

Xuesong (Simon) Zhou's CV

Xuesong (Simon) Zhou

Associate Professor, Ph.D.

School of Sustainable Engineering and the
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Education

Ph.D. Dept. of Civil & Environmental Engineering, University of Maryland, College Park, 2004

B.S. Railroad Management Engineering, Beijing Jiaotong University, Beijing, China, 1995

Academic Experience

Associate Professor (August 2013 – Present)

Arizona State University, AZ

Assistant Professor (January 2007 – June 2013) **Associate Professor** (Tenured, July

2013) University of Utah, UT

Research Scientist (August 2005 – April 2006)

North Carolina State University, NC

Research Assistant Professor (August 2004 – August 2005)

University of Maryland, College Park, MD

Industrial Experience

Chief Scientist (May 2009 – 2013)

Safe Driving Systems LLC. South Jordan, UT (Start-up Company from University of Utah based on Key2SafeDriving patents)

Traffic Data Architect / Traffic Research Engineer (May 2006 – December 2006)

Dash Navigation, Inc. Mountain View, CA (Acquired by Research In Motion, 2009)

Research Areas

Urban transportation planning: Dynamic traffic assignment, traffic demand analysis

Transportation system operations and control: Traffic flow estimation and prediction, traffic flow theory, real-time traveler information system

Logistics and intermodal transportation systems: Train timetabling and real-time dispatching, scheduling for transit, rail and seaport systems

Computer applications for Intelligent Transportation Systems: Visualization analytics, distributed computing and communications

Operations research: Nonlinear programming, integer programming, network optimization

Honors and Awards

1. Open-source python package OSM2GMNS **Software Badge from Zephyr Foundation**, 2023. Zephyr Foundation is a non-profit organization dedicated to promoting rigorous transportation and land use decision-making. OSM2GMNS has received 70K downloads.
2. The Elsevier Journal "Multimodal Transportation" **2022 Best Article Award**, for paper titled "A meso-to-macro cross-resolution performance approach for connecting polynomial arrival queue model to volume-delay function with inflow demand-to-capacity ratio"
3. Nominated for ASU Outstanding Faculty Mentor Awards, 2020
4. Transportation Research Part C: Emerging Technologies, **Best Associate Editor Award**, 2018
5. **2016 RAS Service Award**, Institute for Operations Research and the Management Sciences, Railway Applications Section (RAS)
6. **Best Paper Award** in the 15th IEEE International Intelligent Transportation Systems Conference. Paper title: Simplified, Data-Driven, Errorable Car-Following Model to Predict the Safety Effects of Distracted Driving. Authors: Jay Przybyla, Jeff Taylor, Jupe, Jason, Xuesong Zhou, 2012.
7. **Top 15% instructors** in the College of Engineering, University of Utah, 2008.
8. **Second place in the Student Research Paper Contest** organized by the Rail Applications Section of INFORMS (Institute for Operations Research and Management Science), for the paper "Bicriteria Train Scheduling for Intercity Passenger Railroad Planning Applications", 2003.

SUMMARY OF PUBLICATIONS AND INTELLECTUAL PROPERTY

Book Chapters Published: 1

1. Mahmassani, H. S. and Zhou, X. (2005) Transportation System Intelligence: Performance Measurement and Real-Time Traffic Estimation and Prediction in a Day-to-Day Learning Framework. Festschrift in honor of Professor Pravin Varaiya, Abed, Eyad (ed.). Springer-Birkhauser. 305-328.

Guest Editors for Thematic Journal Issues: 2

1. Meng, L., Corman, F., Zhou, X., Tang, T., 2018. Special issue on Integrated optimization models and algorithms in rail planning and control. *Transportation Research Part C: Emerging Technologies*, 88, 87-90.
2. Cirillo, C., D'Ariano, A., Lulli, G., Santos, B., Yin, J., Zhou, X (Managing Guest Editor), 2023 Special issue on Advanced Optimization, Learning and Control for Coordinated Multimodal Transportation towards a Flexible, Equitable and Sustainable Ecosystem. . *Transportation Research Part C: Emerging Technologies*.

