Angshuman Guin Senior Research Engineer School of Civil and Environmental Engineering

CURRENT FIELDS OF INTEREST:

- Leading connected vehicle research for improving safety and mobility in surface transportation
- Advancing cross-disciplinary research in transportation data-science by infusing big data and Deep Learning techniques to research and applications in traffic operations
- Advancing the development of flexible models for autonomous and connected vehicles for use in traffic simulation
- Fostering adoption of advanced methods for addressing transportation data quality by spearheading research in implementation friendly algorithms for data filtering and imputation
- Enabling advances in Smart City development by leading research on real-time performance monitoring and control by developing robust and efficient methods for performance metric computations with noisy transportation data

I. MASTERY OF A COMPLEX FIELD

Note: Advised students are highlighted in Green.

A. Thesis/Dissertation

Guin, Angshuman. "An Incident Detection Algorithm Based on a Discrete State Propagation Model of Traffic Flow" PhD Dissertation, Georgia Institute of Technology, 2004. <u>http://hdl.handle.net/1853/5040</u> [*Milton Pikarsky Award* for Outstanding Doctoral Dissertation, Council of University Transportation Centers (2004)]

B. <u>Publications, Presentations, Posters</u>

1. <u>Published Journal Papers</u>

- 1.1 Guin, A., K. Robinson, H. Unthank, S. Roy, M. Hunter. "Impact of Restricted Crossing U-Turns on Vehicular Emissions" Transportation Research Record: Journal of the Transportation Research Board, *Published Online 05/04/2023*. <u>https://doi.org/10.1177/03611981231168129</u>. *Guin directed the analysis and wrote the paper*.
- 1.2 Lu, H., H. Liu, D. Kim, T. Xia, Z. Dai, W. Richard, Y. Zhao, A. Guin, M. Rodgers, R. Guensler. Comparative Analysis of AERMOD-Predicted Pollutant Concentrations by Input Source Type in Atlanta, GA. Transportation Research Record: Journal of the Transportation Research Board, 2677(3), 1321–1339, 2023. *Guin provided guidance for the traffic operations data analysis in the study*.
- 1.3 Fan, H., H. Lu, Z. Dai, R. Passmore, A. Guin, R. Guensler, K. Watkins. Combined Effect of Changes in Transit Service and Changes in Occupancy on Per-Passenger Energy Consumption. Transportation Research Record: Journal of the Transportation Research Board, 2677(2), 1252–1265, 2023. *Guin provided* guidance for the analysis and data visualization in the study.

- 1.4 Saroj, A., S. Roy, A Guin, M. Hunter, Impact of connected corridor volume data imputations on digital twin performance measures, International Journal of Transportation Science and Technology, Elsevier. 12(2), 476-491, 2023. <u>https://doi.org/10.1016/j.ijtst.2022.05.001</u>. Guin conceived and led the development of the system architecture and integration. Guin provided guidance on the imputation logic development.
- 1.5 Manjunatha, P., S. Roy, L. Elefteriadou, A. Guin, and M. Hunter. Evaluation of the Operational Effects of Autonomous and Connected Vehicles through Microsimulation. Transportation Research Record: Journal of the Transportation Research Board, 2676(12), 69–84, 2022. *Guin provided guidance for the simulation model development and CAV analysis.*
- 1.6 Saroj, A., S. Roy, A. Guin, and M. Hunter. Development of a Connected Corridor Real-Time Data-Driven Traffic Simulation Model – Digital Twin. Journal of Transportation Engineering, Part A: Systems. 147(12), 2021. https://doi.org/10.1061/JTEPBS.0000599. Guin conceived and led the development of the system architecture and the real-time data ingestion methods and provided guidance on the analysis.
- 1.7 Saroj, A., A. Guin, M. Hunter. Deep LSTM Recurrent Neural Networks for Arterial Traffic Volume Data Imputation. Journal of Big Data Analytics in Transportation, Volume 3, pp 95–108. 2021. *Guin provided key insights in understanding the issues with the volume data and provided guidance in developing the imputation logic.*
- 1.8 Gbologah, F., S. Berrebi, A. Guin, M. O. Rodgers. Roundabouts in the United States: An International Comparison of Illuminance Requirements and Costs. Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Academies, Washington, D.C. 2675 (9), 495-506, 2021. <u>https://doi.org/10.1177/03611981211002817</u>. *Guin provided guidance in the cost analysis.*
- 1.9 Saroj, A., A. Guin, M. Hunter. Applicability of Long Short-Term Memory Traffic Volume Imputation Model to Drive Connected Corridor Simulation. Journal of Modern Mobility Systems. Volume 1, pp 119-124. 2020. *Guin developed the architecture for the real-time system and provided guidance in developing the imputation logic.*
- 1.10 Cho, H. W., B. Chilukuri, J. Laval, A. Guin, W. Suh, J. Ko. Genetic algorithmbased simulation optimization of the ALINEA ramp metering system: a case study in Atlanta. Transportation Planning and Technology, Volume 43, Issue 5, 2020, pp 475-487. Guin guided the student on understanding the biases and characteristics of freeway detector data, understanding ramp metering operations, and provided guidance in the data analysis.
- 1.11 Hunter, M., A. Guin, J. Anderson, S. J. Park. Operating Performance of Diverging Diamond Interchanges. Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Academies, Washington, D.C. Volume 2673, Issue 1, pp. 801–812.
 2019. [Best Paper Award Operational Effects of Geometrics Committee, Winner of the Transportation Research Board D. Grant Mickle Award.] Guin created the design of the experiment, conceived and led the data collection and analysis efforts and provided guidance with building the simulation model.
- 1.12 Anderson, J., W. Suh, A. Guin, M. Hunter, M. Rodgers, Accounting for composite travel time distributions within a traffic stream in determining Levelof-Service. Journal of Intelligent & Fuzzy Systems, IOS Press, 2019, vol. 36, no. 2, pp. 955-965. *Guin created the design of the experiment, conceived and led the*

data collection and analysis efforts. Guin also conceived and integrated advanced data collection equipment for this study using automatic license plate readers and Bluetooth sensors.

- 1.13 Gbologah, F. E., A. Guin, R. Purcell and M. O. Rodgers. "Benefit-to-Cost Analysis Framework for Intersection Illumination: A Case Study of Rural Conventional Intersections in Georgia." Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Academies, Washington, D.C. Volume 2673, Issue 9, pp. 83-93. 2019. *Guin led the data collection and analysis for determining the benefits and costs in the study*.
- 1.14 Gbologah, F. E., A. Guin and M. O. Rodgers. "Safety Evaluation of Roundabouts in Georgia." Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Academies, Washington, D.C. Volume 2673, Issue 7, pp. 641-651. 2019. Guin guided the analysis and processing of the crash data needed for the evaluation.
- 1.15 Xu, Y., H. Liu, M. Rodgers, A. Guin, M. Hunter, A. Sheikh, R. Guensler, "Understanding the emission impacts of high-occupancy vehicle (HOV) to high-occupancy toll (HOT) lane conversions: Experience from Atlanta, Georgia", Journal of the Air & Waste Management Association, (2017), Volume 67, Issue 8, Taylor & Francis. Guin provided guidance on analyzing the freeway data. Guin also conceptualized and supervised the development of the data transfer, ingestion and processing procedures for the freeway and toll road data streams.
- 1.16 Suh W., D. Henclewood, A. Guin, R. Guensler, M. Hunter, and R. Fujimoto. Dynamic Data Driven Transportation Systems. Multimedia Tools and Applications. December 2017, Volume 76, Issue 23, pp 25253–25269, Springer Nature. Guin conceived, coordinated and led the testbed development for the study. Guin also developed hardware interfaces for the detection devices. Guin integrated real-time data ingestion for the simulation.
- 1.17 Gbologah, F., A. Guin, M. Rodgers, R. Purcell. Calibration of a Digital Camera for Rapid Auditing of In-Situ Intersection Illumination. Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Academies, Washington, D.C. No 2617, pp. 35–43. 2017. *Guin guided the conceptualization and equipment integration for developing the method for measuring illumination from photos.*
- 1.18 Henclewood, D., W. Suh, A. Guin, R. Guensler, R. Fujimoto, and M. Hunter. Real-Time Data-Driven Traffic Simulation for Performance Measure Estimation. IET Intelligent Transport Systems, Vol. 10, Iss. 8, pp. 562–571, 2016. Guin conceived, coordinated and led the testbed development for the study and guided the real-time data ingestion for the simulation.
- 1.19 Guin, A., M. Hunter, M. Rodgers, J. Anderson, S. Susten, and K.Weigand. Integrating Intersection Traffic Signal Data into a Traffic Monitoring Program. Transportation Research Record: Journal of the Transportation Research Board, Transportation Research Board of the National Academies, Washington, D.C. No 2593, pp 74-84. May 2016. Guin led the study, including the design of experiment, data collection and reduction by a team of undergraduate students, as well as guided the analysis.
- 1.20 Suh, W., J. Anderson, A. Guin, and M. Hunter. Evaluation of Video Detection System as a Traffic Data Collection Method. Scientia Iranica, Elsevier Science BV, Vol. 22, Iss. 6, pp 2092-2102, January 2015. *Guin led the design of*

experiment, guided the ground truth data collection efforts by a large team of students and directed the analysis.

- 1.21 Chilukuri, B. R., Laval, J. A., & Guin, A. "Microsimulation-Based Framework for Freeway Travel Time Forecasting." Transportation Research Record, vol. 2470, no. 1, Jan. 2014, pp. 34–45. Guin provided guidance with developing the dataset for the forecasting model and the overall framework development.
- 1.22 Sheikh, A., **Guin**, A., & Guensler, R. (2014). Value of Travel Time Savings: Evidence from I-85 Express Lanes in Atlanta, Georgia. Transportation Research Record, vol 2470, no.1, Jan 2014, pp 161–168. *Guin conceptualized and guided* the development of the data transfer, ingestion and processing procedures for the freeway and toll road data streams used in the study. *Guin guided the* development of the data fusion processes involved in the analysis.
- 1.23 Colberg, K., W. Suh, J. Anderson, S. Zinner, A. Guin, M. Hunter, and R. Guensler. Lane Bias Issues in Work Zone Travel Time Measurement and Reporting. Transportation Research Record: Journal of the Transportation Research Board, No. 2458, Transportation Research Board of the National Academies, Washington, D.C., 2014, pp. 78-87. Guin developed the design of experiment and the data collection and guided the analysis. Guin also created advanced data collection equipment by integrating different sensors.
- 1.24 Suh, W., A. Guin, S. Zinner, K. Colberg, M. Hunter, and R. Guensler. Marginal Benefit of Adding Antennas to Bluetooth Sensor Arrays in Freeway Travel Time Data Collection. ASCE Journal of Transportation Engineering, Vol. 140, No. 12. July 2014. Guin created novel Bluetooth sensors for this study by integrating different commercially available parts. The study was essentially an evaluation of the performance of these novel sensors as roadside equipment on freeways.
- 1.25 Suh, W., D. Henclewood, A. Greenwood, A. Guin, R. Guensler, M. Hunter, and R. M. Fujimoto. Modeling Pedestrian Crossing Activities in an Urban Environment Using Microscopic Traffic Simulation. Transactions of the Society for Modeling and Simulation Intl., Vol. 89, No. 2, February 2013, pp. 213-224. (among top five downloaded papers by this journal in 2013). Guin provided guidance with the modification of the testbed equipment which was originally developed by him to detect pedestrians in addition to vehicles, as well as guidance with the ground truth data reduction effort.
- 1.26 Toth, C., W. Suh, V. Elango, R. Sadana, A. Guin, M. Hunter, and R. Guensler. Tablet-Based Traffic Counting Application Designed to Minimize Human Error. Transportation Research Record: Journal of the Transportation Research Board, No. 2339, Transportation Research Board of the National Academies, Washington, D.C., 2013, pp. 39-46. *Guin conceived the data collection interface, supervised the software development, and provided guidance with the experiment design.*
- 1.27 Castrillon, F., A. Guin, R. Guensler, and J. Laval (2012). "Comparison of Modeling Approaches for the Imputation of Intelligent Transportation System VDS Data." Transportation Research Record. Number 2308, pp. 138-147. National Academy of Sciences. Washington, DC. 2012. Guin provided the key insights in understanding the biases and limitations of video detection systems and helped develop the comparative study.
- 1.28 Hunter, M., A. Guin, S. Boonsiripant, M. Rodgers, and D. Jared. Evaluation of the Effectiveness of Converging Chevron Pavement Markings in Reducing Speed on Freeway Ramps. Transportation Research Record: Journal of the Transportation Research Board, No. 2149, Transportation Research Board of the

National Academies, Washington, D.C., 2010, pp. 50-58. *Guin conceived and led the field data collection and guided parts of the data analysis.*

- 1.29 Laval, J., Chen, D., Ben Amer, K., Guin, A., Ahn, S. Evolution of Oscillations in Congested Traffic: Improved Estimation Method and Additional Empirical Evidence. Transportation Research Record: Journal of the Transportation Research Board, Issue 2124, 2009, pp 194-202. Guin led the freeway data analysis and was involved in the estimation method development.
- 1.30 Pope, S., Garrow, L.A., Guin, A., Leonard II, J.D; Bankston, L. and Campbell, P. Conceptual Framework for Collecting Online Airline Pricing Data: Challenges, Opportunities, and Preliminary Results. Transportation Research Record: Journal of the Transportation Research Board, Issue 2106, 2009, pp 30-37. *Guin conceived and created the framework for collecting the online pricing data to enable the analysis.*
- 1.31 Guin, A., M. Hunter, and R. Guensler. Analysis of Reduction in Effective Capacities on High-Occupancy-Vehicle Lanes Related to Traffic Behaviour. Transportation Research Record: Journal of the Transportation Research Board, No. 2065, Transportation Research Board of the National Academies, Washington, D.C., 2008, pp. 47-53. *Guin led the study and performed the majority of the analysis*.
- 1.32 Guin, A., Porter, C., Smith, B., Holmes, C. Benefits Analysis for Incident Management Program Integrated with Intelligent Transportation Systems Operations: Case Study. Transportation Research Record: Journal of the Transportation Research Board, Issue 2000, 2007, pp 78-87. Guin led the study as well as performed the majority of the analysis.
- 1.33 Williams, Billy M; Guin, Angshuman. Traffic Management Center Use of Incident Detection Algorithms: Findings of a Nationwide Survey. IEEE Transactions on Intelligent Transportation Systems, Volume 8, Issue 2, 2007, pp 351-358. Guin performed the survey and the analysis.
- 1.34 Ni, Daiheng; Leonard II, John D; Guin, Angshuman; Feng, Chunxia. Multiple Imputation Scheme for Overcoming the Missing Values and Variability Issues in ITS Data. Journal of Transportation Engineering, Volume 131, Issue 12, 2005, pp 931-938. Guin worked together with Ni in performing the analysis.
- 1.35 Ni, Daiheng; Leonard II, John; **Guin**, Angshuman; Williams, Billy, "A Systematic Approach for Validating Traffic Simulation Models", Transportation Research Record, Issue 1876, 2004, p. 20-31. *Guin worked together with Ni in performing the analysis*.

