory Committee*, Montpelier, Vermont.
- [16] A. W. Sadek. (2000). A framework for State-Based, Data-driven models for Improved Transportation Operations. Presented to the *University of Massachusetts Transportation Seminar*, Amherst, Massachusetts.

## **TECHNICAL REPORTS:**

- [1] A.W. Sadek and Q. Wang. (2012). A Prototype Decision Support System for Optimally Routing Border Crossing Traffic Based on Predicted Border Crossing Times. Final Report. *U.S. Department of Transportation Region II University Transportation Research Center (UTRC2)*, City College of New York, New York, NY.
- [2] A.W. Sadek and L. Guo. (2012). An Evaluation of Likely Environmental Benefits of a Time-dependent Green Routing System in the Greater Buffalo-Niagara Region. Final Report for Applications for the Environment: Real-Time Information Synthesis (AERIS) Project Number DTFH61-10-F-00033. *U.S. Department of Transportation, Federal Highway Administration, ITS Joint Program Office*.
- [3] A.W. Sadek, Q. Wang, P. Su, and A. Tracy. (2011). Reducing Vehicle-Miles Traveled through Smart Land-use Design. Report No. C-08-29. Final Report to New York State Energy Research and Development Authority and New York State Department of Transportation.
- [4] S. J. Amison-Agbolosu and A. W. Sadek. (2004). Validating Traffic Simulation Models to Inclement Weather Conditions with Applications to Arterial Coordinated Signal Systems. Final Report to the New England Transportation Consortium (NETC), Storrs, CT.
- [5] A. W. Sadek and R. J. Knapick. (2004). Intelligent Transportation Systems Applications to Ski Resorts in New England. Final Report for the New England Transportation Consortium, Storrs, CT.
- [6] A. W. Sadek, W. El-Dessouki, and J. Ivan. (2002). Deriving Land-use Limits as a function of Infrastructure Capacity. *New England University Transportation Center, Project no. UVMR13-7*.
- [7] A. W. Sadek, W. El-Dessouki, and J. Ivan. (2002). Incorporating Intelligent Transportation Systems Deployment in Strategic Planning. Final Report. *New England University Transportation Center*.
- [8] A. W. Sadek. (2001). Development of an Intelligent Transportation Systems (ITS) Strategic Plan for the State of Vermont. A report prepared for the *Vermont Agency of Transportation*, Vermont.
- [9] R. Chamberlin and A. W. Sadek. (2000). Chittenden County Intelligent Transportation Systems Strategic Deployment Plan. South Burlington: Chittenden County Metropolitan Planning Organization.
- [10] A. W. Sadek, B. L. Smith and M. J. Demetsky. (1998). *Development of Decision Support Systems for Real-time Freeway Traffic Routing. Volume II – Case-Based Reasoning for Real-time Freeway Routing*. Charlottesville: VTRC.
- [11] B. L. Smith, C. C. McGhee, M. J. Demetsky and A. W. Sadek. (1998). *Development of Prototype Decision Support Systems for Real-time Freeway Traffic Routing. Volume I*. Charlottesville: VTRC.
- [12] A. W. Sadek, T. E. Freeman and M. J. Demetsky. (1995). *The Development of Performance Prediction Models for Virginia's Interstate Highway System: Volume II - Model Development*. Charlottesville: VTRC.
- [13] A. W. Sadek, T. E. Freeman and M. J. Demetsky. (1995). *The Development of Performance Prediction Models for Virginia's Interstate Highway System: Volume I - Data Base Preparation*. Charlottesville: VTRC.

## **ADVISEMENT AND SUPERVISORY ACTIVITIES**

### ***Post-Doctoral Fellows***

- [1] Huang Shan, Ph.D. (SUNY @ Buffalo), February 2011 – December 2011.