Technical Reports or other Papers (non-refereed): 8

1. Hadi, M., Zhou, X., & Hale, D. (2022). Multiresolution Modeling for Traffic Analysis: Case Studies Report (No. FHWA-HRT-22-054). United States. Federal Highway Administration.
2. Zhou, X., Hadi, M., & Hale, D. K. (2021). Multiresolution Modeling for Traffic Analysis: State-of-Practice and Gap Analysis Report (No. FHWA-HRT-21-082). United States. Federal Highway Administration.
3. Yelchuru, B., Kamalanathsharma, R., Li, P., Asudegi, M., Ong, B.T., Zhou, X., Zohdy, I. and Hamilton, B.A., 2017. Analysis, modeling, and simulation (AMS) testbed development and evaluation to support dynamic mobility applications (DMA) and active transportation and

Xuesong (Simon) Zhou's CV

- demand management (ATDM) programs—evaluation report for DMA program (No. FHWA-JPO-16-383). Department of Transportation. Intelligent Transportation Systems Joint Program Office. Accessed at <https://rosap.ntl.bts.gov/view/dot/32615>
4. Mirchandani, P.B., Li, P. and Zhou, X., 2017. Integrating meso-and micro-simulation models to evaluate traffic management strategies, SOLARIS Consortium, Tier 1 University Transportation Center. Accessed at <https://rosap.ntl.bts.gov/view/dot/35675>
 5. List, George F., et al. Handbook for Communicating Travel Time Reliability Through Graphics and Tables. No. SHRP 2 Reliability Project L02. 2014. Accessed at <http://www.trb.org/Main/Blurbs/170608.aspx>
 6. National Academies of Sciences, Engineering, and Medicine. Understanding the Contributions of Operations, Technology, and Design to Meeting Highway Capacity Needs." (2014).
 7. Nevers, B., Zhou, X., Taylor, J., Quayle, S. FHWA Research Report: FHWA-HRT-13-036, (2013) The Effective Integration of Analysis, Modeling, and Simulation Tools. Accessed at <http://www.fhwa.dot.gov/publications/research/operations/13036/004.cfm>
 8. Z. Tao, J. Spotts, B. Lu, X. Zhou, T. Xing (2012). Forecasting and Delivery of Highway Travel Time Reliability Information. IDEA Programs, Transportation Research Board of the National Academies.

Total Journal Publications (Published, In Press): 113

Journal Publications (Published, In Press, and /or Accepted) from ASU: 70

Journal Publications Prior to ASU (All Published): 42

Google Scholar: citations: 9,310, H-index: 54, as of 05/01/2023

1. Lu, J., Zhou, X. (*). (2023) Virtual Track Networks: A Hierarchical Modeling Framework and Open-Source Tools for Simplified and Efficient CAM System Design. Transportation Research Part C: Emerging Technologies. 153, 104223.
2. Lu, J., Li. C., Wu. X. , Zhou, X. (*) (2023) Joint freeway traffic state and queue profile estimation using heterogeneous data sources: Differentiable programming reformulation on a layered computational graph. Transportation Research Part C: Emerging Technologies. 153. 104224.
3. Niu Z, Wu S, Zhou X(*). Efficient Mathematical Lower Bounds for City Logistics Distribution Network with Intra-Echelon Connection of Facilities: Bridging the Gap from Theoretical Model Formulations to Practical Solutions. Algorithms. 2023; 16(5):252.
4. Zhou, X., (*), Cheng, Q., Wu, X. , Li, P., Belezamo, B., Lu, J., & Abbasi, M. (2022). A meso-to-macro cross-resolution performance approach for connecting polynomial arrival queue model to volume-delay function with inflow demand-to-capacity ratio. Multimodal Transportation, 1(2), 100017. **2022 Best Article Award in Multimodal Transportation**
5. Zhang, Y., Peng, Q., Lu, G., Zhong, Q., Yan, X., & Zhou, X. (2022). Integrated line planning and train timetabling through price-based cross-resolution feedback mechanism. Transportation Research Part B: Methodological, 155, 240-277.
6. Cheng, Q. , Liu, Z., Lin, Y., & Zhou, X. (*) (2021). An s-shaped three-parameter (S3) traffic stream model with consistent car following relationship. Transportation Research Part B: Methodological, 153, 246-271.
7. Kim, T., Zhou, X., & Pendyala, R. M. (2022). Computational graph-based framework for integrating econometric models and machine learning algorithms in emerging data-driven analytical environments. Transportmetrica A: Transport Science, 18(3), 1346-1375.
8. Lu, J., Nie, Q., Mahmoudi, M., Ou, J., Li, C., & Zhou, X. (*) (2022). Rich arc routing problem in city logistics: Models and solution algorithms using a fluid queue-based time-dependent travel time representation. Transportation Research Part B: Methodological, 166, 143-182.