2. <u>Invited Conference Presentations</u>

Invited Panelist

- 2.1 Guin, A., "Present and Future of Intelligent Transportation", Intelligent Transportation Society of Georgia, May, 2021
- 2.2 Guin, A., "Developing Successful Partnerships between Universities and Governments to Develop Connected Vehicle Technology Master Plans and Design Future Projects: The Peachtree Industrial Boulevard Experience" in Connected Vehicle Deployment Examples in the Atlanta Region, ConnectATL 2020, Atlanta, GA (Scheduled for 3/31/2020, cancelled due to COVID-19)

- 2.3 Guin, A., "V2X Going Further with Connectivity", Connected Fleets USA, Atlanta, GA, November 28, 2018
- 2.4 Guin, A., "Autonomous Vehicles: The Way Forward and the Disruption Factor" Technology Association of Georgia, Alpharetta, GA, June 7, 2018

Invited Presentations & Lectures

- 2.5 Guin, A., "Emergency Vehicle Signal Preemption with Connected Vehicle Technology in Gwinnett County", Smart Cities Valdosta - Connected Vehicles Discussion, Valdosta State University, June 23, 2021
- 2.6 Guin A., Invited lecture on State of the Practice in Intelligent Transportation Systems, for CE 705 ITS class at North Carolina State University, April 22, 2021
- 2.7 Guin A., "Real-Time Identification of Critical Alarms from Automatic Incident Detection Output using a Machine Learning Approach", USDOT Center for Connected Multimodal Mobility (C2M2) Distinguished Speaker, Clemson University, February 19, 2021.
- 2.8 Guin, A., "Machine Learning and Artificial Intelligence Training" Intelligent Transportation Society of Georgia, December 17, 2020
- 2.9 Guin, A., "Emergency Vehicle Signal Preemption", Intelligent Transportation Society of Georgia, February 26, 2020
- 2.10 Guin, A., "Transportation Sustainability in a world of Connected and Automated Vehicles", Sustainability showcase, Georgia Tech, October 29, 2019
- 2.11 Guin, A., "Connected Vehicles to the Rescue: How Connected Vehicle Technology based Signal Preemption can improve Emergency Vehicle Response Times", Sustainability showcase, Georgia Tech, October 30, 2019
- 2.12 Guin, A., "Connected Vehicles in Georgia", Oak Ridge National Laboratory, TN, August 2019.
- 2.13 Guin, A., "Connected Vehicles and Traffic Management", Georgia Smart Community Webinar, March 7, 2019

Invited Conference Presentations

- 2.14 Guin, A., "Machine Learning to Refine Automatic Incident Detection Alerts", International Conference on Transportation and Development, American Society of Civil Engineers (ASCE), Virtual Conference, June 9, 2021
- 2.15 Guin, A., "Emergency Vehicle Preemption with Connected Vehicles in Gwinnett County" Intelligent Transportation Society of Georgia, Monthly Meeting, Atlanta, GA, February 2020.
- 2.16 Guin, A. "Visualization of Real-time Energy Performance Metrics on a Smart Corridor in a Digital Twin Environment". Visualization in Transportation Committee (AED80), Transportation Research Board 99th Annual Meeting, TRB, National Research Council, Washington, D.C., January 2020.
- 2.17 Guin, A., "Data-Driven Digital Twin to Test Connected Infrastructure Environmental Applications - A Case Study of North Avenue Smart Corridor", Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Seattle, WA, October 22, 2019
- 2.18 Guin, A., "Traffic Operations in the World of Ubiquitous Data Are Smartphones Driving Traffic into my Neighborhood" Intelligent Transportation Society of Georgia, Annual Meeting, Athens, GA, October 2019

3. Conference Presentations with Proceedings (refereed)

- 3.1 Bae, J., A. Saroj, W. Suh, M. Hunter, A. Guin. "Modeling Autonomous Vehicletargeted Aggressive Merging Behaviors in Mixed Traffic Environment". *accepted for presentation* at the 2023 Winter Simulation Conference and for publication in the WSC 2023 Proceedings. *Guin guided the design of experiment, the development of the model and the analysis.*
- 3.2 Kumarasamya, V., A. Saroj, Y. Liang, D. Wu, M. Hunter, A. Guin, M. Sartipi. Traffic Signal Optimization by Integrating Reinforcement Learning and Digital Twin. Accepted for presentation and publication of proceedings at IEEE Smart World Congress August 28-31, 2023. *Guin developed the conceptual and system architecture for the Digital Twin and guided the analysis and integration of the data streams in the simulation input.*
- 3.3 Saroj, A., S. Roy, A. Guin, M. Hunter. A Three-Tier Incremental Approach for Development of Smart Corridor Digital Twins. IEEE ISORC 2023, Nashville, Tennessee, USA, May 24, 2023
- 3.4 Fan H., S. Sivakumar, A. Guin, R. Guensler. "Transit Equity Under Extreme Temperature: An Exposure Analysis in Atlanta, Georgia" *Transportation Research Board 102nd Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2023. *Guin provided guidance with the analysis and the interpretation of the results*.
- 3.5 Saroj, A., D. Kwesiga, A. Guin, M. Hunter. Three Tier Incremental Approach to Development of Smart Corridor Digital Twin. (extended abstract) Proceedings of the 2022 Winter Simulation Conference. December, 2022.
- 3.6 Saroj, A., T. V. Trant, A. Guin, M. Hunter and M. Sartipi, "Optimizing Traffic Controllers along the MLK Smart Corridor Using Reinforcement Learning and Digital Twin," 2022 IEEE 2nd International Conference on Digital Twins and Parallel Intelligence (DTPI), Boston, MA, USA, 2022, pp. 1-2, doi: 10.1109/DTPI55838.2022.9998928. *Guin developed the conceptual and system architecture for the Digital Twin and guided the analysis and integration of the data streams in the simulation input.*
- 3.7 Guin, G., K. Robinson, H. Unthank, S. Roy, and M. Hunter. Impact of Restricted Crossing U-Turns on Vehicular Emission Transportation Research Board 101th Annual Meeting, TRB, National Research Council, Washington, D.C., Jan 2022. [Paper withheld by authors from Proceedings]
- 3.8 Lu, H., H. Liu, D. Kim, T. Xia, Z. Dai, W. Richard, Y. Zhao, A. Guin, M. Rodgers, R. Guensler. "Comparative Analysis of AERMOD-Predicted Pollutant Concentrations by Input Source Type in Atlanta, GA" *Transportation Research Board 101st Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2022. *This conference paper eventually advanced to a full journal publication [I.B.1.2]. Guin provided guidance for the traffic operations data analysis in the study.*
- 3.9 Choudhary, N., A. Guin, M. Hunter. Practical Challenges with Rapid Estimation of Incident-induced Delay for Incident Management. *Transportation Research Board 100th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2021. *Guin conceived and directed the development of the incident delay estimated methods*.
- 3.10 Lu, H., H. Liu, T. Xia, A. **Guin**, M. Rodgers, R. Guensler. Investigation of MOVES Project-Level Uncertainty: Impact of Temporal- and Spatial-Aggregation of Onroad Operating Conditions on Emission Rate Estimates.

Transportation Research Board 100th Annual Meeting, TRB, National Research Council, Washington, D.C., January 2021. Guin guided the traffic operations data analysis in the study.

- 3.11 Lu, H., H. Liu, A. **Guin**, M. Rodgers, R. Guensler. Sensitivity Analysis of Emissions Estimation When Cluster Analysis Is Used to Trim Machine Vision Traffic Data. *Transportation Research Board 99th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2020. *Guin guided the traffic operations data analysis in the study*.
- 3.12 Kiriazes, R., K. Watkins, A. Guin, M. Hunter, Impact of Smartphone Applications on Trip Routing. *Transportation Research Board 99th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2020. [Paper withheld by authors from Proceedings] *Guin conceived and developed the experiment design and guided the analysis. As part of this study Guin also developed some innovative data collection methods for crowdsourced location and route choice data.*
- 3.13 Saroj, A., N. Choudhary, H. G. Kim, S. Harris, A. Guin, M. O. Rodgers, and M. Hunter. Operational Evaluation of Do Not Block the Box Campaigns. *Transportation Research Board 98th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2019. *Guin conceived and developed the experiment design and data collection and guided the evaluation analysis. Guin also developed some portable vehicle trajectory data collection devices for this study.*
- 3.14 Kim, D., A. Guin, J. Ko, M. O. Rodgers, and R. Guensler. Energy and Environmental Impact of Truck-Only Lanes: a Case Study of Interstate 75 between Macon and McDonough, Georgia. *Transportation Research Board 98th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2019. *Guin provided guidance with the data processing and the evaluation analysis*.
- 3.15 Lu, H., H. Liu, X. Xu, A. Guin, M. O. Rodgers, and R. Guensler. Moves Project-Level Uncertainty Analysis: Impacts of Variability in Onroad Operating Conditions on Emission Rates. *Transportation Research Board 98th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2019. *Guin guided the traffic operations data analysis in the study.*
- 3.16 Hunter, M., Guin, A., Anderson, J., & Park, S. J. (2019). Operating Performance of Diverging Diamond Interchanges. *Transportation Research Board 98th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2019. *This conference paper eventually advanced to a full journal publication [I.B.1.11]. Guin was the students' thesis advisor and provided guidance in the conduct of the study.*
- 3.17 Saroj, A., S. Roy, A. Guin, M. Hunter and R. Fujimoto. Smart city real-time data-driven transportation simulation. 2018 Winter Simulation Conference (WSC), IEEE, December 2018. Guin developed the conceptual and system architecture and guided the analysis and integration of the data streams in the data driven simulation.
- 3.18 Xu, X., H. Liu, A. Guin, M. Rodgers, R. Guensler, Regional Emission Analysis Using Travel Demand Models and MOVES-Matrix, *Transportation Research Board 97th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2018. *Guin provided guidance with the development of advanced procedures for addressing the massive computation and storage needs for the study*.

- 3.19 Saroj, A., N. Choudhary, H. Kim, A. Guin, M. Rodgers, and M. Hunter. Video Tool for Manually Extracting Complex Traffic Data. *Transportation Research Board 97th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2018. *Guin conceived and guided the tool development for the study*.
- 3.20 Li, H., Wang, Y., Xu, X., Liu, H., Guin, A., Rodgers, M.O., Hunter, M.P., Laval, J.A., Abdelghany, K. and Guensler, R., 2018. Assessing the Time, Monetary, and Energy Costs of Alternative Modes, *Transportation Research Board 97th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2018. *Guin directed the development of the space time memory that was used extensively in the analysis in this study.*
- 3.21 Gbologah, F. E., A. Guin, R. Purcell and M. O. Rodgers. "Benefit-to-Cost Analysis Framework for Intersection Illumination: A Case Study of Rural Conventional Intersections in Georgia." *Transportation Research Board 97th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2018. This conference paper eventually advanced to a full journal publication [I.B.1.13]. Guin was the student's thesis advisor, and provided guidance in the conduct of the study. Guin was PI for the project and led the study.
- 3.22 **Gbologah**, F. E., A. **Guin** and M. O. Rodgers. "Safety Evaluation of Roundabouts in Georgia." *Transportation Research Board 97th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2018. *This conference paper eventually advanced to a full journal publication [I.B.1.14]*. *Guin was the student's thesis advisor and provided guidance in the conduct of the study*.
- 3.23 Guin, A., C Maddox, S. Harris, M. Rodgers, and M. Hunter. Emerging Role of Activity Center Transportation Organizations in Traffic Operations Services, *Transportation Research Board 96th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2017. *Guin conceptualized and developed the experiment design and led the study*.
- 3.24 Saroj, A., S. Harris, A. Guin, M. Rodgers, and M. Hunter. Analysis of Vehicle Blocking Behavior on Intersection Performance. *Transportation Research Board* 96th Annual Meeting, TRB, National Research Council, Washington, D.C., January 2017. Guin conceived and developed the experiment design and data collection and guided the evaluation analysis. Guin also developed some portable vehicle trajectory data collection devices for this study.
- 3.25 Gbologah, F., A. Guin, M. Rodgers, R. Purcell. Calibration of Digital Camera for Rapid Auditing of In-Situ Intersection Illumination. *Transportation Research Board 95th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2016. *This conference paper eventually advanced to a full journal publication [I.B.1.17]. Guin was the PI for the project, the student's thesis advisor and led the study.*
- 3.26 Shaw, A., A. Greenwood, J. Bae, W. Woolery, Y. Xu, A. Guin, G. Corso, M. Rodgers, and M. Hunter. Driver's Perceived Complexity of Simulated and On-Road Environments. *Transportation Research Board 95th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2016. *Guin guided the development of the novel data collection procedures used in the study*.
- 3.27 Hunter, M., A. Biswas, B. Chilukuri, A. Guin, R. Fujimoto, R. Guensler, J. Laval, H. Liu, S. Neal, P Pecher, M. Rodgers (2016). Energy-Aware Dynamic Data-Driven Distributed Traffic Simulation for Energy and Emissions Reduction. Dynamic Data-Driven Application Systems Conference. September 2016. Guin provided guidance with the distributed simulation model development.

- 3.28 Shaw, A., K. Udell, A. Greenwood, J. **Bae**, W. Woolery, Y. Xu, A. **Guin**, M. Rodgers, G. Corso, and M. Hunter. Effects of Experience on Driver Perception of Roadway Environments. *Proceedings of the Road Safety and Simulation International Conference*, Orlando, FL, October 2015. *Guin guided the development of the novel data collection procedures used in the study*.
- 3.29 Suh, W., J. Anderson, M. Hunter, and A. Guin. Evaluation of Traffic Data Collection Method. 2014 International Conference on Engineering and Technology Innovation, Taiwan, November 2014, in proceedings Applied Mechanics and Materials, Trans Tech Publications, ISSN: 1662-7482, Vols. 764-765, pp 905-909, May 2015. Guin led the design of experiment, guided the ground truth data collection efforts by a large team of undergraduate students and directed the analysis.
- 3.30 Shaw, A., K. Udell, A. Greenwood, J. Bae, W. Woolery, M. Rodgers, G. Corso, Y. Xu, A. Guin, and M. Hunter. "Designing an Engineering Research Experience for High School Students." *Proceedings of the American Society for Engineering Education Southeastern Section Annual Conference*, Gainesville, FL, April 2015. *Guin provided guidance on the driver perception aspects of the study.*
- 3.31 Chilukuri, B. R., J. Laval, A., Guin, A., Optimal Ramp Metering with GA based Parameter Optimization, *Transportation Research Board 94th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2015. *Guin was the PI, the student's thesis advisor, and provided guidance in the conduct of the study.*
- 3.32 Guin, A., M. Hunter, M. Rodgers, J. Anderson, S. Susten, and K.Weigand. Integrating Intersection Traffic Signal Data into a Traffic Monitoring Program *Transportation Research Board 94th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2015. *This conference paper eventually advanced to a full journal publication [I.B.1.19]. Guin led the study as well as performed the majority of the analysis.*
- 3.33 Fujimoto, R., A. Guin, M. Hunter, H. Park, R. Kannan, G. Kanitkar, M. Milholen, S. Neal, and P. Pecher, A Dynamic Data Driven Application System for Vehicle Tracking, *ICCS 2014 "Big Data meets Computational Science"*, Cairns, Australia. June 2014. Proceedings in Procedia Computer Science, Volume 29, 2014, Pages 1203–1215. *Guin provided guidance with the simulation model components in the application in this study*.
- 3.34 Toth, C., A. Santiago, A. **Guin**, E., Vetri, M. Hunter, and R. Guensler. Atlanta I-85 HOV-to-HOT Conversion: Impacts on Weaving and Effective Capacity. *Transportation Research Board 93rd Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2014. *Guin guided the analysis. The effective capacity concepts were an extension of the original paper authored by Guin in 2008 [I.B.1.31]*
- 3.35 Guin, A., V. Elango, M. Hunter, and R. Guensler. Visualization of Vehicle and Person Throughput. 7th International Visualization in Transportation Symposium: Visualization for Big Data! Irvine, CA. October 23-25, 2013. Guin directed the development of the traffic visualization interface for this study.
- 3.36 Chilukuri, B. R., Laval, J. A., & Guin, A. "Microsimulation-Based Framework for Freeway Travel Time Forecasting." *Transportation Research Board 92nd Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2013. *This conference paper eventually advanced to a full journal publication [I.B.1.21]. Guin was the student's thesis advisor and provided guidance in the conduct of the study.*