### ***Ph.D. Students/Dissertations (Primary Advisor)***

- [1] Yunpeng (Shi) Felix, Ph.D. Candidate, “Traffic Control for a Connected and Automated Transportation System”, (co-advised with Dr. Qing He), expected June 2022.
- [2] Salaheldeen Seliman, Ph.D., “Optimal Traffic Flow Control Strategies, on a Lane-group and Vehicle-based Level, at Freeway Lane-drops under the environment of Connected and Automated Vehicles”, (co-advised with Dr. Qing He), completed June 2020.

- [3] Andrew Bartlett, Ph.D., “The Impact of Inclement Weather on Transportation Systems and the Future of Connected and Autonomous Vehicles in Western New York”, completed September 2019.
- [4] Lei Lin, Ph.D., “Border Crossing Traffic Volume Prediction and Routing”, completed February 2015 (co-advisor with Qian Wang).
- [5] Yunjie Zhao, Ph.D., “Resilient and Sustainable Cyber Transportation Systems: Modeling Challenges and Advanced Applications”, completed June 2014.
- [6] Liya Guo, Ph.D. “Advanced Modeling Frameworks for Sustainable Transportation Systems Applications”, completed September 2012.
- [7] Huang Shan, Ph.D., “Next Generation Transportation Modeling and Simulation Tools”, completed February 2011.
- [8] Andrea Porter, Ph.D., “Hybrid Environmental Engineering Informatics Decision Support Systems: A Case Study on Plant-Assisted Bioremediation Design”, completed May 2007 (co-advised with Nancy Hayden).
- [9] Dan Fuglewicz, “Driver Behavior and Vehicle Dynamics during Inclement Weather”, Ph.D. student (part-time).

***Ph.D. Dissertations (Committee Member)***

- [10] Zhenhua Zhu, “Fusing Social Media and Traffic Detectors for Advanced Traveler Information”, Ph.D. February 2017, Advisor: Dr. Qing He, UB.
- [11] Yunfei Hou, “Design and Evaluation of Cyber Transportation Systems”, Ph.D. June 2016, Advisor: C. Qiao, Department of Computer Science and Engineering, UB.
- [12] Shuai Tang, “Spatial Analysis and Relocation Choice Decisions of Motor Freight Transportation and Warehousing Establishments In New York Metro Area”, Ph.D. June 2016, Advisor: Qian Wang, UB.
- [13] Md. Tawfiq Sarwar, “The effect of non-invasive pavement deterioration on rural and urban roadway accident-injury severity rates”, Ph.D. 2005, Advisor: Panos Anastasopoulos.
- [14] Aditya Wagh, “Incorporating Human Factors Considerations in the design of Vehicular Networks”, Ph.D. February 2014, Advisor: C. Qiao, Department of Computer Science and Engineering, UB.
- [15] Jinge Hu, TBD, in progress, Advisor: Q. Wang, Department of Civil, Structural & Environmental Engineering, UB.
- [16] Yan Yang, “Modeling Interactive Hurricane Evacuation Decision and Traffic”, Ph.D. 2014. Advisor: Sara Metcalf, Department of Geography, UB.
- [17] Guisselle Garcia, “The Discrete Network Design Problem”, Ph.D. 2014, Advisor: Rakesh Nagi, Department of Systems and Industrial Engineering, UB.
- [18] Yongchang (Max) Ma, “A Real-Time Traffic Condition Assessment Framework Using Vehicle-Infrastructure Integration (VII) System with Computational Intelligence”, Ph.D., December 2007, Advisor; Mashrur Chowdhury, Clemson University.
- [19] Zoe Dokou, “Optimal Search Strategy for the Definition of a DNAPL Source”, Ph.D. October 2007, Advisor: George Pinder, UVM.
- [20] Jeffery Hallo, “Understanding and Measuring Vehicle Use as an Influence on the Visitor Experience in National Parks”, May 2007, Advisor: Bob Manning, UVM.
- [21] Paula Mouser, “Improving Detection and Long-Term Monitoring Strategies for Landfill Leachate Contaminated Groundwater with Microbiological Data using Geostatistics and Artificial Neural Networks”, Ph.D., 2006, Advisor: Donna Rizzo, UVM.
- [22] Melisa McKay, “Multiphase Bioremediation Modeling in association with temperature effects caused by passive resistive soil heating”, Ph.D., February 2004, Advisor: George Pinder, UVM.
- [23] Maria Papadopoulou, “Enhanced Methodology for the Solution of Groundwater Management Problems”, Ph.D., February 2003, Advisor: George Pinder, UVM.
- [24] Yingqi Zhang, “Developing cost effective strategies for long-term groundwater quality monitoring network”, Ph.D., May 2002, Advisor: George Pinder, UVM.
- [25] Metin Ozbek, “Risk-Based Remediation Design: Utilizing Expert Opinion on Groundwater-driven Health Risk”, Ph.D., May 2000. Advisor: George Pinder, UVM.