9. Song, Y., Hu, X., Lu, J., & Zhou, X. (2022). Analytical approximation and calibration of roundabout capacity: A merging state transition-based modeling approach. *Transportation research part B: methodological*, 163.
10. Wu, X., Lu, J., Wu, S., Zhou, X. (2021). Synchronizing time-dependent transportation services: Reformulation and solution algorithm using quadratic assignment problem. *Transportation Research Part B: Methodological*, 152, 140-179.
11. Mahmoudi, M., Garikapati, V., Tong, L., Zhou, X., Pendyala, R. (2021). How many trip requests could we support? An activity-travel based vehicle scheduling approach. *Transportation Research Part C: Emerging Technologies*, 128, 103222.
12. Tang, Q., Hu, X., Lu, J., Zhou, X. (2021), Analytical characterization of multi-state effective discharge rates for bus-only lane conversion scheduling problem. *Transportation research part B: methodological*. 148, 106-131
13. Li, J., Xu, Z., Fu, L., Zhou, X., & Yu, H. (2021). Domain adaptation from daytime to nighttime: A situation-sensitive vehicle detection and traffic flow parameter estimation framework. *Transportation Research Part C: Emerging Technologies*, 124, 102946.
14. Wang, Y., Peng, S., Zhou, X., Mahmoudi, M., & Zhen, L. (2020). Green logistics location-routing problem with eco-packages. *Transportation Research Part E: Logistics and Transportation Review*, 143, 102118.
15. Kim, T., Sharda, S., Zhou, X., & Pendyala, R. M. (2020). A stepwise interpretable machine learning framework using linear regression (LR) and long short-term memory (LSTM): City-wide demand-side prediction of yellow taxi and for-hire vehicle (FHV) service. *Transportation Research Part C: Emerging Technologies*, 120, 102786.
16. Liu, J., Mirchandani, P., & Zhou, X*. (2020). Integrated vehicle assignment and routing for system-optimal shared mobility planning with endogenous road congestion. *Transportation Research Part C: Emerging Technologies*, 117, 102675.
17. Lu, K., Liu, J., Zhou, X., & Han, B. (2020). A Review of Big Data Applications in Urban Transit Systems. *IEEE Transactions on Intelligent Transportation Systems*. 1-18.
18. Chen, X., He, S., Zhang, Y., Tong, L. C., Shang, P., & Zhou, X*. (2020). Yard crane and AGV scheduling in automated container terminal: A multi-robot task allocation framework. *Transportation Research Part C: Emerging Technologies*, 114, 241-271.
19. Lu, W., Liu, L., Wang, F., Zhou, X., & Hu, G. (2020). Two-phase optimization model for ride-sharing with transfers in short-notice evacuations. *Transportation research part C: emerging technologies*, 114, 272-296.
20. Xiong, C., Shahabi, M., Zhao, J., Yin, Y., Zhou, X., & Zhang, L. (2020). An integrated and personalized traveler information and incentive scheme for energy efficient mobility systems. *Transportation Research Part C: Emerging Technologies*, 113, 57-73.
21. Wang, P. S., Li, P. T., Chowdhury, F. R., Zhang, L., & Zhou, X. (2020). A mixed integer programming formulation and scalable solution algorithms for traffic control coordination across multiple intersections based on vehicle space-time trajectories. *Transportation research part B: methodological*, 134, 266-304.
22. Chen, Z., Li, X., & Zhou, X. (2020). Operational design for shuttle systems with modular vehicles under oversaturated traffic: Continuous modeling method. *Transportation Research Part B: Methodological*, 132, 76-100.
23. Li, L., Jiang, R., He, Z., Chen, X. M., & Zhou, X*. (2020). Trajectory data-based traffic flow studies: A revisit. *Transportation Research Part C: Emerging Technologies*, 114, 225-240.
24. Shang, P. ∞, Li, R., Guo, J., Xian, K., Zhou, X (*). (2019). Integrating Lagrangian and Eulerian observations for passenger flow state estimation in an urban rail transit network: A space-time-state hyper network-based assignment approach. *Transportation Research Part B: Methodological*, 121, 135-167.
25. Sun, J., Guo, J., Wu, X., Zhu, Q., Wu, D., Xian, K., Zhou, X. (2019). Analyzing the Impact of Traffic Congestion Mitigation: From an Explainable Neural Network Learning Framework to Marginal Effect Analyses. *Sensors*, 19(10), 2254.