- 3.37 Sheikh, A., Guin, A., & Guensler, R. (2014). Value of Travel Time Savings: Evidence from I-85 Express Lanes in Atlanta, Georgia. *Transportation Research Board 92nd Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2013. *This conference paper eventually advanced to a full journal publication [I.B.1.22]. Guin was Co-PI for the project and provided guidance in the conduct of the study, especially the data analysis parts.*
- 3.38 Colberg, K., W. Suh, J. Anderson, S. Zinner, A. Guin, M. Hunter, and R. Guensler. Lane Bias Issues in Work Zone Travel Time Measurement and Reporting. *Transportation Research Board 92nd Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2013. *This conference paper eventually advanced to a full journal publication [I.B.1.23]. Guin the thesis advisor of two of the students and led the study.*
- 3.39 D'Ambrosio, K., K. Smith, F. Castrillon, S. Box, C. Rome, C. Toth, A. Sheikh, T. Vo, L. Peesapati, A. Guin, V. Elango, M. Hunter, and R. Guensler. Methodology for Collection Vehicle Occupancy Data on Multi-lane Interstate Highways. *Transportation Research Board 91st Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2012. *Guin helped design the data collection procedures for this study and developed the equipment used for data collection*.
- 3.40 Toth, C., W. Suh, V. Elango, R. Sadana, A. **Guin**, M. Hunter, and R. Guensler. Tablet-Based Traffic Counting Application Designed to Minimize Human Error. *Transportation Research Board 91st Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2012. *This conference paper eventually advanced to a full journal publication [I.B.1.26]. Guin provided guidance in the conduct of the study and also supervised the software development. Guin was Co-PI on the project, supervised the software development effort, and provided guidance in the conduct of the study.*
- **3.41** Toth, C., R. Guensler, A. Guin, and M. Hunter. Changes in Legal and Illegal Weaving Activity After the Restriping of I-85 HOV Lanes in Atlanta. *Transportation Research Board 91st Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2012. *Guin conceived designed and led the data collection for this study. Guin also provided* guidance on the analysis procedures.
- 3.42 Box, S., T. Vo, W. Suh, R. Guensler, A. Guin, M. Hunter, and M. Rodgers. Assessment of Multi-Antenna Array Performance for Detecting Bluetooth Enabled Devices in a Traffic Stream. *Transportation Research Board 91st* Annual Meeting, TRB, National Research Council, Washington, D.C., January 2012. Guin created the Bluetooth sensors for this study by integrating different commercially available parts. The study was an evaluation of the performance of these novel sensors as roadside equipment on arterials.
- 3.43 Castrillon, F., A. **Guin**, R. Guensler, and J. Laval. Comparison of Modeling Approaches for the Imputation of Intelligent Transportation System VDS Data. *Transportation Research Board 90th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2011. *This conference paper eventually advanced to a full journal publication [I.B.1.27]. Guin led the study and provided guidance to the student.*
- 3.44 Peesapati, L. N., Hunter, M., Rodgers, M., and A. Guin. A Profiling Based Approach to Safety Surrogate Data. *3rd International Conference on Road Safety and Simulation*, September 14-16, 2011, Indianapolis, USA. *Guin led the data collection experiment design for the study and provided guidance on developing the interface for the data extraction and analysis.*

- 3.45 Henclewood, D., A. Guin, R. Guensler, R. Fujimoto and M. Hunter. Real-Time Data Driven Arterial Simulation for Performance Measure Estimation. *Proceeding of the Winter Simulation Conference*, B. Johansson, S. Jain, J. Montoya-Torres, J. Hugan, and E. Yücesan, eds., WSC, Baltimore Md, Dec. 2010. *Guin conceived, coordinated and led the testbed development for the study and guided the real-time data ingestion for the simulation.*
- 3.46 Henclewood, D., M. Smith, L. Garrow, A. Guin, M. Hunter, and M. Usselman. Building Engineering Achievement Through Transportation (BEAT): A Traffic Engineering Program for High School Students. In proceedings of the American Society for Engineering Education Southeastern Section Annual Conference, Marietta, GA, pp. 1-10. 2009 (Awarded Best Zone Paper from ASEE Zone II, also presented as invited paper at 9th Annual ASEE Global Colloquium on Engineering Education, Singapore, October 18-21, 2010). Guin conceived and created the hardware tools used for instructions to the students.
- 3.47 Hunter, M., A. Guin, S. Boonsiripant, M. Rodgers, and D. Jared. Evaluation of the Effectiveness of Converging Chevron Pavement Markings in Reducing Speed on Freeway Ramps. *Transportation Research Board 88th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2009. *This conference paper eventually advanced to a full journal publication [I.B.1.28]. Guin provided guidance to the student, and led the field data collection.*
- 3.48 Laval, J., Chen, D., Ben Amer, K., **Guin**, A., Ahn, S. Evolution of Oscillations in Congested Traffic: Improved Estimation Method and Additional Empirical Evidence. *Transportation Research Board 87th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2008. *This conference paper eventually advanced to a full journal publication [I.B.1.29]. Guin provided guidance to the students in the conduct of the study.*
- 3.49 Pope, S., Garrow, L.A., Guin, A., Leonard II, J.D; Bankston, L. and Campbell, P. Conceptual Framework for Collecting Online Airline Pricing Data: Challenges, Opportunities, and Preliminary Results. *Transportation Research Board 87th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2008. *This conference paper eventually advanced to a full journal publication [I.B.1.30]. Guin conceived and created the framework for collecting the data that made this study possible.*
- 3.50 Guin, A., M. Hunter, and R. Guensler. Analysis of Reduction in Effective Capacities on High-Occupancy-Vehicle Lanes Related to Traffic Behaviour. *Transportation Research Board 86th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2007. *This conference paper eventually advanced to a full journal publication [I.B.1.31]. Guin led the study and performed the majority of the analysis.*
- 3.51 Guin, A., Porter, C., Smith, B., Holmes, C. Benefits Analysis for Incident Management Program Integrated with Intelligent Transportation Systems Operations: Case Study. *Transportation Research Board 85th Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2006. *This conference paper eventually advanced to a full journal publication [I.B.1.32]. Guin led the study and performed the majority of the analysis.*
- 3.52 Ni, Daiheng; Leonard II, John; **Guin**, Angshuman; Williams, Billy, "A Systematic Approach for Validating Traffic Simulation Models", *Transportation Research Board 82nd Annual Meeting*, TRB, National Research Council, Washington, D.C., January 2003. *This conference paper eventually advanced to a full journal publication [I.B.1.35]. Guin performed part of the analysis for the study.*

4. Conference Presentations without Proceedings

- 4.1 Lu, H., H. Liu, D. Kim, T. Xia, Z. Dai, W. Reichard, Y. Zhao, A. Guin, M. O. Rodgers, and R. Guensler (2022). Comparative Analysis of AERMOD-Predicted Pollutant Concentration by Input Source Type in Atlanta, GA. 10th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo. One Georgia Center. Atlanta, Georgia. September 8, 2022
- 4.2 **Guin**, A., S. **Roy**, M. Hunter. Advanced Strategies for Emergency Vehicle Preemption Using Connected Vehicle Infrastructure. Southern ITS Summit. Atlanta, Ga. November 2022,
- 4.3 Gopikrishnan, N., S. Roy, D. Kwesiga, M. Hunter, A. Guin. Evaluation of Emergency Vehicle Preemption and Transit Signal Priority Strategies with Connected Vehicles using Software in the Loop. 10th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, Sept 2022.
- 4.4 Bae, J., A. Guin, M. Hunter. Modeling Driver Behavior in a Cooperative and Driverless Vehicle Mixed Roadway Environment. 9th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, Online, Oct 2021.
- 4.5 **Roy**, S., M. Hunter, and A. **Guin**. Emergency Vehicle Signal Preemption: Software-In-the-Loop Simulation (SILS) Evaluation. 8th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, Online, Oct 2020.
- 4.6 Bae, J., A. Guin, M. Hunter. Modeling Driver Behavior in a Cooperative and Driverless Vehicle Mixed Roadway Environment. 8th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, Online, Oct 2020.
- 4.7 Kim, H.G., A. Guin, M. Hunter. Using Machine Learning to Identify Incidents in Automatic Incident Detection (AID) System Generated Alarms. Career, Research, and Innovation Development Conference (CRIDC) Posters, Georgia Institute of Technology, Jan 2020.
- 4.8 Guin, A., A Saroj, N. Choudhary, H. Kim, and M. Hunter. Operational Evaluation of Do Not Block the Box Campaigns in Georgia. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.9 **Guin**, A., H. Kim, N. Choudhary, and M. Hunter. Automatic Incident Detection Evaluation and Incident Delay Estimation. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.10 Guin, A., M. Rodgers, M. Hunter, S. Park, and J. Anderson. Operating Performance of Diverging Diamond Interchanges. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.11 **Guin**, A., Evaluation of Emergency Vehicle Delays at Traffic Signals The Gwinnett County Case Study. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.12 Guensler, R., M.O. Rodgers, M. Hunter, A. **Guin**, H. Liu, X. Xu, H. Li, D. Kim, Y. Zhao, Y. Wang, and H. Lu. (2019). Invited. Integrating MOVES-Matrix at

Multiple Scales for Transportation Energy and Emissions Assessment (xx attendees). Office of Mobile Sources Technical Advisory Subcommittee [of the Clean Air Act Advisory Committee] Meeting. US Environmental Protection Agency. Ann Arbor, MI. October 9, 2019.

- 4.13 Guensler, R., M.O. Rodgers, M. Hunter, A. Guin, H. Liu, X. Xu, H. Li, D. Kim, Y. Zhao, Y. Wang, and H. Lu (2019). Invited. Integrating Models at Multiple Scales for Transportation Energy and Emissions Assessment (20 attendees). ARC Model Users Group. September 27, 2019.
- 4.14 Roy, S., A. Saroj, A. Guin, and M. Hunter. Connected Infrastructure Data Loss Patterns. 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.15 Kim, H., N. Choudhary, M. Hunter, and A. Guin. Detection Technology Testbed in I-475: Technology Feasibility Study (RP 7-20). 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.16 Bae, J., W. Suh, Z. Huang, A. Guin, M. Rodgers, and M. Hunter. Development of Tools to Model Driver Behavior in a Cooperative and Driverless Vehicle Mixed Roadway Environment (RP 8-23). 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.17 Saroj, A., S. Roy, R. Guensler, A. Guin, and M. Hunter Smart City Connected Digital Twin. 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.18 Kiriazes, R., K. Watkins, A. **Guin**, and M. Hunter. The Impact of Smartphone Applications on Trip Routing. 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.19 Guensler, R., M. Rodgers, M. Hunter, A. Guin, R. Fujimoto, J. Laval, K. Abdelghany, H. Liu, and F. Gbologah. TRANSNET-Atlanta: Applications of Space-Time Memory to Reduce Congestion and Energy Use. 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.20 Park S., J. Anderson, A. Guin, and M. Hunter. Sensitivity Analysis of Operations Performance under Diverging Diamond Interchanges (RP 2-28). 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.21 Gbologah, F., M. Hunter, M. Rodgers, A. Guin. Evaluation of the Cost Effectiveness of Illumination as a Safety Treatment at Rural Intersections. 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.22 Gbologah, F., M. Rodgers, M. Hunter, A. Guin, A. Samoylov, S. Berrebi. Evaluation of Current Practice for Illumination at Roundabouts: Safety and the Illumination of Roundabouts (Phase I). 7th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.
- 4.23 Hunter, M., A. Guin, R. Guensler, R. Fujimoto, M. Rodgers, A. Saroj, S. Roy, J. Bolen, and A. Biswas. Smart Cities Atlanta Real-Time Data-Driven Transportation Simulation. 7th Annual Georgia Department of Transportation

and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2019.

- 4.24 Kim, H. G., N. Choudhary, A. Guin, and M. Hunter. Using Machine Learning to Reduce False Alarm in Alerts Generated by Automatic Incident Detection Systems. (poster). Automated Vehicle Symposium, Orlando, Florida, July 15th-19th, 2019.
- 4.25 Roy, S., A. Saroj, A. Guin, and M. Hunter. Investigation of Data Loss Patterns in Real-Time Connected Transportation Infrastructure Data. (poster). Automated Vehicle Symposium, Orlando, Florida, July 15th-19th, 2019.
- 4.26 Saroj, A., S. Roy, R. Fujimoto, R. Guensler, A. Guin, and M. Hunter. Smart City Digital Twin – Connected Data Driven Traffic Simulation Model. (poster). Automated Vehicle Symposium, Orlando, Florida, July 15th-19th, 2019.
- 4.27 Saroj, A., N. Choudhary, H. Kim, S. Harris, A. Guin, M. Rodgers, and M. Hunter. Operational Evaluation of Do Not Block The Box Campaigns. 6th Annual UTC Conference for the Southeastern Region, Clemson, South Carolina, Oct. 24th-25th, 2018.
- 4.28 Saroj, A., S. Roy, R. Fujimoto, A. Guin, and M. Hunter. Smart Corridor Real-Time Dynamic Simulation. 6th Annual UTC Conference for the Southeastern Region, Clemson, South Carolina, Oct. 24th-25th, 2018.
- 4.29 Kim H., N. Choudhary, A. Guin, and M. Hunter. Benefits Analysis of a Video Based Automatic Incident Detection Technology. 6th Annual UTC Conference for the Southeastern Region, Clemson, South Carolina, Oct. 24th-25th, 2018.
- 4.30 Gbologah, F., M. Hunter, M. Rodgers, A. Guin. Evaluation of the Cost Effectiveness of Illumination as a Safety Treatment at Rural Intersections. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 6th, 2018.
- 4.31 Gbologah, F., M. Rodgers, M. Hunter, A. Guin, A. Samoylov, S. Berrebi. Evaluation of Current Practice for Illumination at Roundabouts: Safety and the Illumination of Roundabouts (Phase I). 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 6th, 2018.
- 4.32 Guin, A., A Saroj, N. Choudhary, H. Kim, and M. Hunter. Operational Evaluation of Do Not Block the Box Campaigns in Georgia. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 6th, 2018.
- 4.33 Guin, A., H. Kim, N. Choudhary, and M. Hunter. Detection Technology Testbed in I-475: Technology Feasibility Study. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 6th, 2018.
- 4.34 Hunter, M., A. Guin, R. Guensler, R. Fujimoto, M. Rodgers, A. Saroj, S. Roy, J. Bolen, and A. Biswas. Smart Cities Atlanta Real-Time Data-Driven Transportation Simulation. 6th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 6th, 2018.
- 4.35 Saroj, A., N. Choudhary, H. Kim, A. Guin, M. Rodgers, and M. Hunter. Don't Block The Box – Blocking Behavior Effect on Intersection Performance. 5th Annual UTC Conference for the Southeastern Region, Gainesville Florida, Nov. 16-17, 2017.
- 4.36 Hunter, M., A. **Guin**, R. Guensler, R. Fujimoto, M. Rodgers., J. Bolen, S. Roy, and A. Biswas. Atlanta Smart City Initiative Corridor and Special Event

Application. 5th Annual UTC Conference for the Southeastern Region, Gainesville Florida, Nov. 16-17, 2017.