***Masters Theses (Primary Advisor)***

- [1] Jay B. Ring, M.S., “Predicting Lane Utilization and Merge Behavior at Signalized Intersections with Auxiliary Lanes: A Buffalo, New York, Study”, February 2011.
- [2] Andrew J. Tracy, M.S., “Assessing the Impact of the Built Environment on Travel Behavior: A Case Study of Buffalo, New York, February 2011.
- [3] Zhiyong Wang, M.S., “Transportation System Risk Simulation and Management under Multi-Hazard Situations”, August 2011.

- [4] Sarang Ranade, M.S., “A Decision Support System and New Warrants for Left-turn Lane Installations”, M.S., May 2007.
- [5] Mark Smith, M.S., “Calibrating Microscopic Simulation Models: Two Case Studies; A Large-scale Countywide Network and a Modern Roundabout”, M.S., February 2007.
- [6] Spencer Morse, M.S., “Using Case-Based Reasoning to Predict the Impact of Variable Message Sign Diversion”, February 2006.
- [7] Charles Mark, M.S., “Predicting Experienced Travel Time for Freeway and Arterial Systems: An Artificial Neural Network Approach”, M.S., March 2005.
- [8] Seli J. Amison-Agbolosu, M.S., “Validating Traffic Simulation Models to Inclement Weather Travel Conditions”, M.S., October 2004.
- [9] Andrea Kvasnak, M.S., “Development of an Integrated Transportation Management Systems for Chittenden County”, M.S., February 2002.
- [10] Zhiyong Wang, “Using DynusT to Assess the Impact of Multiple Hazards on Transportation System Performance”, M.S. student in progress, expected completion May 2011.

***Masters Project (Primary Advisor)***

- [1] James Stahr, “Microscopic Traffic Simulation Modeling of Roundabouts with Heavy Pedestrian Volumes”, M.S. student, May 2011.
- [2] Robert Schiller, “Transportation System Management under Multiple Hazards using Dynamic Traffic Assignment Models”, M.S., May 2009.

***Masters Theses (Committee Member)***

- [1] Yu Cui, “Behavior-base Traveler Classification Using High-Resolution Connected Vehicles Trajectories and Land Use Data”, M.S. September 2016, Advisor: Dr. Qing He.
- [2] Ugur Eker, “Do the Same Factors affect Accident Frequencies on Highway Segments with Different Traffic Volumes and Traffic Compositions?”, M.S. September 2016, Advisor: Dr. Panos Anastasopoulos.
- [3] Saman Dabiri Zanjani, “An Empirical Investigation of Factors Affecting Parking Violation Frequencies of Commercial Vehicles —a New York City Case Study”, M.S. September 2016, Advisor: Dr. Panos Anastasopoulos.
- [4] Li Tang, “Modeling Household Relocation Decisions – A Case Study of Seattle, Washington”, M.S. September 2016, Advisor: Dr. Qian Wang.
- [5] Peng Su, M.S. June 2011, Advisor: Dr. Qian Wang
- [6] Richard Ketcham, “Characterization and Mitigation of Hyper-Rayleigh Fading”, M.S., October 2007.
- [7] Lance Besaw, “Parameter Estimation and Conditional Simulation using Counter-propagation Artificial Neural Networks”, M.S., 2006.
- [8] Gong Chen, “Mining Sequential Patterns across Data Streams”, M.S., 2005.
- [9] Jon Miller, “Robotic Systems for Inspection and Surveillance of Civil Structures”, M.S., 2004.
- [10] Qijun (Stella) Chen, “Inductive Learning on Partitioned Data Sets”, M.S., January 2004.
- [11] John Worthen, “Freeze-Thaw Effects on the Consolidation Characteristics of a Fine-grained Soil”, M.S., May 2001.
- [12] Aaron Mandell, “Development of a three-dimensional aquifer flow and transport model for the identification of well pollution sources”, M.S., May 2000.