26. Mahmoudi, M., Song, Y., Miller, H. J., Zhou, X. (2019). Accessibility with time and resource constraints: Computing hyper-prisms for sustainable transportation planning. *Computers, Environment and Urban Systems*, 73, 171-183.
27. Mahmoudi, M., Chen, J., Shi, T., Zhang, Y., & Zhou, X*. (2019). A cumulative service state representation for the pickup and delivery problem with transfers. *Transportation Research Part B: Methodological*, 129, 351-380.
28. Yao, Y., Zhu, X., Dong, H., Wu, S., Wu, H., Tong, L. C., & Zhou, X*. (2019). ADMM-based problem decomposition scheme for vehicle routing problem with time windows. *Transportation Research Part B: Methodological*, 129, 156-174.
29. Zhang, Y., Peng, Q., Yao, Y., Zhang, X., & Zhou, X*. (2019). Solving cyclic train timetabling problem through model reformulation: Extended time-space network construct and Alternating Direction Method of Multipliers methods. *Transportation Research Part B: Methodological*, 128, 344-379.
30. Liu, J., & Zhou, X.* (2019). Observability quantification of public transportation systems with heterogeneous data sources: An information-space projection approach based on discretized space-time network flow models. *Transportation Research Part B: Methodological*, 128, 302-323.
31. Meng, L., & Zhou, X.* (2019). An integrated train service plan optimization model with variable demand: A team-based scheduling approach with dual cost information in a layered network. *Transportation Research Part B: Methodological*, 125, 1-28.
32. Yin, J., Yang, L., Zhou, X., Tang, T., & Gao, Z. (2019). Balancing a one-way corridor capacity and safety-oriented reliability: A stochastic optimization approach for metro train timetabling. *Naval Research Logistics (NRL)*, 66(4), 297-320.
33. Chen, Z., Li, X., & Zhou, X. (2019). Operational design for shuttle systems with modular vehicles under oversaturated traffic: Discrete modeling method. *Transportation Research Part B: Methodological*, 122, 1-19.
34. Tong, L., Pan, Y., Shang, P., Guo, J., Xian, K., & Zhou, X. (2019). Open-source public transportation mobility simulation engine Dtalite-s: A discretized space-time network-based modeling framework for bridging multi-agent simulation and optimization. *Urban Rail Transit*, 5(1), 1-16.
35. Bu, L., Wang, F., Zhou, X., Yin, C. (2018). Managed gating control strategy for emergency evacuation. *Transportmetrica A: Transport Science*, 1-30.
36. Li, S., Zhou, X., Yang, L., Gao, Z. (2018). Automatic train regulation of complex metro networks with transfer coordination constraints: A distributed optimal control framework. *Transportation Research Part B: Methodological*, 117, 228-253.
37. Wu, X. (X), Guo, J., Xian, K., Zhou, X (*). (2018). Hierarchical travel demand estimation using multiple data sources: A forward and backward propagation algorithmic framework on a layered computational graph. *Transportation Research Part C: Emerging Technologies*, 96, 321-346.
38. Xiong, C., Zhou, X., Zhang, L. (2018). AgBM-DTALite: An integrated modelling system of agent-based travel behaviour and transportation network dynamics. *Travel Behaviour and Society*, 12, 141-150.
39. Zhou, X., Tong, L., Mahmoudi, M., Zhuge, L., Yao, Y., Zhang, Y., Shang, P., Shi, T. (2018). Open-source VRPLite package for vehicle routing with pickup and delivery: a path finding engine for scheduled transportation systems. *Urban Rail Transit*, 4 (2), 68-85.
40. Lu, K., Han, B., Zhou, X. (2018). Smart urban transit systems: from integrated framework to interdisciplinary perspective. *Urban Rail Transit*, 4(2), 49-67.
41. Niu, H., Zhou, X., Tian, X. (2018). Coordinating assignment and routing decisions in transit vehicle schedules: A variable-splitting Lagrangian decomposition approach for solution symmetry breaking. *Transportation Research Part B: Methodological*, 107, 70-101.
42. Tong, L. C., Zhou, L., Liu, J., Zhou, X. (2017). Customized bus service design for jointly optimizing passenger-to-vehicle assignment and vehicle routing. *Transportation Research Part C: Emerging Technologies*, 85, 451-475.