- 4.37 Park S., M. Hunter, A. Guin Performance Analysis of Conventional and Diverging Diamond Interchanges. 5th Annual UTC Conference for the Southeastern Region, Gainesville Florida, Nov. 16-17, 2017.
- 4.38 Pena, M., J. Sin, M. Hunter, M. Rodgers, A. Guin. Centerline Rumble Strips Safety Impact Evaluation & Centerline Rumble Strips Safety Impact Evaluation, Phase II. 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.39 Gbologah, F., M. Hunter, M. Rodgers, A. Guin. Evaluation of the Cost Effectiveness of Illumination as a Safety Treatment at Rural Intersections. 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.40 Harris, S., B. Maddox, A. Saroj, M. Hunter, A. Guin. Enhanced Role of Activity Center Transportation Organizations in Regional Mobility. 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.41 Saroj, A., N. Choudhary, H. G. Kim, M. Hunter, A. Guin. Operational Evaluation of Do Not Block the Box Campaigns in Georgia. 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.42 Gbologah, F., M. Rodgers, M. Hunter, A. Guin, A. Samoylov, S. Berrebi. Evaluation of Current Practice for Illumination at Roundabouts: Safety and the Illumination of Roundabouts (Phase I). 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.43 Huang, Z., J. Bae, W. Suh, A. Greenwood, M. Hunter, A. Guin, M. Rodgers. Cooperative Vehicle-Highway Automation Technology: Simulation of Benefits and Operational Issues. 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.44 Kim H. G., N. Choudhary, M. Hunter, A. Guin. Detection Technology Testbed in I-475: Technology Feasibility Study. 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.45 Hunter, M., A. Guin, R. Guensler, F. Fujimoto, J. Bolen, S. Roy. Smart Cities Atlanta North Avenue and Special Event Demonstration Project. 5th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Oct 5th, 2017.
- 4.46 Guin, A., F. Gbologah, and M. Rodgers. Safety Evaluation of Roundabouts in Georgia. 5th Annual UTC Conference for the Southeastern Region, Gainesville, FL. November, 2017.
- 4.47 Guensler, R., M.O. Rodgers, M. Hunter, R. Fujimoto, K. Abdelghany, and A. Guin (2017). TRANSNET Atlanta: Network Performance Monitoring and Distributed Simulation to Improve Transportation Energy Efficiency. ARPA-E 2017 energy innovation Summit. Washington, DC. February 27 March 1, 2017.
- 4.48 Saroj, A., S. Harris, C. Maddox, M. Rodgers, M. Hunter, and A. Guin. Enhanced Role of Activity Center Transportation Organizations in Regional Mobility & Operational Evaluation of Do Not Block the Box Campaigns in Georgia. 4th Annual Georgia Department of Transportation and Georgia

Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2016.

- 4.49 Pena, M., J Sin, M. Hunter, M. Rodgers, and A. Guin. Centerline Rumble Strips Safety Impact Evaluation & Centerline Rumble Strips Safety Impact Evaluation 4th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2016.
- 4.50 Guin, A., M. Rodgers, M. Hunter, W. Suh, and J. Anderson. Operating Performance of Diverging Diamond Interchange. 4th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2016.
- 4.51 Huang, Z., W. Suh, P. Pratyaksa, A. Greenwood, A. Guin, M. Hunter, and M. Rodgers. Cooperative Vehicle-Highway Automation (CVHA) Technology Simulation of Benefits and Operational Issues. 4th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2016.
- 4.52 Guensler, R., M. Hunter, A. Guin, W. Suh, J. Anderson, K. Colberg, and S. Zinner (2016). "Real-Time Work Zone Travel Time." 4th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2016.
- 4.53 Hunter, M., A. Guin, W. Suh, and J. Anderson Feasibility Study for Using Video Detection System Data to Supplement Automatic Traffic Recorder. 4th Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 13th, 2016.
- 4.54 Guin, A. J. Anderson, M. Hunter, and M. Rodgers. Identification and Analysis of Composite Travel Time Distributions in a Traffic Stream Utilizing Probe Vehicle Data. (accepted Nov 2015) North American Travel Monitoring Exposition and Conference (NATMEC) 2016: Improving Traffic Data Collection, Analysis, and Use. Miami, FL, May 1-4, 2016
- 4.55 Saroj, A., Harris, S., Guin, A., Rodgers, M. O., & Hunter, M. (2016, March). Sensitivity Analysis of Vehicle Blocking Behavior on Intersections. Poster presented at 2016 UTC Conference for the Southeastern Region, Knoxville, Tennessee, March 31th -April 1, 2016.
- 4.56 Guensler, R., M.O. Rodgers, M. Hunter, Y. Xu, R. Fujimoto, K. Abdelghany, A. Guin, K. Watkins, R. Pendyala (2016). Network Performance Monitoring and Distributed Simulation to Improve Transportation Energy Efficiency. *Department of Energy, ARPA-E Energy Summit. Baltimore Harbor*, MD. February 29 to March 3, 2016.
- 4.57 Guensler, R., M.O. Rodgers, M. Hunter, Y. Xu, R. Fujimoto, K. Abdelghany, A. Guin, K. Watkins, R. Pendyala (2015). Network Performance Monitoring and Distributed Simulation to Improve Transportation Energy Efficiency. *Department of Energy, ARPA-E TRANSNET Kickoff Meeting*. San Francisco, CA. November 10, 2015.
- 4.58 Huang, Z., W. Suh, P. Pratyaksa, A. Greenwood, A. Guin, M. Hunter, and M. Rodgers. Cooperative Vehicle-Highway Automation (CVHA) Technology Simulation of Benefits and Operational Issues. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.
- 4.59 Shaw, A., J. Bae, A. Greenwood, W. Woolery, Y. Xu, A. Guin, G. Corso, M. Rodgers, and M. Hunter. Driver Perception of Simulated and On-Road Environments. 3rd Annual Georgia Department of Transportation and Georgia

Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.

- 4.60 Bae, J., A. Shaw, A. Greenwood, W. Woolery, Y. Xu, A. Guin, G. Corso, M. Rodgers, and M. Hunter. Effects of Roadway Factors on the Perception of Complexity. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.
- 4.61 Gbologah, F., M. Hunter, M. Rodgers, and A. Guin Evaluation of the Cost Effectiveness of Illumination as a Safety Treatment at Rural Intersections. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.
- 4.62 Hunter, M., A. Guin, W. Suh, and J. Anderson Feasibility Study for Using Video Detection System Data to Supplement Automatic Traffic Recorder. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22rd, 2015.
- 4.63 Guin, A., M. Rodgers, M. Hunter, W. Suh, and J. Anderson. Operating Performance of Diverging Diamond Interchange. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.
- 4.64 Saroj, A., S. Harris, C. Maddox, M. Rodgers, M. Hunter, and A. Guin. Role of Transportation Management Associations in Traffic Operations. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.
- 4.65 Pena, M., J. Sin, M. Hunter, M. Rodgers, and A. Guin. Safety Evaluation of Roundabouts in Georgia. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.
- 4.66 Pena, M., J Sin, M. Hunter, M. Rodgers, and A. Guin. Safety Impact of Centerline Rumble Strips. 3rd Annual Georgia Department of Transportation and Georgia Transportation Institute Research Expo, One Georgia Center, Atlanta, Georgia. Sept 22nd, 2015.
- 4.67 **Gbologah**, F., S. Berrebi, A. **Guin**, A. Samoylov, M. Hunter, M.O. Rodgers and D. Pass, "Evaluation of Roundabout Illumination and Safety", *TRB Webinar: 20 Years of Advancement in Roundabout Design, Roundabout Construction Sequencing and the Case for Illumination of Roundabouts*, June 1, 2015 (**Highest Attended Webinar in TRB History**)
- 4.68 Rodgers, M., A. Guin, M. Hadi, M. Hunter, A. Greenwood, P. Pratyaksa, and Z. Huang Cooperative Vehicle-Highway Automation (CVHA) Technology: Simulation of Benefits and Operational Issues, University Transportation Center (UTC) Conference for the Southeastern Region, Birmingham, Alabama, March 26th, 2015.
- 4.69 Greenwood A., A. Shaw, J. Bae, W. Woolery, Y. Xu, A. **Guin**, G. Corso, M. Rodgers, and M. Hunter. Improved Methods for Delineating Diverges in Work Zones. *University Transportation Center (UTC) Conference for the Southeastern Region*, Birmingham, Alabama, March 26th, 2015.
- 4.70 Bae J., A. Shaw, A. Greenwood, W. Woolery, Y. Xu, A. Guin, G. Corso, M. Rodgers, and M. Hunter. "Factors Influencing Visual Search in Complex Driving Environments." Southeastern Transportation Research, Innovation, Development and Education Center (STRIDE) Student Poster Showcase, Washington D.C., January 12th, 2015.

- 4.71 Suh W., J. Anderson, A. Guin, and M. Hunter, Evaluation of Traffic Data Collection Method, presented at *2014 International Conference on Engineering and Technology Innovation*, Taiwan, November 2014.
- 4.72 Hunter, M. A. Guin, S. Harris, and C. Maddox, Enhanced Role of Activity Center Transportation Organizations in Regional Mobility, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.73 Guin, A., M. Hunter, M. Rodgers, and J. Sin, Safety and Maintenance Impacts of Centerline Rumble Strips, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.74 Guensler, R., M. Hunter, A. Guin, W. Suh, J. Anderson, K. Colberg, and S.
 Zinner, Real-Time Work Zone Travel Time, *Georgia Transportation Institute 2nd* Annual GDOT Poster Session, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.75 Hunter, M., A. Guin, W. Suh, and J. Anderson, Feasibility Study for Using Video Detection System Data to Supplement Automatic Traffic Recorder, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.76 Hunter, M., R. Fujimoto, A. Guin, J. Laval, D. Henclewood, W. Suh, Y-L. Huang, Y. Li, B. Stebar, and P. Chari, Real Time Estimation of Arterial Travel Time and Operational Measures through Integration of Real Time Fixed Sensor Data and Simulation, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.77 Rodgers, M., Michael P. Hunter, Angshuman Guin, Rodger Purcell, and Franklin Gbologah, Evaluation of the Cost Effectiveness of Illumination as a Safety Treatment at Rural Intersections, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.78 Guin, A., M. Hunter, M. Rodgers, M. Hadi, W. Suh, A. Greenwood, Z. Huang, and P. Pratyaksa, Cooperative Vehicle-Highway Automation (CVHA) Technology Simulation of Benefits and Operational Issues, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.79 Guin, A., M. Rodgers, M. Hunter, W. Suh, and J. Anderson, Operating Performance of Diverging Diamond Interchange, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.80 Hunter, M., M. Rodgers, G. Corso, Y. Xu, A. Guin, A. Greenwood, A. Shaw, J. Bae, and W. Woolery, Factors Influencing Visual Search in Complex Driving Environments, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.81 Hunter, M., M. Rodgers, A. Guin, S. Boonsiripant, L. Peesapati, and P. Pratyaksa, Evaluation of the Effectiveness of Converging Chevron Pavement Markings, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.82 Hunter, M., M. Rodgers, L. Peesapati, and A. Guin, Evaluation of Intersection Countermeasures on High Speed Rural Multi-Lane, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.83 Rodgers, M., M. Hunter, A. Samoylov, A. Guin, and F. Gbologah, Evaluation of Roundabout Illumination and Safety, *Georgia Transportation Institute 2nd Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.

- 4.84 Guin, A., M. Rodgers, M. Hunter, W. Suh, and J. Anderson, A Case Study Evaluation of Arterial Travel Time Technology, *Georgia Transportation Institute* 2nd Annual GDOT Poster Session, One Georgia Center, Atlanta, Ga. Sept. 23th 2014.
- 4.85 Pratyaksa, P., A. Greenwood, M. Peña, Z. Huang, Angshuman Guin, M. Hadi, M. Rodgers, and M. Hunter. Cooperative Vehicle-Highway Automation (CVHA) Technology: Simulation of Benefits and Operational Issues. University Transportation Center (UTC) Conference for the Southeastern Region, Georgia Tech Global Learning Center, Atlanta, GA., March 24 and 25, 2014.
- 4.86 Gbologah, F., A. Guin, R. Purcell, A. Samoylov, M. Hunter, and M. Rodgers. Evaluation of the Cost-effectiveness of Illumination as a Safety Treatment at Rural Intersections. University Transportation Center (UTC) Conference for the Southeastern Region, Georgia Tech Global Learning Center, Atlanta, GA., March 24 and 25, 2014.
- 4.87 Harris, D. M. Hunter, and A. Guin. Role of Transportation Management Associations in Traffic Operations. *University Transportation Center (UTC) Conference for the Southeastern Region*, Georgia Tech Global Learning Center, Atlanta, GA., March 24 and 25, 2014.
- 4.88 Guensler, R., M. Hunter, A. Guin, V. Elango, S. Khoeini, A. Sheikh, et al. (2014). "Atlanta I-85 HOV-to-HOT Conversion: Analysis of Vehicle and Person Throughput." P14-5870. 93rd Annual Meeting of the Transportation Research Board, Washington DC. January 2014.
- 4.89 Sin, J. A. Guin., M. Rodgers, and M. Hunter, Safety Impact Study of Centerline Rumble Strips in Georgia. *Georgia Transportation Institute 1st Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 24th 2013.
- 4.90 Peesapati, L., M. Rodgers, A. Guin, and M. Hunter. Evaluation of Intersection Countermeasures on High Speed Rural Multi-Lane Facilities. *Georgia Transportation Institute 1st Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 24th 2013.
- 4.91 Anderson, J., A. Guin, W. Suh, and M. Hunter. Feasibility Study for Using Video Detection System Data to Supplement Automatic Traffic Recorder Data. *Georgia Transportation Institute 1st Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 24th 2013.
- 4.92 Suh W., J. Anderson, K. Colberg, S. Zinner, A. Guin, M. Hunter, and R. Guensler, Real-Time Work Zone Travel Time. *Georgia Transportation Institute 1st Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 24th 2013.
- 4.93 L. Schmitt, C. Barry, A. Guin. M. Rodgers, and M. Hunter. Calibration of the HCM 2010 Roundabout Capacity Equations for Georgia. *Georgia Transportation Institute 1st Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 24th 2013.
- 4.94 Harris, D. C. Maddox, M. Hunter, and A. Guin Enhanced Role of Activity Center Transportation Organizations in Regional Mobility, *Georgia Transportation Institute 1st Annual GDOT Poster Session*, One Georgia Center, Atlanta, Ga. Sept. 24th 2013.
- 4.95 Colberg, K., S. Zinner, J. Anderson, L. Peesapati, W. Suh, A. Guin, M. Hunter, and R. Guensler, Real-Time Work Zone Travel Time University Transportation Centers (UTC) Conference for the Southeastern Region, Orlando, Florida April 4th-5th, 2013.
- 4.96 Guensler, R., W. Suh, M. Hunter, A. **Guin**, J. Teizer, J. Anderson, K. Colberg, S. Zinner (2013). "Work Zone Technology Testbed Development." Georgia

Department of Transportation and Georgia Transportation Institute Transportation Research Poster Session. Atlanta, GA. September, 2013.