**UNDERGRADUATE RESEARCH SUPERVISION**

- [1] Conrad Gagnon, Assessing the Calibration Potential of Analytical and Microscopic Simulation Models to Operations at Roundabouts, 2007.
- [2] Andrew Touchette, Development and Calibration of Microscopic Simulation Models, 2007.
- [3] Samuel Sherman, Development of Left-turn Warrants for unsignalized Intersections, 2007.
- [4] Brian Breslend, Development of Left-turn Warrants for unsignalized Intersections, 2006.
- [5] Daniel Koch, Roundabouts Modeling and Simulation, 2006.
- [6] Nicholas Williams, Roundabouts Modeling and Simulation, 2006.
- [7] Robert Fliegel, Large-scale Microscopic Traffic Simulation Model Development and Calibration, 2005.
- [8] Garrett Sabourin, Large-scale Microscopic Traffic Simulation Model Development and Calibration, 2005.
- [9] Alaina Dickason, Evaluating the Effectiveness of a new Bike Lane Treatment, 2004.
- [10] Brandon Henry, Evaluating the Effectiveness of a new Bike Lane Treatment, 2004.
- [11] Charles Mark, Artificial Neural Networks for Deriving Land-use Limits from Infrastructure Capacity, 2002-2003.

- [12] Bernard Baah, A Case Study of Using the ITS Deployment Analysis System (IDAS) to Evaluate the Cost-Effectiveness of ITS Deployment in A Medium-Sized Area, 2002-2003.
- [13] Charles Mark, Evaluating the Effectiveness of the New Features in TRANSYT-7F, 2001.

## STUDENT CHAPTER ADVISEMENT

- Founding Advisor of UB Student Chapter of the Institute of Transportation Engineers (ITE), Jan 2010 – Pres

## PROFESSIONAL SERVICE

### National Committees:

- **Member**, A5008 (ABJ70), Committee on Artificial Intelligence and Advanced Computing Application, Transportation Research Board, National Research Council, Feb 2002 – Pres. Elected **co-Chair** (effective April 2013).
- **Member**, AH010, Committee on Surface Transportation Weather, Transportation Research Board, National Research Council, April 2008 – Pres
- **Member**, Committee on Advanced Technology, American Society of Civil Engineers, Mar 2001 – Pres
- **Member**, Technical Advisory Group for TRANSIMS deployment in Buffalo, NY, 2009
- **Member**, Technical Advisory Group for TRANSIMS deployment in Moreno Valley, CA, 2009
- **Member**, Technical Advisory Group for TRANSIMS deployment in Urbana-Champaign, IL, 2010

### Regional Committees:

- **Member**, Region II University Transportation Research Council Board of Directors Policy committee, 2009 – Present
- **Member**, NYSDOT Green Leadership In Transportation Environmental Sustainability (GreenLITES) Academic Advisory Council, 2009 – Present
- **Member**, Niagara International Transportation Technology Coalition (NITTEC) Regional Transportation Coordination and Management Council (RTCMC), 2010 – Present
- **Member**, Intelligent Transportation Systems Society of New York (ITS-NY) Educational Committee, 2010 – Present
- **Member**, Joint Institute of Transportation Engineers (ITE) New York Upstate Section 2011 Annual Meeting and the Highway Data Workshop and Conference Local Arrangement and Technical Program Committee, September 2011.
- **Member**, New England University Transportation Center (NEUTC) Policy Committee, 1998 – 2008
- **Member**, New England Transportation Consortium (NETC) Advisory Committee, 2001 – 2008
- **Member**, New England Transportation Institute (NETI) Advisory Committee, 2007 – 2008
- **Member**, State of Vermont Intelligent Transportation Systems Steering Committee, 2000 – 2003
- **Founding Member**, Northern New England ITS America Tri-state Chapter, 2000 – 2003
- **Advisor**, Chittenden County Metropolitan Planning Organization Study Committees on Infrastructure Management, and County-wide Signal Optimization, 2004 – 2005