43. Wei, Y., Avci, C. , Liu, J., Belezamo, B., Aydın, N., Li, P. T (X)., Zhou, X (*). (2017). Dynamic programming-based multi-vehicle longitudinal trajectory optimization with simplified car following models. *Transportation Research Part B: Methodological*, 106, 102-129.
44. Li, P. T. (X), Zhou, X. (2017). Recasting and optimizing intersection automation as a connected-and-automated-vehicle (CAV) scheduling problem: A sequential branch-and-bound search approach in phase-time-traffic hypernetwork. *Transportation Research Part B: Methodological*, 105, 479-506.
45. Song, Y., Miller, H. J., Stempihar, J. (X), Zhou, X. (2017). Green accessibility: Estimating the environmental costs of network-time prisms for sustainable transportation planning. *Journal of Transport Geography*, 64, 109-119.
46. Li, M., Roupail, N. M., Mahmoudi, M., Liu, J., Zhou, X (*). (2017). Multi-scenario optimization approach for assessing the impacts of advanced traffic information under realistic stochastic capacity distributions. *Transportation Research Part C: Emerging Technologies*, 77, 113-133.
47. Zhou, L., Tong, L. C., Chen, J., Tang, J., Zhou, X. (2017). Joint optimization of high-speed train timetables and speed profiles: A unified modeling approach using space-time-speed grid networks. *Transportation Research Part B: Methodological*, 97, 157-181.
48. Li, M., Zhou, X. (*), Roupail, N. M. (2017). Quantifying travel time variability at a single bottleneck based on stochastic capacity and demand distributions. *Journal of Intelligent Transportation Systems*, 21(2), 79-93.
49. Qu, Y. (X), Zhou, X (*). (2017). Large-scale dynamic transportation network simulation: A space-time-event parallel computing approach. *Transportation Research Part C: Emerging Technologies*, 75, 1-16.
50. Li, W., Yang, L., Wang, L., Zhou, X., Liu, R., Gao, Z. (2017). Eco-reliable path finding in time-variant and stochastic networks. *Energy*, 121, 372-387.
51. Yang, L., Zhou, X. (2016). Optimizing on-time arrival probability and percentile travel time for elementary path finding in time-dependent transportation networks: Linear mixed integer programming reformulations. *Transportation Research Part B: Methodological*, 96, 68-91. **(Highly Cited Papers by ESI)**
52. Lu, C.C., Liu, J., Qu, Y. (X), Peeta, S., Roupail, N.M. and Zhou, X (*). (2016) Eco-system optimal time-dependent flow assignment in a congested network. *Transportation Research Part B: Methodological*, 94, 217–239.
53. Liu, J., Zhou, X (*). (2016). Capacitated transit service network design with boundedly rational agents. *Transportation Research Part B: Methodological*, 93, 225-250 (Cited 91 times)
54. Wang, L, L Yang, Z Gao, S Li, X Zhou. (2016). Evacuation planning for disaster responses: A stochastic programming framework. *Transportation Research Part C: Emerging Technologies*, 69, 150-172
55. Mahmoudi, M., Zhou, X (*). (2016) Finding Optimal Solutions for Vehicle Routing Problem with Pickup and Delivery Services with Time Windows: A Dynamic Programming Approach Based on State-space-time Network Representations. *Transportation Research Part B: Methodological*, 89, 19–42. **(Cited 287 times, 6th most cited papers in Transportation Research Part B since 2015)**
56. Vallamsundar, S., Lin, J., Konduri, K., Zhou, X., Pendyala, RM. (2016). A comprehensive modeling framework for transportation-induced population exposure assessment. *Transportation Research Part D: Transport and Environment*, 46, 94-113.
57. Tang, J. (X), Song, Y., Miller, H. J., Zhou, X (*). (2016). Estimating the most likely space–time paths, dwell times and path uncertainties from vehicle trajectory data: A time geographic method. *Transportation Research Part C: Emerging Technologies*, 66, 176-194.
58. Ma, J., Smith, B. L., Zhou, X (*). (2016). Personalized real-time traffic information provision: Agent-based optimization model and solution framework. *Transportation Research Part C: Emerging Technologies*, 64, 164-182.