- 4.97 Sheikh, A., A. Guin, and R. Guensler (2013). "Value of Travel Time Savings: Evidence from Atlanta's I-85 Express Lanes." Georgia Department of Transportation and Georgia Transportation Institute Transportation Research Poster Session. Atlanta, GA. September, 2013.
- 4.98 Sheikh, A., C. Toth, A. Guin, and R. Guensler (2013). "Weaving and Throughput in the I-85 Express Lanes." Transportation Research Board Freeway & Managed Lanes Operations Meeting and Conference. Atlanta, GA. June 2013.
- 4.99 Hunter, M, A. Guin, S. Boonsiripant, and L. Peesapati, Evaluation of the Effectiveness of Converging Chevron Pavement Markings, Presented to Georgia Department of Transportation, Transportation Management Center, Atlanta, Georgia, June 9th, 2011.
- 4.100 Guensler, R., M. Hunter, J. Laval, A. Guin, V. Elango, and P. Vu. Atlanta HOVto-HOT Corridor Performance Monitoring (P11-0548). 90th Annual Meeting of the Transportation Research Board, Session 559, Road Pricing and Managed Lanes Showcase: Lessons from Projects and Case Studies; Washington, DC; January, 2011.
- 4.101 Hunter, M., A. Guin, S. Boonsiripant. Evaluation of the Effectiveness of Converging Chevron Pavement Markings, Presentation Project Findings. Presented to Georgia Department of Transportation, Transportation Management Center, Oct 28th, 2009.
- 4.102 Hunter, M., M. Rodgers, A. Guin, L. Peesapati. Evaluation of Intersection Countermeasures on High Speed Rural Multi-Lane Facilities, Project Update. Presented to Georgia Department of Transportation, Georgia Institute of Technology, Atlanta, Georgia, Oct 8th, 2009.
- 4.103 Henclewood, D., M. Hunter, A. Guin, and R. Fujimoto, Real-Time Simulation of Arterials With Use of Video Detection and Microscopic Traffic Simulations, *SDITE 2009 Annual Meeting*, Birmingham, AL, March 2009.
- 4.104 Hunter, M., R. Guensler, R. Fujimoto, V. Elango, A. Guin, and D. Henclewood. Embedded Advanced Traveler Information System, Initial Findings, Final Presentation. Video presentation from Atlanta Georgia to *Toyota InfoTechnology Center, U.S.A.*, Mountain View, CA., Feb 26, 2009.
- 4.105 Hunter, M., R. Guensler, R. Fujimoto, V. Elango, A. Guin, and D. Henclewood. Embedded Advanced Traveler Information System, Initial Findings. Video presentation from Atlanta Georgia to *Toyota InfoTechnology Center, U.S.A.*, Mountain View, CA., Feb 11, 2009.

5. Editorial Work for Technical Journals

Editorial Board:

- 5.1 Connected Mobility and Automation, Special Edition of Frontiers in Future Transportation [Associate Editor][March 2021 - Present]
- 5.2 Transport Safety, Frontiers in Future Transportation [Review Editor] [July 2021-Present]

Paper and Proposal Reviews:

- 5.3 American Society of Civil Engineering Journal of Transportation Engineering [5 papers]
- 5.4 IEEE Transactions on Intelligent Transportation Systems [2 papers]
- 5.5 Transportation Research Board Committee on Highway Traffic Monitoring [34 papers]
- 5.6 Transportation Research Board Committee on User Information Systems [27 papers]
- 5.7 Transportation Research Board Committee on Intelligent Transportation Systems [5 papers]
- 5.8 Transportation Research Board Committee on Transportation Safety Management [11 papers]
- 5.9 Transportation Research Board Committee on Urban Transportation Data and Information Systems [23 papers]
- 5.10 Transportation Research Board Committee on Safety Data, Analysis and Evaluation [4 papers]
- 5.11 Transportation Research Board Committee on Information Systems and Technology [3 papers]
- 5.12 Transportation Research Board Committee on Vehicle-Highway Automation [1 paper]
- 5.13 Transportation Research Board Committee on General and Emerging Pavement Design [1 paper]
- 5.14 Transportation Research Board Committee on Traffic Flow Theory and Characteristics [2 papers]

6. Published Books and Parts of Books

- 6.1 Hunter, M., A. Biswas, B. Chilukuri, A. Guin, R. Fujimoto, R. Guensler, J. Laval, H. Liu, S. Neal, P. Pecher, and M.O. Rodgers (2018). "Energy-Aware Dynamic Data-Driven Distributed Traffic Simulation for Energy and Emissions Reduction." Chapter 20. Handbook of Dynamic Data Driven Application Systems. pp. 467-487. Springer-Cham., 2018.
- 6.2 Henclewood, D., W. Suh, A. Guin, R. Guensler, R. Fujimoto, and M. Hunter. Real-Time Data-Driven Arterial Simulation for Performance Measure Estimation. in <u>Modeling & Simulation in Systems Engineering Life Cycle</u>, pp. 309-322, (Loper, Margaret L., Ed.), Springer-Verlag London 2015.
- 6.3 Elmasri, R. & Navathe, S. <u>Fundamentals of Database Systems</u>, Pearson, 2004. Contributor in 4th Edition.

7. Submitted Journal Papers in Review

- 7.1 **Roy**, S., M. Hunter, A. **Guin**. Evaluating the Impact of Emergency Vehicle Preemption Strategies on a Smart Signalized Corridor Using a Microscopic Simulation Model. *Submitted in June 2023 to ASCE JTE. Guin conceived and directed the study, and provided guidance in the preemption strategy development.*
- 7.2 Guensler, R., A. **Guin**, J. Laval, N. Smusz-Mengelkoch, S. Sivakumar, T. Passmore, H. Fan, H. Lu. Pedestrian Impedance Factors and ADA Mobility Mode Shortest Path Routing in ST-CTN/G-MAP. *Submitted in August 2023 to*

Transportation Research Records. Guin, along with Guensler, led the conceptualization and development of the impedance factors for the ITS4US study.

7.3 Kwesiga, D., A. **Guin**, M. Hunter. Evaluation of Transit Signal Priority Strategies. Submitted in August 2023 to Transportation Research Records. Guin conceived and directed the study, and provided guidance in the development of the TSP strategies evaluated in the study.

C. Key Delivered Products

- Name: Automated Vehicle's Roadway Capacity Impact Calculator Sponsor/to whom delivered: GDOT Date range for work performed by the candidate: 2020-2022 Product description: This program provides a spreadsheet-based calculator for estimating capacity of interrupted flow roadway facilities using different flow models and levels of automated vehicle penetration. Candidate's specific technical contributions: Guin was the project PI and guided the product development.
- 2. Name: Google Location Survey
 - Sponsor/to whom delivered: STRIDE / USDOT

Date range for work performed by the candidate: 2018-2020

Product description: The program provided a web interface for participants to provide their Google Location History data. The program provided a method to securely submit the data, from the comfort of their own computer or mobile device, without the risk of exposing the authentication credentials to the surveyors. The program also allows the flexibility of limiting the period over which the data is collected so that the participants do not have to expose their entire driving history. Google Location History data provides an efficient method for researchers to obtain driving location trace data from participants without the expense of an active vehicle-tracking effort. The program has been made available to the research community at https://github.com/gti-gatech/navigation_apps .

Candidate's specific technical contributions: Guin designed and developed the program.

3. Name: Real-time Data Driven Simulation Infrastructure (RTDDSI) Sponsor/to whom delivered: City of Atlanta

Date range for work performed by the candidate: 2017-2019 **Product description:** The RTDDSI provides a scalable architecture and software infrastructure for generating real-time performance metrics. The RTDDS infrastructure has four primary modules that enables (a) streaming field data ingestion (b) data filtering, imputation and transformation into continuous input streams for data driven simulation (c) data driven simulation generating vehicle traces (d) postprocessing of simulation output to generate real-time performance metrics. The live performance dashboard is available at: http://realtime.ce.gatech.edu. **Candidate's specific technical contributions:** Guin, a Co-PI for the project, was the chief architect of the product. He designed multiple components and managed the end-to-end development of the product. He guided the two student programmers involved in the product development.

- 4. Name: License Plate Data Extractor Sponsor/to whom delivered: GDOT Date range for work performed by the candidate: 2016-2018 Product description: The program provides an interface to facilitate rapid manual extraction of License Plate Record data from traffic videos. The program was used extensively across projects by different sponsors including GDOT, USDOT and the State Road and Tollway Authority. Candidate's specific technical contributions: Guin was the product architect as well as product manager. He guided the student programmer.
- Name: Online Transportation Mode Fuel and Emissions Calculator Sponsor/to whom delivered: USDOT, National Center for Sustainable Transportation

Date range for work performed by the candidate: 2016 Product description: This online program with a web-interface (http://fec.ce.gatech.edu) is an operating-mode-based, life-cycle energy and emissions modeling tool developed to assist fleet owners and managers, regulatory agencies, and policy analysts in assessing the energy and emissions impacts of fleet alternatives.

Candidate's specific technical contributions: Guin supervised the programmers, created the software architecture, and provided input on the product design.

6. Name: GT-MVP

Sponsor/to whom delivered: GDOT

Date range for work performed by the candidate: 2015-2018

Product description: Georgia Tech's - Multi Video Player (GT-MVP) is a video data extraction tool developed to assist in complex traffic data collection from video data. This tool features a graphical interface for time-synchronizing multiple videos and playing them together at different speeds or frame-by-frame. The tool includes a graphical interface for extracting, reviewing and correcting traffic data. The source code of the program has been opened up and shared with the community at http://transportation.ce.gatech.edu/node/64.

Candidate's specific technical contributions: Guin was the product architect as well as product manager. He guided the student programmer.

7. Name: Roundabout Illumination Benefit-Cost Calculator

Sponsor/to whom delivered: GDOT

Date range for work performed by the candidate: 2015-2017 **Product description:** This program provided a user-friendly interface for a benefitcost model that can be used to compute Benefit to Cost ratios for various combinations of roundabout diameter, lighting scheme, AADTs, functional classification of cross roads, and cost of electricity.

Candidate's specific technical contributions: Guin was the project PI and guided the product development.

 Name: Sidewalk Scout: Pedestrian Infrastructure Inventory App Sponsor/to whom delivered: Atlanta Regional Commission and Centers for Disease Control

Date range for work performed by the candidate: 2015-2016

Product description: The program has created a tool for sidewalk maintenance agencies to respond to maintenance needs without spending aggressively on a maintenance requirement identification budget. Sidewalk ScoutTM is a crowdsourcing Android app that allows users to record photos of individual sidewalk elements and report specific defects in sidewalk conditions or pedestrian amenities, including sidewalk obstruction, inadequate sidewalk width, improper slope and cross-slope, pavement discontinuities, broken walk signal heads, etc. The Sidewalk ScoutTM app feeds data directly into the Georgia Tech sidewalk inventory system, which includes a publicly available webpage to view mapped data with text and image attributes. **Candidate's specific technical contributions:** Guin guided the product conceptualization, and guided the programmers on the product design.

9. Name: MOVES-Matrix Cluster Computer Processor

Sponsor/to whom delivered: U.S. Department of Energy, ARPA-E Date range for work performed by the candidate: 2013-2016 Product description: The program created a parallel processing architecture for MOVES, US Environmental Protection Agency's Mobile Source Emissions model. The program has made the emissions estimation process highly transparent by transforming the single threaded MOVES modeling process to an instantaneous database lookup with input parameters.

Candidate's specific technical contributions: Guin developed the initial product architecture and guided the programmers.

10. Name: Sidewalk Sentry

Sponsor/to whom delivered: Southeast Transportation Research, Innovation and Education Center (STRIDE) and GDOT

Date range for work performed by the candidate: 2012-2016

Product description: This Automated Sidewalk Quality Assessment App (Android) has been used extensively on multiple projects to support the needs of agencies such as Midtown Atlanta, Cobb County Department of Transportation, City of Northampton, MA, etc. The app is deployed on a tablet mounted to a standard wheelchair and collects video, accelerometer, gyroscope, and GPS data. Data collection entails running the app while walking the wheelchair along the sidewalk segment of interest and post-processing the data to generate sidewalk quality indices. **Candidate's specific technical contributions:** Guin guided the product conceptualization, and guided the programmers on the product design.

11. Name: Traffic Counting Video App

Sponsor/to whom delivered: GDOT

Date range for work performed by the candidate: 2011-2015

Product description: The program is an android application for tablets that allows data collectors process videos to generate vehicle counts. The apply provides the functionality of replaying and toggling through the video in supervisory mode to review and correct counts made in the first pass. This helps minimization of human error and provides more accurate ground truth traffic count data for use in transportation planning applications and for model verification.

Candidate's specific technical contributions: The program was developed as a joint deliverable for two projects. Guin was the PI for one and Co-PI for the other. Guin designed parts of the product and guided the programmers.

12. Name: Space-Time Memory (STM)

Sponsor/to whom delivered: U.S. Department of Energy, Advanced Research Projects Agency-Energy (ARPA-E)

Date range for work performed by the candidate: 2011-2015

Product description: The STM supports high-efficiency data streaming and archival of real-time fusion of traffic status data from multiple sources with imputation on-the-fly. This version of the STM supports multi-layer shortest-path computations with dynamic path updates for computation of optimal paths for multi-modal system users. The source code has been opened up and made available to the transportation community at https://github.com/arpa-e-transnet/gtstm.

Candidate's specific technical contributions: Guin, a Co-PI for the project, was the chief architect of the product. He designed multiple components and managed the end-to-end development of the product. He hired and guided 3 student programmers and also supervised 1 external contracted programmer for the product development.

13. Name: Video based Vehicle Speed Calculator

Sponsor/to whom delivered: GDOT

Date range for work performed by the candidate: 2007-2012

Product description: The program provided an interface to synchronize frame-byframe playback across multiple videos and calibration of the views to enable the manual extraction of vehicle time-space profiles. This tool, developed for GDOT, served as a critical tool for determining vehicle speed and acceleration profiles over an extended length of roadway, across multiple projects.

Candidate's specific technical contributions: Guin was the product architect as well as product manager. He guided the student programmer.

14. Name: MOBILE-Matrix CALINE-Grid

Sponsor/to whom delivered: GDOT

Date range for work performed by the candidate: 2007

Product description: This Project-Level Emission Impact Assessment Tool was developed to facilitate the use of MOBILE emission rates in transportation modeling. The matrix creates large emission rate lookup tables that can be applied to traffic in any facility or subregion. The program provided the means to integrate MOBILE-matrix capabilities into the multimodal transportation planning tool (MTPT) employed by the Georgia Department of Transportation so that it could be used to estimate emissions from rural road facilities throughout the state.