### Editorial Work:

#### Refereed Journals/Books:

- Founding Co-Editor-in-Chief, *Journal of Big Data Analytics in Transportation* (January 2019 – Present)
- Associate Editor, *Transportation Research – Part C* (effective January 2013)
- Regional Editor, *International Journal of Transportation*, November 2012 – present
- Editorial Board Member, *Journal of Transportation Technologies*
- Editorial Board Member, *Data Science and Simulation in Transportation Research* book of the European FP7 project
- Guest Editor, Special Issue on Connected Vehicles and Cyber Transportation Systems, *Journal of Intelligent Transportation Systems: Technology, Planning and Operations* (in process)
- Guest Editor, Special Issue on Advances in Computing and Communications and their impact on Transportation Science and Technologies, *Transportation Research – Part C* (in process)
- Guest Editor, Special Issue on Intelligent Transportation Systems and Safety, *ASCE Journal of Transportation Engineering* (in process)

#### Conference Proceedings:

- Associate Editor: *Proceedings of 7<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems, Washington, D.C.*
- Associate Editor: *Proceedings of 8<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems, Washington, D.C.*

**Journal Reviewer:**

- *Transportation Research Journal – Part A*
- *Transportation Research Journal – Part C*
- *ASCE Journal of Transportation Engineering*
- *ASCE Journal of Infrastructure Systems*
- *Transportation Research Board*
- *Computer-Aided Civil and Infrastructure Engineering Journal*
- *IEEE Transactions on Intelligent Transportation Systems*
- *IEEE Transactions on Neural Networks*
- *Computers and Operations Research*
- *Artificial Intelligence in Medicine*
- *Simulation Modeling Practice and Theory*
- *Simulation: Transactions of the Society for Modeling and Simulation International*
- *Applied Mathematics Modelling*

**Proposal Reviewer:**

- *NSF Panel Reviewer, 2020*
- *NSF Panel Reviewer, Civil Infrastructure Systems, May, 2013.*
- *NSF Panel Reviewer, Engineering the Service Industry, May 2002.*
- *NSF Panel Reviewer, USDOT/NSF Partnership on Exploratory Research in Transportation, July 2002.*
- *New England University Transportation Center, 1999, 2000, 2001, 2002, 2003, 2004, 2005*
- *Rhode Island Transportation Center, 2000, 2001*
- *Kentucky Science and Engineering Foundation (KSEF), 2004*
- *University of Washington Transportation Center (TransNow), 2007, 2008*
- *Oregon Transportation Research and Education Consortium (OTREC), 2007*

**Conference Organization**

- *7<sup>th</sup> International Conference on Vehicle Technology and Intelligent Transport Systems 2021 (VEHITS 2021), Program Committee Member*
- *Joint 2011 Institute of Transportation Engineers (ITE) New York Upstate Section Annual Meeting and the 2011 Highway Data Workshop and Conference, September 2011, Buffalo, NY (Chair of the Technical Program Committee and Member of the Local Arrangements Committee)*
- *First Connected Vehicle Workshop on Test-bed Development and Integration, June 2012, University at Buffalo, Buffalo, NY (Conference Organizer and Program Chair)*
- *Second Connected Vehicle Symposium: Building the Path from Connected to Autonomous Vehicles, June 2013, Rutgers University, Piscataway, NJ (Conference Organizer and Program co-Chair)*
- *International Conference on Engineering and Applied Sciences Optimization (OPTI 2014), June 2014, Kos Island, Greece (Member of the Scientific Committee)*