59. Ruan, J. M., Liu, B., Wei, H., Qu, Y. (X), Zhu, N., Zhou, X. (2016). How many and where to locate parking lots? A space-time accessibility-maximization modeling framework for special event traffic management. *Urban Rail Transit*, 2(2), 59-70.
60. Li, P. (X), Mirchandani, P., Zhou, X (*). (2015). Solving simultaneous route guidance and traffic signal optimization problem using space-phase-time hypernetwork. *Transportation Research Part B: Methodological*, 81, 103-130.
61. Tong, L. , Zhou, X. (*), Miller, H. J. (2015). Transportation network design for maximizing space-time accessibility. *Transportation Research Part B: Methodological*, 81, 555-576.
62. Zhou, X. (*), Tanvir, S., Lei, H., Taylor, J. , Liu, B., Roupail, N. M., Frey, H. C. (2015) Integrating a Simplified Emission Estimation Model and Mesoscopic Dynamic Traffic Simulator to Efficiently Evaluate Emission Impacts of Traffic Management Strategies. *Transportation Research Part D: Transport and Environment*. 37, 123-136.
63. Niu, H., Tian, X., Zhou, X. (2015). Demand-driven train schedule synchronization for high-speed rail lines. *IEEE Transactions on Intelligent Transportation Systems*, 16(5), 2642-2652.
64. Shi, T. , Zhou, X (*). (2015). A mixed integer programming model for optimizing multi-level operations process in railroad yards. *Transportation Research Part B: Methodological*, 80, 19-39. .
65. Zhang, J., Jia, L., Niu, S., Zhang, F., Tong, L. , Zhou, X (*). (2015) A Space-Time Network-Based Modeling Framework for Dynamic Unmanned Aerial Vehicle Routing in Traffic Incident Monitoring Applications. *Sensors*, 15, 13874-13898.
66. Niu, H., Zhou, X., Gao, R. (2015). Train scheduling for minimizing passenger waiting time with time-dependent demand and skip-stop patterns: Nonlinear integer programming models with linear constraints. *Transportation Research Part B: Methodological*, 76, 117-135. **(Highly Cited Papers by ESI, 3rd most cited papers between 2015-2020 in Transportation Research Part B)**
67. Zlatkovic, M., Zhou, X. (2015). Integration of signal timing estimation model and dynamic traffic assignment in feedback loops: System design and case study. *Journal of Advanced Transportation*, 49(6), 683-699.
68. Taylor, J., Zhou, X. (*), Roupail, N., Porter, R.J. (2015). Method for investigating intradriver heterogeneity using vehicle trajectory data: A Dynamic Time Warping approach. *Transportation Research Part B*, 73, 59-80.
69. Przybyla, J., Taylor, J., Jupe, J., Zhou, X (*). (2015). Estimating risk effects of driving distraction: A dynamic errorable car-following model. *Transportation Research Part C: Emerging Technologies*. 50, 117-129
70. Lei, H., Zhou, X. (*), List, G., Taylor, J. (2015). Characterizing Corridor-level Travel Time Distributions Based on Stochastic Flows and Segment Capacities. *Cogent Engineering*, 2: 990672.
71. Zhou, X. (*), Taylor, J. (2014). DTLite: A queue-based mesoscopic traffic simulator for fast model evaluation and calibration. *Cogent Engineering*, 1, 961345. **(Cited 190 times, 8th most cited article in this journal)**.
72. Tasic, I., Zhou, X., Zlatkovic, M. (2014). Use of spatiotemporal constraints to quantify transit accessibility: case study of potential transit-oriented development in West Valley City, Utah. *Transportation Research Record*, 2417(1), 130-138.
73. Meng, L., Zhou, X (*). (2014). Simultaneous train rerouting and rescheduling on an N-track network: A model reformulation with network-based cumulative flow variables. *Transportation Research Part B: Methodological*, 67, 208-234. (Top-10 most cited papers since 2014 to 2018 in Transportation Research Part B)
74. Lei, H., Zhou, X (*). (2014). Linear Programming Model for Estimating High-Resolution Freeway Traffic States from Vehicle Identification and Location Data. *Transportation Research Record: Journal of the Transportation Research Board*, 2421, 151-160.
75. Yang, L, Zhou, X., Guo, Z. (2014). Credibility-Based Rescheduling Model in a Double-Track Railway Network: A Fuzzy Reliable Optimization Approach, *Omega*. 48, 75-93.