Candidate's specific technical contributions: Guin wrote one of the modules of the program to enhance CALINE-4.

D. Professional Research Recognition Awards

- 1. **D.** Grant Mickle Award for paper on Operating Performance of Diverging Diamond Interchanges (2019). This international award was established by TRB in 1976 and is given annually for the outstanding paper (one per year) published in the field of operation, safety, and maintenance of transportation facilities. [Primary author: Michael Hunter; Project PI: Angshuman Guin]
- Best Paper Award Transportation Research Board, Operational Effects of Geometrics Committee, AHB65. (2019). For paper on Operating Performance of Diverging Diamond Interchanges.
- 3. 2020 National Association of Counties Achievement Award (Gwinnett County received the award on the "Connected Vehicles Master Plan" project for which Dr. Guin was the PI)

- 4. *World Smart City Award* for Mobility at the Smart City Expo World Congress held in Barcelona, Spain in November 2018 (The North Avenue Smart Corridor project, for which Dr. Guin was a Co-PI, won the award).
- 5. *Best Paper from ASEE Zone II*, American Society for Engineering Education Southeastern Section, 2009 [Primary author: Dwayne Henclewood (student)]
- 6. *Best Researcher Award*, School of Civil and Environmental Engineering, Georgia Institute of Technology (2008)
- 7. *Milton Pikarsky Award for Outstanding Doctoral Dissertation*, Council of University Transportation Centers (2004)

E. Knowledge Sharing

1. <u>Academic Courses Taught</u>

<u>Semester</u>	<u>Course</u>	Number of Students
Spring, 2018	CEE 4600 Transportation Planning and Design	35 (2 lab sections)
Spring, 2005	CEE 6604 Geometric Design of Transportation	Facilities 8

2. <u>Curriculum and/or Short Course Development</u>

- Developed a short course module on *Traffic Modeling Methods and Data Sources* for CARTEEH's Curriculum for Transportation Emissions and Health Phase II effort. This effort was sponsored by CARTEEH (Center for Advancing Research in Transportation, Energy, Environment and Health) a U.S. DOT University Transportation Center led by the Texas A&M Transportation Institute (TTI), 2021.
- Worked with Drs. Michael Rodgers and Haobing Liu in the development of a large class project to evaluate human health exposures from freeways. In this development, Dr. Guin provided the quality assured vehicle activity data from I-475 for use in evaluating emissions to be used in a health-assessment term project. This special-topics course has been delivered twice (Spring 2019 and Spring 2020) and was sponsored by CARTEEH (Center for Advancing Research in Transportation, Energy, Environment and Health) a U.S. DOT University Transportation Center led by the Texas A&M Transportation Institute (TTI).
- Worked with Dr. Michael Hunter in the development of a class project to demonstrate the differences between idealized datasets in textbooks and real-world noisy datasets and the impacts such data has on the computations. This class project has been used in teaching CEE 6603, with minor modifications and updates, for the last 8 years.

F. Professional Registration/Certifications Attained

Engineer in Training (License # EIT020906), Registered April 2002

II. TECHNICAL CONTRIBUTIONS AND INNOVATION

A. <u>Research/Technical Reports</u>

- Fan, H., Lu, H., Guin, A., Watkins, K., Guensler, R. Combined Effect of Changes in Transit Service and Changes in Occupancy on Per-Passenger Energy Consumption, NCST-GT-RR-22-39, 2022-11-0.1Available at: <u>https://rosap.ntl.bts.gov/view/dot/64878</u>. Guin was PI for the project and authored portions of the final report.
- Hadi, M., Elefteriadou, L., Guin, A., Hunter, M., Rouphail, N., Samandar, S., Arafat, M., Amine, K., Bae, J., Das, T., Hunsanon, T., Wang, X. Utilization of Connectivity and Automation in Support of Transportation Agencies' Decision Making. Project G3, 2022-08-02. Available at: <u>https://rosap.ntl.bts.gov/view/dot/63340</u>. Guin was Co-PI for the project and authored portions of the final report.
- Guensler, R., Liu, H., Lu, H., Chang, C., Dai, Z., Xia, T., Fu, Z., Liu, D., Kim, D., Zhao, Y., Guin, A. Georgia Express Lane Corridors Vehicle Occupancy and Throughput Study 2018-2020: Volume I: Vehicle and Person Throughput Analysis Before and After the I-75 Northwest Corridor and I-85 Express Lanes Extension. 2022-05-01. Available at: <u>https://rosap.ntl.bts.gov/view/dot/62687</u>. Guin authored portions of the final report.
- Liu, D., Guin, A. Evaluating the Sustainability Impacts of Intelligent Carpooling Systems for SOV Commuters in the Atlanta Region. NCST-GT-RR-22-11. 2022-03-14. Available at: <u>https://doi.org/10.7922/G2348HPT</u>. Guin was PI for the project and authored portions of the final report.
- Wakhisi, K., Roell, M., Okunieff, P., Smusz-Mengelkoch, N., Davis, A., Hofelich, A., Guin, A., Wall, D., Campbell, J., Guensler, R. Phase 1 Enabling Technology Readiness Assessment ARC ITS4US Deployment Project. FHWA-JPO-21-885. 2021-11-15. Available at: <u>https://doi.org/10.21949/1527544</u>. Guin was Co-PI for the project and authored portions of the report.
- Wakhisi, K., Roell, M., Okunieff, P., Smusz-Mengelkoch, N., Guensler, R., Guin, A. Phase 1 Performance Measurement and Evaluation Support Plan (PMESP)-Atlanta Regional Commission ITS4US Deployment Project. FHWA-JPO-21-875. 2021-10-25. Available at: <u>https://doi.org/10.21949/1527556</u>. Guin was Co-PI for the project and authored portions of the report.
- Wakhisi, K., Roell, M., Okunieff, P., Smusz-Mengelkoch, N., Glueckert, T., Patel, P., Guensler, R., Guin, A., Campbell, J. Phase 1 Concept of Operations (ConOps)— Atlanta Regional Commission ITS4US Deployment Project. FHWA-JPO-21-857. 2021-06-28. Available at: https://doi.org/10.21949/1527534. Guin was Co-PI for the project and authored portions of the report.
- Wakhisi, K., Roell, M., Guensler, R., Guin, A., Okunieff, P., Smusz-Mengelkoch, N. Phase 1 Data Management Plan (DMP): Atlanta Regional Commission: ITS4US Deployment Project. FHWA-JPO-21-865. 2021-08-23. Available at: https://doi.org/10.21949/1527526. Guin was Co-PI for the project and authored portions of the report.
- Wakhisi, K., Roell, M., Okunieff, P., Smusz-Mengelkoch, N., Glueckert, T., Patel, P., Campbell, J., Davis, A., Hofelich, A., Wall, D., Guensler, R., Guin, A. Phase 1 System Requirements Specification (SyRS) Atlanta Regional Commission ITS4US Deployment Project. FHWA-JPO-21-880. 2021-10-25. Available at: https://doi.org/10.21949/1527539. Guin was Co-PI for the project and authored portions of the report.

- Wakhisi, K., Roell, M., Guensler, R., Guin, A., Smusz-Mengelkoch, N., Davis, A., Hofelich, A., Wall, D., Campbell, J. Phase 1 Human Use Approval Summary: ARC ITS4US Deployment Project. FHWA-JPO-21-895. 2022-01-03. Available at: https://doi.org/10.21949/1527550. Guin was Co-PI for the project and authored portions of the report.
- Guensler, R., Lu, H., Reichard, W., Dai, Z., Xia, T., Guin, A., Rodgers, M.O. AERMOD, RLINE, and RLINEXT Case Study Analyses in Atlanta, Georgia. FHWA-GA-21-2024. 2021-11-05. Available at: https://rosap.ntl.bts.gov/view/dot/59253. Guin authored portions of the final report.
- Manjunatha, P., Elefteriadou, L., Hunter, M., Duan, X., Letter, C., Roy, S., White, C., Postma, D., Guin, A. Evaluation of Advanced & Communication Technologies Through Traffic Microsimulation. Project D. 2021-08-02. Available at: <u>https://rosap.ntl.bts.gov/view/dot/57280</u>. Guin was Co-PI for the project and authored portions of the final report.
- Guin, A. Hadi, M., Wang, F., Watkins, K. Hunter, M., Iqbal, M. S., Kiriazes, R., Bu, L., Tariq, M., Arafat, M. Impact of Smartphone Applications on Trip Routing. Project A. 2021-08-02. Available at: <u>https://rosap.ntl.bts.gov/view/dot/60067</u>. Guin was the PI for the project and authored the final report.
- Guin, A., Hunter, M., Roy, S., "Emergency Vehicle Signal Preemption Optimization". (Final Report), Gwinnett Department of Transportation, December 2021, Pages 39. Guin was PI for the project and authored the final report.
- M. Hunter, A. Guin, Saroj, A., Bae J., "Development of Tools to Model Driver Behavior in a Cooperative and Driverless Vehicle Mixed Roadway Environment". (Final Report), Georgia Department of Transportation, January 2022, Pages 163. Available at: <u>https://rosap.ntl.bts.gov/view/dot/61620/dot_61620_DS1.pdf</u>. Guin was Co-PI for the project and authored portions of the final report.
- Guin, A., Hunter, M., Kim, H., Choudhary, N., "Detection Technology Testbed on I-475: Technology Feasibility Study". (Final Report), Georgia Department of Transportation, FHWA-GA-21-1720, Contract# 0015715, October 2020, Pages: 162. Available at <u>http://g92018.eos-intl.net/G92018/OPAC/Details/Record.aspx?BibCode=4532513</u>. Guin was PI for the project and was the principal author of the final report.
- Laval, J. A., Guin, A., Chilukuri, B. R., Cho, H. W., "Travel-time Optimization on I-285 with Improved Variable Speed Limit Algorithms and Coordination with Ramp Metering Operations". (Final Report), Georgia Department of Transportation, FHWA-GA-19-1414, Contract# 0013186, February 2019, Pages: 92. Available at <u>https://rosap.ntl.bts.gov/view/dot/40155</u> Guin was Co-PI for the project and authored portions of the final report.
- Laval, J. A., Guin, A., Chilukuri, B. R., & Cho, H. W., "Implementation of Optimal Parameter Settings in GDOT's Current Ramp Metering Operation", (Final Report), Georgia Department of Transportation, FHWA-GA-19-1418, Contract# 0012795, February 2019, Pages: 74. Available at <u>https://rosap.ntl.bts.gov/view/dot/40263</u> Guin was Co-PI for the project and authored portions of the final report.
- Hunter, M., Kingsley, G., Guin, A., Horadam, N., Hanus, A., Bleckley, C., & Siangjaeo, S., "GDOT Roadmap for Driverless Vehicles", (Final Report), Georgia Department of Transportation, FHWA-GA-18-1723, Contract# 0013612, December 2018, Pages: 227. Available at <u>https://rosap.ntl.bts.gov/view/dot/40157</u> Guin was <u>Co-PI</u> for the project and authored portions of the final report.
- Kim, D., A. Guin, M. Rodgers, R. Guensler. "Energy and Environmental Impact of Truck-Only Lanes: A Case Study of Interstate 75 between Macon and McDonough, Georgia", (Final Report), National Center for Sustainable Transportation, November

2018, Pages: 36. Available at https://escholarship.org/uc/item/56m5b78f Guin was PI for the project and authored portions of the final report.

- Guin, A., Rodgers, M. O., & Gbologah, F., "Safety Evaluation of Roundabouts in Georgia", (Final Report), Georgia Department of Transportation, FHWA-GA-18-1507, Contract # 0013622, August 2018, Pages: 80. Available at <u>https://rosap.ntl.bts.gov/view/dot/34893</u> Guin was PI for the project and was the principal author of the report.
- 22. Guin, A., Hunter, M., & Rodgers, M., "Operating Performance of Diverging Diamond Interchanges", (Final Report), Georgia Department of Transportation, FHWA-GA-19-1228, Contract # 0011746, August 2018, Pages: 224. Available at <u>https://rosap.ntl.bts.gov/view/dot/36695</u> Guin was PI for the project and was the principal author of the report.
- 23. Guensler, R., M. Rodgers, M. Hunter, A. Guin, K. Abdelghany, J. Laval, H. Liu, F. Gbologah, "Network Performance Monitoring and Distributed Simulation to Improve Transportation Energy Efficiency: TRANSNET-Atlanta Project Overview" Final Report for US Department of Energy, ARPA-E TRANSNET Program, June 2018, Pages: 57. Guin was Co-PI for the project authored the STM related parts of the report.
- 24. Guin, A., Hunter, M., Rodgers, M., Saroj, A., Choudhary, N., & Kim, H. G., "Operational Evaluation of Do Not Block the Box Campaigns in Georgia", (Final Report), Georgia Department of Transportation, FHWA-GA-18-1443, Contract# 0013114, April 2018, Pages: 175. Available at <u>https://rosap.ntl.bts.gov/view/dot/36121</u> Guin was PI for the project and was the principal author of the report.
- 25. Guin, A., Rodgers, M. O., & Hunter, M. P., "Centerline Rumble Strips Safety Impact Evaluation-Phase 2", (Final Report), Georgia Department of Transportation, FHWA-GA-18-1428, Contract# 0013528, February 2018, Pages: 76. Available at <u>https://rosap.ntl.bts.gov/view/dot/34874</u> Guin was PI for the project and was the principal author of the report.
- Hunter, M. P., Guin, A., Rodgers, M. O., Huang, Z., & Greenwood, A. T. (2017). "Cooperative Vehicle–Highway Automation (CVHA) Technology : Simulation of Benefits and Operational Issues", (Final Report), Georgia Department of Transportation, FHWA-GA-17-1436, Contract# 0013114, March 2017, Pages: 96. Available at <u>https://rosap.ntl.bts.gov/view/dot/36001</u> Guin was Co-PI for the project and authored portions of the final report.
- 27. Guin, A., Hunter, M. P., Rodgers, M. O., & Saroj, A. (2017). "Enhanced Role of Activity Center Transportation Organizations in Regional Mobility", (Final Report), Georgia Department of Transportation, FHWA-GA-16-1316, Contract# RP 13-16, April 2017, Pages: 116. Available at <u>https://rosap.ntl.bts.gov/view/dot/36988</u> Guin was PI for the project and <u>was the principal</u> author of the report.
- 28. Guin, A., Rodgers, M. O., Gbologah, F., & Purcell, R. C. (2016). "Evaluation of the cost-effectiveness of illumination as a safety treatment at rural intersections", (Final Report), Georgia Department of Transportation, FHWA-GA-16-1432, Contract# RP 14-32, September 2016, Pages: 110. Available at https://rosap.ntl.bts.gov/view/dot/31384 Guin was PI for the project and was the principal author of the report.
- Suh, W., Guensler, R., Hunter, M., Guin, A., Anderson, J., Colberg, K., & Zinner, S. (2016). "Work Zone Technology Testbed", (Final Report), Georgia Department of Transportation, FHWA-GA-1115, Contract# 0010423, February 2016, Pages: 69. Available at <u>https://rosap.ntl.bts.gov/view/dot/39995</u> Guin was Co-PI for the project and authored portions of the final report.