**Professional Society Memberships**

- American Society of Civil Engineers (ASCE)
- Institute of Transportation Engineers (ITE)
- Institute for Operations Research and the Management Sciences (INFORMS)
- Intelligent Transportation Society of New York (ITS-NY)

**UNIVERSITY SERVICE**

**Service to the University at Buffalo, the State University of New York**

- **Chair**, UB2020 Strategic Strength in Extreme Events, Aug 2009 – Present
- **Director of Graduate Studies**, Department of Civil, Structural and Environmental Engineering, August 2012 – August 2013
- **Member**, School of Engineering and Applied Science Tenure Review Committee, September 2010 – Present
- **Faculty Senator**, School of Engineering and Applied Science, October 2011 – Present
- **Member**, UB Faculty Senate Executive Committee, October 2011 – August 2012
- **Search Committee Chair**, Civil, Structural, and Environmental Engineering (CSEE) search in Transportation Engineering and Logistics, January 2013 – present.
- **Search Committee Co-chair**, Joint Civil, Structural, and Environmental Engineering (CSEE) and Industrial and Systems Engineering (ISE) search in Transportation Engineering and Logistics, October 2011 – June 2012.
- **Search Committee Member**, Civil, Structural and Environmental Engineering (CSEE) search in environmental engineering, October 2011 – May 2012.
- **Search Committee Chair**, Joint Civil, Structural, and Environmental Engineering (CSEE), Industrial and Systems Engineering (ISE), and Mechanical and Aerospace Engineering (MAE) search in Uncertainty Modeling, Risk and Reliability, Oct 2009 – June 2010
- **Member**, Department of Civil, Structural and Environmental Engineering Undergraduate Studies Committee, September 2011 – June 2012
- **Faculty Mentor** for Dr. Qian Wang, Oct 2008 – Present
- **Faculty co-Mentor** for Dr. Qing He, August 2012 – Present
- **Faculty Mentor** for Dr. Panos Anastasopoulos, August 2013 - Present
- **Member**, Graduate Studies Committee, 2008 – 2010; and August 2013 - Present
- **Founding Faculty Advisor**, UB's Institute of Transportation Engineers (ITE) Student Chapter, Jan 2010 – Present

### Service to the University of Vermont

- **Program coordinator**, Civil Engineering program at UVM, 2006 – 2008
- **Graduate coordinator** Department of Civil & Environmental Engineering, 2004 – 2006
- **Member**, Department of Computer Science Graduate Studies Committee member, 2005 – 2008
- **Member**, University of Vermont Transportation Center Advisory Committee, 2007 – 2008
- **Member**, College of Engineering and Mathematical Sciences Faculty Council, 2006 – 2008
- **Member**, College of Engineering and Mathematical Sciences Information Technology Committee, 2006 – 2008
- **Faculty advisor**, ASCE Student Chapter, 2002 – 2004
- **Search Committee Member**, Chair of Civil & Environmental Engineering Department, 2002
- **Search Committee Member**, Chair of Computer Science Department, 2002
- **Regular participant** in the College of Engineering open-houses and outreach programs, 1998 – 2008

### CONSULTING EXPERIENCE

- ***Intelligent Transportation Systems Project Development for Chittenden County***, in collaboration with Resource Systems Group, Inc. of White River Junction, Vermont, and the IBI Group of Boston, Massachusetts.
- ***Advanced Technologies for Transportation Planning Data Collection***, in collaboration with Wilbur Smith Associates of South Burlington, Vermont and Applied GIS, Inc. of Albany, New York.

### PERSONAL INFORMATION

- **Extracurricular Activities:** Youth Leader at St. Mary and St. Moses Coptic Orthodox Church, North Tonawanda, NY; sub-deacon in the Coptic Orthodox Church; Avid reader
- **Foreign Languages:** Arabic, French and Coptic