76. Yang, L., Zhou, X (*). (2014). Constraint Reformulation and a Lagrangian Relaxation-based Solution Algorithm for a Least Expected Time Path Problem. *Transportation Research Part B: Methodological*, 59, 22-44. (Highly Cited Papers by ESI)
77. Lu C-C, Zhou, X. (2014). Short-term Highway Traffic State Prediction Using Structural State Space Models. *Journal of Intelligent Transportation Systems*. 18 (3) 309-322.
78. Niu, H., Zhou, X. (2013). Optimizing Urban Rail Timetable under Time-dependent Demand and Oversaturated Conditions. *Transportation Research Part C: Emerging Technologies*. 36, 212-230. **(Highly Cited Papers by ESI)**
79. Deng, W. Lei H., Zhou, X (*). (2013). Freeway Traffic State Estimation and Uncertainty Quantification based on Heterogeneous Data Sources: A Three Detector Approach. *Transportation Research Part B: Methodological*. 57, 132-157.
80. Lu C-C, Zhou, X. (*), Zhang, K. (2013). Dynamic Origin-Destination Demand Flow Estimation under Congested Traffic Conditions. *Transportation Research Part C: Emerging Technologies*. 34, 16-37.
81. Xing, T., Zhou, X. (*), Taylor J. (2013). Designing Heterogeneous Sensor Networks for Estimating and Predicting Path Travel Time Dynamics: An Information-Theoretic Modeling Approach. *Transportation Research Part B: Methodological*. 57, 66-90.
82. Yang, L. Zhou, X., Gao, Z. (2013). Rescheduling trains with scenario-based fuzzy recovery time representation on two-way double-track railways. *Soft Computing*, 17(4), 605-616.
83. Xing, T., Zhou, X (*). (2013). Reformulation and Solution Algorithms for Absolute and Percentile Robust Shortest Path Problems. *IEEE Transactions on Intelligent Transportation Systems*. 99,1-12.
84. Du, P., Tian, Z., Zhou, X. (2013). Path-Flow-Based Cross-Resolution Conversions for Simulation Model. *Journal of Transportation Systems Engineering and Information Technology*, 13(2) 27-33.
85. Lei, H., Xing, T., Taylor, J., Zhou, X (*). (2012) Monitoring Travel Time Reliability from the Cloud: Cloud Computing-Based Architecture for Advanced Dissemination of Traffic Information. *Journal of Transportation Research Board*, 12-2992, 35-43.
86. Jia, A., Zhou, X., Roupail, N. M. (2012). Traffic Mobility Impact of Mileage-Based User Fees on Traveler Route Choice Behavior and Network Performance: Planning-Level Traffic Equilibrium-Based Approach. *Journal of Transportation Research Board*, 2302(1), 164-173.
87. Kittelson, W., Roupail, N., Williams, B., Zhou, X. (2011) Analyzing Operational Improvements as an Alternative to Traditional Highway Construction. *Journal of Transportation Research Board*, 11-2223, 18-25.
88. Xing, T., Zhou, X (*). (2011). Finding the Most Reliable Path With and Without Link Travel Time Correlation: A Lagrangian Substitution Based Approach, *Transportation Research Part B: Methodological*, 45 (10), 1660-1679.
89. Meng, L., Zhou, X (*). (2011). Robust train dispatching model under a dynamic and stochastic environment: a scenario-based rolling horizon solution approach, *Transportation Research Part B: Methodological*, 45(7), 1080-1102.
90. Chen, X., Zhou, X. (*), List, G. F. (2011). Using time-varying tolls to optimize truck arrivals at ports. *Transportation Research Part E: Logistics and Transportation Review*, 47(6), 965-982.
91. Jia, A., Zhou, X. (*), Li, M., Roupail, N., Williams, B. (2011). Incorporating Stochastic Road Capacity into a Day-to-Day Traffic Simulation and Traveler Learning Framework: Model Development and Case Study. *Journal of Transportation Research Board*. 11-2820, pp 112-121.
92. Reynolds, W. L., Roupail, N. M., Zhou, X. (2011). Turn Pocket Blockage and Spillback Models: Applications for Signal Timing and Capacity Analysis. *Transportation Research Record*, 2259(1), 112-122.
93. Wang, F., Li, C., Zhou, X., Nayak, M, Chen, X. (2010). Simulation Study of Operational Strategies for Mobility Improvement and Congestion Mitigation during Emergency Evacuation. *Journal of Transportation Safety & Security*, 2(2), 152 – 170.