- Guin, A., Hunter, M. P., Rodgers, M. O., & Sin, J. (2014). "Centerline Rumble Strips Safety And Maintenance Impacts", (Final Report), Georgia Department of Transportation, FHWA-GA-14-1212, Contract# RP 12-12, September 2014, Pages: 90. Available at <u>https://rosap.ntl.bts.gov/view/dot/35629</u> Guin was PI for the project and was the principal author of the report.
- 31. Guin, A. (2014). "Integrating intersection traffic signal data into a traffic monitoring program", (Final Report), Georgia Department of Transportation, FHWA-GA-15-1310, Contract# RP 13-10, TO 02-128, September 2014, Pages: 99. Available at <u>https://rosap.ntl.bts.gov/view/dot/28711</u> Guin was PI for the project and was the principal author of the report.
- 32. Guin, A., Hunter, M., Suh, W., & Anderson, J. (2013). "Feasibility study for using video detection system data to supplement automatic traffic recorder data", (Final Report), Georgia Department of Transportation, FHWA-GA-15-1113, Contract# 0010406, December 2013, Pages: 72. Available at https://rosap.ntl.bts.gov/view/dot/29714 Guin was PI for the project and was the principal author of the report.
- 33. Guensler, R., Elango, V., Guin, A., Hunter, M., Laval, J., & et al. (2013). "Atlanta I-85 HOV-to-HOT conversion : analysis of vehicle and person throughput", (Final Report), Georgia Department of Transportation, FHWA-GA-13-10-03, Contract# SPR00-0009-00-297, October 2013, Pages: 142. Available at <u>https://rosap.ntl.bts.gov/view/dot/23015</u> Guin was Co-PI for the project and authored portions of the final report.
- 34. Guensler, R., S. Araque, C. Toth, A. Guin, V. Elango, M. Hunter (2013). "Atlanta I-85 HOV-to-HOT Conversion: Analysis of Changes in Weaving Activity." Prepared for the Georgia Department of Transportation, Atlanta, GA. Georgia Institute of Technology. Atlanta, GA. October 2013. Guin was a task lead for the project and authored portions of the final report.
- 35. 20. Suh, W., R. Guensler, M. Hunter, A. Guin, J. Anderson, K. Colberg, and S. Zinner (2013). "Work Zone Technology Testbed." Final Report. Prepared for the Georgia Department of Transportation, Atlanta, GA. GDOT Research Project RP 11-15. Georgia Institute of Technology. Atlanta, GA. October 2013. Guin was Co-PI for the project and authored portions of the final report.
- 36. Guin, A., & Laval, J., "Freeway Travel-Time Estimation and Forecasting" [2013], (Final Report), Georgia Department of Transportation, GDOT RP 10-01, Contract# RP 10-01, TO 02-60, March 2013, Pages: 57. Available at <u>https://rosap.ntl.bts.gov/view/dot/25772</u> Guin was Co-PI for the project and authored major sections of the report.
- 37. Guin, A., Laval, J., & Chilukuri, B. R., "Freeway Travel-Time Estimation and Forecasting", (Final Report), Georgia Department of Transportation, FHWA-GA-12-1022, Contract# RP 10-22, September 2012, Pages: 93. Available at <u>https://rosap.ntl.bts.gov/view/dot/32659</u> Guin was Co-PI for the project and authored major sections of the report.
- 38. Hunter, M., Fujimoto, R., Guin, A., Laval, J., Henclewood, D. A., Suh, W., Huang, Y.-L., Li, Y., Chari, P., "Real Time Estimation of Arterial Travel Time and Operational Measures Through Integration of Real Time Fixed Sensor Data and Simulation", (Final Report), Georgia Department of Transportation, RP 09-01, Contract# RP 09-01, February 2012, Pages: 188. Available at https://rosap.ntl.bts.gov/view/dot/25773 Guin was Co-PI for the project and authored portions of the final report.
- 39. Hunter, M. P., **Guin**, A., Boonsiripant, S., & Rodgers, M., "Evaluation of the effectiveness of converging chevron pavement markings", (Final Report), Georgia

Department of Transportation, FHWA-GA-10-0713, Contract# SPR00-0008-00-612, October 2010, Pages: 43. Available at <u>https://rosap.ntl.bts.gov/view/dot/24389</u> Guin was a task lead and authored portions of the final report.

- 40. Guin, A., Laval, J, "Development of Optimal Ramp Metering Strategies II", (Final Report), Georgia Department of Transportation, Contract# RP 11-18, December 2013, Pages: 41. Guin was PI for the project and was the principal author of the report.
- 41. Guin, A., Laval, J., & Chilukuri, B. R., Chen, D., "Development of Optimal Ramp Metering Strategies", (Final Report), Georgia Department of Transportation, FHWA-GA-10-0722, Contract# RP 07-22, January 2010, Pages: 77. Guin was PI for the project and was the principal author of the report.

B. Significant Technical Innovation and/or Contributions on Sponsored Programs

1. **Connected Vehicle Technology Master Plan** [Sponsor: Gwinnett County] PI: Angshuman Guin

Product Description: This document established guidelines for deploying new and evolving technology in Transportation and set the standard for implementing connected vehicle technology for a local government. This document has been widely distributed, referenced and used across the state by several local governments in Georgia, the Atlanta Regional Commission and the Georgia Department of Transportation in the past 2 years.

Candidate's Role: The primary developer of the document is Gwinnett county. Guin, as the project PI, helped develop several sections of the guidelines and wrote corresponding parts of the document.

C. Patents

1. Invention Disclosures

Dr. Randall Guensler, Jennifer Ogle, Hainan Li, Angshuman **Guin**, Jungwook Jun, Vetri Ventan Elango, Hongbiao Sun (2003); Onboard Vehicle and Personal Activity Monitoring Software; Georgia Tech Research Corp. Invention Disclosure 3222; Georgia Institute of Technology.

III. PROJECT LEADERSHIP AND SUPERVISION

A. Individual Student Guidance/Development

1. Postdoctoral Fellows Supervised

1.1 Mutasem Alzoubaidi Period of residence: Aug 2022-Jan 2023 Direct Report: Yes

Research area: Arterial Operations & Machine Learning Publications: NA 1.2 Abhilasha Saroj Period of residence: Aug 2020-Nov 2022 Direct Report: No Research area: Arterial Operations & Machine Learning Publications: I.B.1.4, I.B.1.6, I.B.1.7, I.B.1.9, I.B.3.1, I.B.3.2, I.B.3.3, I.B.3.5, I.B.3.6, I.B.3.13, I.B.3.17, I.B.3.19, I.B.3.24, II.A.15, II.A.24, II.A.27 1.3 Franklin Gbologah Period of residence: Jan 2016- Dec 2021 Direct Report: No Research area: Transportation Safety Publications: I.B.1.8, I.B.1.13, I.B.1.14, I.B.1.17, I.B.3.21, I.B.3.22, I.B.3.25, II.A.21, II.A.28 1.4 Felipe Castrillon Period of residence: Aug-Dec 2015 Direct Report: No Research area: Transit and vulnerable road user operations Publications: I.B.1.27, I.B.3.39, I.B.3.43 1.5 Aaron Greenwood Period of residence: Jan-Aug 2016 Direct Report: No Research area: Freeway operations with mixed Cooperative Highway Automation Publications: I.B.1.25, I.B.3.26, I.B.3.28, I.B.3.30 1.6 Hyun Woong Cho Period of residence: 2017-2018 Direct Report: No Research area: Freeway operations Publications: I.B.1.10, II.A.17, II.A.18 1.7 Bhargava Rama Chilukuri Period of residence: 2015-2016 Direct Report: No Research area: Freeway operations Publications: I.B.6.1, I.B.1.10, I.B.1.21, I.B.3.27, I.B.3.31, I.B.3.36, II.A.17, II.A.18, II.A.37, II.A.41

2. Ph.D. Students Supervised (in process as well as graduated)

2.1 Gopikrishnan Suresh Kumar
 Expected Fall 2027
 Research: Modeling Emergency Response Vehicle Movements in Traffic

Advisement Start: Spring 2022 **Primary Advisor** Publications: NA

2.2 Shiva Golzari

Expected Fall 2027 Research: Enhanced Algorithms for Emergency Vehicle Preemption Advisement Start: Summer 2022 **Primary Advisor** Publications: NA

- 2.3 Dickness Kwesiga Expected Fall 2026 Research: Enhanced Algorithms for Transit Signal Priority Advisement Start: Fall 2021 Primary Advisor Publications: I.B.3.5, I.B.7.3
- 2.4 Somdut Roy

Completed Spring 2023 Research: Emergency Vehicle Preemption Strategies using Machine Learning to Optimize Traffic Operations Advisement Start: Fall 2016 **Primary Advisor** Publications: I.B.1.1, I.B.1.4, I.B.1.5, I.B.1.6, I.B.7.1, I.B.3.3, I.B.3.7, I.B.3.17, II.A.12, II.A.14

2.5 Nishu Choudhary

Completed Summer 2023 Research: Identification of Traffic Congestion Precursors using Machine Learning Approaches Advisement Start: Fall 2016 Co-advisor with Dr. Michael Hunter Publications: I.B.3.9, I.B.3.13, I.B.3.19, II.A.16, II.A.24

2.6 Huiying Fan

Expected Fall 2024 Research: Using Multi-Modal Path-Specific Transit Trips in Transportation Social Sustainability Analysis Advisement Start: Fall 2020 Co-advisor with Dr. Randall Guensler Publications: I.B.1.3, I.B.3.4, II.A.1, I.B.7.2

2.7 Abhilasha Saroj

Completed Summer 2020 Thesis Title: Development of a Real-Time Connected Corridor Data-Driven Digital Twin and Data Imputation Methods Advisement Start: Spring 2015 Co-advisor with Dr. Michael Hunter Publications:I.B.1.4, I.B.1.6, I.B.1.7, I.B.1.9, I.B.3.1, I.B.3.2, I.B.3.5, I.B.3.13, I.B.3.16, I.B.3.19, I.B.3.24, II.A.15, II.A.24, II.A.27 2.8 Franklin Gbologah

Completed Fall 2015 Thesis Title: Impacts of Illumination Levels on Nighttime Safety at Roundabouts Advisement Start: Spring 2012 Co-Advisor with Dr. Michael Rodgers Publications: I.B.1.8, I.B.1.13, I.B.1.14, I.B.1.17, II.A.21, II.A.28

2.9 Lakshmi Peesapati

Completed Summer 2014 Thesis Title: High Speed Rural Intersection Safety Advisement Start: Fall 2007 Co-Advisor with Dr. Michael Hunter Publications: I.B.3.39, I.B.3.44

3. Ph.D. Thesis Advisory Committee Students

3.1 Tanner Reid Passmore Expected Fall 2024
Research: Assessing Cycling Networks Through Shortest Path Routing Advisement Start: Spring 2022
Thesis committee member with Dr. Kari Watkins Publications: I.B.1.3, I.B.7.2

3.2 Daejin Kim

Completed Summer 2020 Thesis Title: Large-scale, Dynamic, Microscopic Simulation for Region-wide Line Source Dispersion Modeling Advisement Start: Spring 2013 Thesis committee member with Dr. Randall Guensler Publications: I.B.1.2, I.B.3.14, II.A.3, II.A.20

3.3 Hyun Woong Cho

Completed Summer 2017 Thesis Title: Modeling and Simulation of Congestion Control Strategies on Freeways: Pricing, Ramp Metering, and Variable Speed Limit Advisement Start: Spring 2013 Thesis committee member with Dr. Jorge Laval Publications: I.B.1.10, II.A.17, II.A.18

3.4 Bhargava Rama Chilukuri

Completed Fall 2015 Thesis Title: Optimal Ramp Metering of Freeway Corridors Advisement Start: Spring 2012 Thesis committee member with Dr. Jorge Laval Publications: I.B.6.1, I.B.1.10, I.B.1.21, I.B.3.27, I.B.3.31, I.B.3.36, II.A.17, II.A.18, II.A.37, II.A.41

4. Master's Students Supervised

4.1 William Morgan

Completed Spring 2023

Thesis Title: Metro Atlanta Northwest Corridor Commuter Survey Results -Assessing Express Lane Impacts on Increased Corridor Throughput Co-advisor with Dr. Randall Guensler Publications:

4.2 Jongin Bae

Completed Spring 2023 Research: Modeling Driver Behavior in a Cooperative and Driverless Vehicle Mixed Roadway Environment Co-advisor with Dr. Michael Hunter Publications: I.B.3.1, I.B.3.25, I.B.3.28, I.B.3.30, II.A.2, II.A.15

4.3 Boyu Cheng

Completed Spring 2018 Thesis Title: Sidewalk Roughness Data Classification by Cluster Analysis Co-advisor with Dr. Randall Guensler Publications: NA

4.4 Sung Jun Park

Completed Fall 2017 Thesis Title: Sensitivity Analysis of Operational Performance Under Conventional Diamond Interchange and Diverging Diamond Interchange Co-Advisor with Dr. Michael Hunter Publications: I.B.1.11

4.5 John Bolen

Completed Fall 2017 Thesis Title: Trucking Variability in Roadway Network Energy Using Basic Safety Message Data Co-Advisor with Dr. Michael Hunter Publications: NA

4.6 Marisha Pena

Completed Fall 2017 Thesis Title: Safety Evaluation of Centerline Rumble Strips Co-Advisor with Dr. Michael Hunter Publications: NA

4.7 Michael Tyler Whaley Completed Spring 2016 Thesis Title: Modeling Ramp Operations Under Congested Conditions Co-Advisor with Dr. Michael Hunter Publications: NA

4.8 James Anderson Completed Spring 2015 Thesis Title: Separation of Multiple Distributions in Arterial Travel Time Data

	Co-Advisor with Dr. Michael Hunter Publications: I.B.1.11, I.B.1.12, I.B.1.19, I.B.1.20, I.B.1.23, I.B.3.29, II.A.9, II.A.32, II.A.35
4.9	Darren S. Harris Completed Spring 2014 Thesis Title: Evaluation of Connected Vehicles System Co-Advisor with Dr. Michael Hunter Publications: I.B.3.13, I.B.3.21, I.B.3.24
4.10	Brian C. Maddox Completed Spring 2013 Thesis Title: Emerging role of Activity Center Transportation Organizations in Traffic Operations Services Co-Advisor with Dr. Michael Hunter Publications: I.B.3.21
4.11	Laura Stahley Completed Fall 2013 Thesis Title: Design Exceptions Monitoring Program Thesis committee member with Dr. Michael Hunter Publications: NA
4.12	Laura Schmitt Completed Fall 2013 Thesis Title: Roundabout Capacity Equation Calibration Thesis committee member with Dr. Michael Hunter Publications: NA
4.13	Jerome Sin Completed Fall 2013 Thesis Title: Analysis of Center Line Rumble Strips Co-Advisor with Dr. Michael Hunter Publications: II.A.30
4.14	Prabha (Popa) Pratyaksa Completed Spring 2013 Thesis Title: Safety Analysis of Converging Chevrons Co-Advisor with Dr. Michael Hunter Publications: NA
4.15	Stephanie Zinner Completed Fall 2012 Thesis Title: Freeway Travel Times using Bluetooth Tracking Co-Advisor with Dr. Randall Guensler Publications: I.B.1.23, I.B.1.24, II.A.29, II.A.35
4.16	Stephanie Box Completed Summer 2011 Thesis Title: Arterial Travel Time Collection Using Point Sensor Devices Co-Advisor with Dr. Michael Hunter

Publications: I.B.3.36, I.B.3.42

4.17 Trung Vo

Completed Summer 2011 Thesis Title: An Investigation of Bluetooth Technology for Measuring Travel Times on Arterials, A Case Study on Spring Street Co-Advisor with Dr. Michael Hunter Publications: I.B.3.36, I.B.3.42

5. Master's Special Problems Students

5.1 Katherine P. Wells (2021)

6. Undergraduate Special Problems Students

- 6.1 Kyle Robinson (Spring & Summer 2021) Publication: I.B.1.1
- 6.2 Haley Unthank (Spring 2021, Co-advised with Dr. Hunter since she was working on research related to Dr. Guin's project) Publication: I.B.1.1

7. <u>Graduate Research Assistants, Student Assistants, and/or Co-op Students</u> <u>Trained/Supervised</u>

Graduate students supervised on projects [not as thesis advisor]

- 1. Hongyu Lu (Publications: I.B.1.2, I.B.1.3, I.B.3.10, I.B.3.11, I.B.3.15, II.A.1, II.A.3, II.A.11)
- 2. Tian Xia (Publications: I.B.1.2, I.B.3.10)
- 3. Rebecca Kiriazes (Publications: I.B.3.12, II.A.13)
- 4. Sanskruti Joshi
- 5. Katherine Colberg (Publications: I.B.1.23, I.B.1.24)
- 6. Adnan Sheikh (Publications: I.B.1.15, I.B.1.22, I.B.3.36)
- 7. Dwayne Henclewood (Publications: I.B.I.B.6.2, I.B.1.16, I.B.1.18, I.B.1.25, I.B.3.45, I.B.3.46)
- 8. Chris Toth (Publications: I.B.1.26, I.B.3.34, I.B.3.36, I.B.3.40, II.A.34)
- 9. Felipe Castrilion (Publications: I.B.1.27, I.B.3.36)
- 10. Zixiu Fu (Publications: II.A.3)
- 11. Diyi Liu (Publications: II.A.3, II.A.4)
- 12. Yingping Zhao (Publications: I.B.1.2, II.A.3)
- 13. Hanyan Li (Publications: I.B.3.20)
- 14. Chelsea Dyess
- 15. David Boyer
- 16. Daniel Walls
- 17. Jack Cebe
- 18. Sara Khoeini

- 19. Saroch Boonsiripant (Publications: I.B.1.28, II.A.39)
- 20. Danjue Chen (Publications: I.B.1.29, II.A.41)
- 21. Ben Amer [Intern] (Publications: I.B.1.29)
- 22. Haobing Liu (Publications: I.B.I.B.6.1, I.B.1.15, I.B.3.3, I.B.3.10, I.B.3.11, I.B.3.15, I.B.3.18, I.B.3.20, I.B.3.27, II.A.3, II.A.23)
- 23. Xiaodan Xu (Publications: I.B.3.15, I.B.3.18, I.B.3.20)
- 24. Atiyya Shaw (Publications: I.B.3.25, I.B.3.28, I.B.3.30)
- 25. Willam Woolery (Publications: I.B.3.26, I.B.3.28, I.B.3.30)
- 26. Santiago Araque (Publications: II.A.34)
- 27. Vetri Elango (Publications: I.B.1.26, I.B.3.34, I.B.3.35, II.A.33, II.A.34, II.C.1)
- 28. Katherine D'Ambrosio (Publications: I.B.3.36)
- 29. Katie Smith (Publications: I.B.3.36)
- 30. Chris Rome (Publications: I.B.3.36)
- 31. Ziwei Huang (Publications: II.A.26)
- 32. Andrew Hanus (Publications: II.A.19)
- 33. Nathaniel Horadam (Publications: II.A.19)
- 34. Aradhya Biswas (Publications: I.B.6.1, I.B.3.27)

Graduate Students programmers supervised on projects

- 1. Robert Walsh (Aug 2019 May 2020)
- 2. Ananya Roy (Nov 2017 May 2018)
- 3. Deepthi Venkitaramanan (Jan 2017 May 2018)
- 4. Qixuan Hou (May 2017 Aug 2017)
- 5. Yuanbo Wang (Sep 2016 Aug 2019)
- 6. Houma Raheel (Aug 2015 May 2016)
- 7. Qichao Chu (Jan 2015 Dec 2015)
- 8. Alper Akanser (Aug 2014 May 2017)
- 9. Ramik Sadana (Aug 2010 Dec 2012)

Other programmers supervised on projects

- 1. Jacob Margolies (Undergrad)
- 2. Andreas Nagel (External contract)

Supervised Undergrad students from different universities as part of Civic Data Science NSF Research Experience for Undergrads (REU) 2019

- 1. Jason Chen (Purdue)
- 2. Angela Lau (Cornell)
- 3. David Li (Stonybrook)

Undergraduate Research Assistants [Supervised indirectly through Graduate Students]

Project: Operational Evaluation of Do Not Block the Box Campaigns in Georgia 1. Xinyi Zhang

- 2. Park, Sungjae
- 3. Lee, Jun Hyeok
- 4. Amy Harper
- 5. Sarah Wilson
- 6. Brady Roose
- 7. Ammar Hawa
- 8. Jia Lei
- 9. Adrienne Warren
- 10. Owen Fisher
- 11. Daisy Kouame
- 12. David Dempsey
- 13. Emily Veal
- 14. Koutey David Nicoue
- 15. Amy Harper
- 16. Brandon Keith Fuller
- 17. Temiloluwa Olugbenga
- 18. Zarina Gran
- 19. Colleen Thompson
- 20. Josia Tannos
- 21. Elizabeth Hurley
- 22. Austin McElroy
- 23. Anita Nguyen
- 24. Sarah Wilson
- 25. Tommy Kurniawan
- 26. Diego Cruz Burbano
- 27. Ijeoma Okoro
- 28. Colin Cook

Project: Enhanced Role of Activity Center Transportation Organizations in Regional Mobility

- 1. Toluwalase Omotosho
- 2. Charlie Gan
- 3. Apurv Aggarwal
- 4. Lei Jia
- 5. Jarupa Sodwatana

Project: Evaluation of Cost-Effectiveness of Illumination as a Safety Treatment

- 1. Pratiti Khan
- 2. Samuel Nguyen
- 3. Temiloluwa Olugbenga
- 4. Zarina Gran
- 5. Hector Ivan Prieto (also on Project: Centerline Rumble Strips Safety Impact Evaluation – Phase II)

Project: Network Performance Monitoring and Distributed Simulation to Improve Transportation Energy Efficiency

- 1. Juhi Brahmbhatt
- 2. Corey Burke

Project: Centerline Rumble Strips Safety Impact Evaluation – Phase II

- 1. Brittany Tyson
- 2. Jagpreet Ghuman

Project: Feasibility Study for Video Detection System Data to Supplement Automatic Traffic Recorder Data

- 1. Ajinkya Lokhande
- 2. Madhusudan Kamat
- 3. Parth Desai
- 4. Mohit Savur
- 5. Pranav Gandhi
- 6. Rodrigue Guissou
- 7. Viet Chau (Dec 2012)
- 8. Anderson, James
- 9. Eubanks, Cory
- 10. Hong, Jung
- 11. Tse, Ho
- 12. Ruiz-Guzman, Benjamin

Project: Work Zone Technology Test Bed

- 1. Alex Chung
- 2. James Anderson
- 3. Rahul Bajpai
- 4. Keertana Mutnuri
- 5. Jatin Modi
- 6. Andy Li
- 7. Zhi Ge
- 8. Ziaeddin Drakhshandeh
- 9. Viet Chau
- 10. Benjamin Ruiz-Guzman
- 11. Jinwoo Seo
- 12. Max Sellars
- 13. Greggory Rodriguez
- 14. Ankit Agarwal
- 15. Neil Shah
- 16. Linh Dinh

Project: Effective Capacity Analysis and Traffic Data Collection for the I-85 HOV to HOT Conversion

- 1. Ben Dupuy
- 2. Ryan Donnan
- 3. Tim Carter
- 4. Cody Pugh
- 5. Christopher Ward
- 6. Dhuruvir Gandhi
- 7. Tianyuan Meng
- 8. Gayatri Bhagwat
- 9. Angie Marable
- 10. Hoki Tse
- 11. Matthew Gasbarro
- 12. Devarshi Patel
- 13. Brandon Webster

- 14. Swamini Khurana
- 15. Akshit Savla
- 16. Kanak Nakhare
- 17. Ashwin Mishra
- 18. Balaji Santhanam
- 19. Herman Ryals
- 20. Patrick Farrell
- 21. Jay Patel
- 22. Smit Goswami
- 23. Charles Zakem
- 24. Ana Fraundorf
- 25. Shea Glassman

IV. OUTREACH AND SERVICE

A. <u>Professional Activities</u>

1. National Committee membership

Appointments to the following standing technical committees of the TRB (one of the seven branches of the National Research Council and part of the National Academies of Sciences, Engineering, and Medicine) are by *invitation* only.

- Transportation Safety Management Committee, TRB (2004-2013)
- Highway Traffic Monitoring Committee, TRB (2009-2013)
- Human Factors of Infrastructure Design and Operations Committee, TRB (2014 present)
 - Triennial Strategic Plan Committee (2021)
 - Best Paper Award Committee (2020 present)
- Information Technology Systems Committee, TRB (2019 present)

2. National Committee Activities

- Organizing and moderating TRB Session #3115 for (AED20) Urban Transportation Data & Information Systems Committee, January 2023
- Webmaster for Human Factors of Infrastructure Design and Operations Committee, TRB (2020 -present)
- Best Paper Award Sub-Committee member for Human Factors Committee (2020-present)
- Moderator for TRB annual meeting workshop TRB 2021 Workshop #1002 Managing Traffic Management Systems Assets & Resources, January 2021
- Organizing a TRB Sponsored Workshop-webinar for (AED20) Urban Transportation Data & Information Systems Committee's AED20(3) Travel Time, Speed and Reliability Joint Subcommittee (with ACP70) October 28, 2021
- Volunteering on the TRB Editorial Data Group: Leading the task force on developing strategies for efficient allocation of Annual conference papers to appropriate TRB committees.

3. <u>Project Overview Panel</u>

- National Cooperative Highway Research Program (NCHRP) panel for project 07-32 (2021 present)
- National Cooperative Highway Research Program (NCHRP) panel for project 17-101 (2021 present)

4. <u>Proposal Review Committee</u>

• American Association for the Advancement of Science (by invitation only) (2018)

5. <u>State/Local Committee membership</u>

Invited appointments:

- Regional Transportation Systems Management and Operations Subcommittee of the Atlanta Regional Commission (2021-present)
- Performance Technical Group (Georgia) (2018 present)
- Connected and Automated Vehicles Subcommittee of the Georgia Section Institute of Transportation Engineers (2019 – present)

6. <u>Professional Organization membership</u>

Dr. Guin is Georgia Tech's representative in the Intelligent Transportation Society of Georgia (ITS-GA). Dr. Guin is also the faculty advisor for the student chapter of ITS-GA in GT.

B. <u>On-campus Committees</u>

- Transportation Systems group admissions coordinator (2022 present)
- Member, Research Faculty Senate (2017-2020)
- Faculty Advisor for GT student chapter of Intelligent Transportation Society of Georgia, Georgia Institute of Technology (2016 present)

C. <u>Reviewer Work for Technical Journals</u>

1. Editorial Board:

- Connected Mobility and Automation, Special Edition of Frontiers in Future Transportation [Associate Editor][March 2021 - Present]
- Transport Safety, Frontiers in Future Transportation [Review Editor] [July 2021-Present]

2. <u>Paper and Proposal Reviews:</u>

- American Society of Civil Engineering Journal of Transportation Engineering [5 papers]
- IEEE Transactions on Intelligent Transportation Systems [2 papers]
- Transportation Research Board Committee on Highway Traffic Monitoring [34 papers]
- Transportation Research Board Committee on User Information Systems [27 papers]
- Transportation Research Board Committee on Intelligent Transportation Systems [5 papers]
- Transportation Research Board Committee on Transportation Safety Management [11 papers]
- Transportation Research Board Committee on Urban Transportation Data and Information Systems [23 papers]
- Transportation Research Board Committee on Safety Data, Analysis and Evaluation [4 papers]
- Transportation Research Board Committee on Information Systems and Technology [3 papers]
- Transportation Research Board Committee on Vehicle-Highway Automation [1 paper]
- Transportation Research Board Committee on General and Emerging Pavement Design [1 paper]
- Transportation Research Board Committee on Traffic Flow Theory and Characteristics [2 papers]

D. <u>Reviewer Work for Conferences</u>

Not Tracked

E. Conference Session Chairs

- Moderator for TRB annual meeting workshop TRB 2021 Workshop #1002 Managing Traffic Management Systems Assets & Resources, January 21, 2021
- Organized TRB Sponsored Workshop-webinar for (AED20) Urban Transportation Data & Information Systems Committee's AED20(3) Travel Time, Speed and Reliability Joint Subcommittee (with ACP70), October 28, 2021
- Served on the host committee for the joint Midyear (Summer) Meeting of the Freeway Operations, Managed Lanes, and Active Traffic Management standing technical committees of the TRB, June 23-26, 2013 in Atlanta Georgia. The meeting was jointly hosted, on Georgia Tech campus, by the State Road and Tollway Authority, the Georgia Department of Transportation and Georgia Tech, with Dr. Guin as the lead for Georgia Tech.

F. Special Activities

- Served as advisor for High School intern Rishi Motkur, during his internship at Georgia Tech in Summer 2023
- Served as advisor for High School intern Evan Le, during his internship at Georgia Tech in Summer 2022

- Served as advisor for High School intern Chirag Shetty, (Wheeler Magnet Internship Program), during his internship at Georgia Tech in Fall 2021
- Served as advisor for High School intern Nilay Patel, (Wheeler Magnet Internship Program), during his internship at Georgia Tech in Fall 2020
- Presented to a delegation of members of the UK parliament on Georgia Tech campus regarding Georgia Tech's partnership with the City of Atlanta for the North Avenue Smart Corridor (May 30, 2019)
- Served as advisor for High School intern Annika Le, (Fulton County Schools Gifted Internship Program), during her internship at Georgia Tech in Fall 2019

G. Outside Professional Activities/Consulting

Founder and partner in InstaData Systems LLC (<u>http://www.instadatasystems.com</u>) (2014-2022). Provided predictive data analytics and performance dashboard services. Built analytics dashboard for GDOT. Featured in CIO Review magazine in 2017. <u>https://data-analytics.cioreview.com/vendor/2017/instadata_systems</u>. InstaData's branch in India had 12 full time employees.

H. Civic Activities

- Judge for Regeneron International Science and Engineering Fair (2022)
- Judge for GT Annual Undergraduate Research Symposium (2021)
- Coach for elementary (2017-2019), middle (2020-2023) and high school (2023) students for Science Olympiad. The Middle school team ranked 1st in the state and went on to compete in the nationals in each of these years in 2020-2023. The High school team went on to compete in the Nationals for the first time in 2023.
- Led the Bengali Association of Greater Atlanta's (a 501(c) cultural organization) multimedia team to transition the organization's cultural activities to a virtual content format during the COVID-19 crisis in 2020
- Served as the Secretary of the 501(c) organization (Bengali Association of Greater Atlanta) in 2016
- Judge for GT innovation competition (2018)