94. Przybyla, J., Taylor, J., Zhou, X (*). (2010) Locating Sensors for Detecting Source-to-Target Patterns of Special Nuclear Material Smuggling: A Spatial Information Theoretic Approach. *Sensors*, 10(9), 8070-8091.
95. Reynolds, W., Zhou, X., Roupail, N.M., Li, M. (2010) Estimating Sustained Service Rates at Signalized Intersections with Short Left Turn Pockets: A Mesoscopic Approach. *Journal of Transportation Research Board*, 10-2611, pp 64-71.
96. Zhou, X. (*), List, G. (2010). An Information-Theoretic Sensor Location Model for Traffic Origin-Destination Demand Estimation Applications. *Transportation Science*, 44, 254-273.
97. Khan, M.B., and Zhou, X (*). (2010). Slack Time Allocation in Robust Double-Track Train Timetabling Applications, *IEEE Transactions on Intelligent Transportation Systems*, 11(1) 1. 81 – 89.
98. Hu, H, Williams, B.M., Roupail, R.M., Khattak, A.J., Zhou, X. (2009). Modeling the Role of Transportation Information in Mitigating Major Capacity Reductions in a Regional Network. *Journal of Transportation Research Board*. 2138. 75-84
99. Lu, C-C., Mahmassani, H.S. and Zhou, X. (2009). Equivalent Gap Function-Based Reformulation and Solution Algorithm for the Dynamic User Equilibrium Problem. *Transportation Research Part B: Methodological*, 43(3), 345-364.
100. Lu, C-C., Mahmassani, H.S. and Zhou, X. (2008). A Bi-criterion Dynamic User Equilibrium Traffic Assignment Model and Solution Algorithm for Evaluating Dynamic Road Pricing Strategies. *Transportation Research Part C: Emerging Technologies*, 16(4), 371-389.
101. Zhou, X, Mahmassani, H.S. and Zhang, K. (2008). Dynamic Micro-assignment Modeling Approach for Integrated Multimodal Urban Corridor Management. *Transportation Research Part C: Emerging Technologies*, 16, No. 2, 167-186. **(The most downloaded article, January - June 2008, in Transportation Research Part C).**
102. Zhou, X., Mahmassani, H. S. (2007). A Structural State Space Model for Real-Time Origin-Destination Demand Estimation and Prediction in a Day-to-Day Updating Framework. *Transportation Research Part B: Methodological*, 41(8), 823-840. (The most downloaded article, July - September 2007, in Transportation Research Part B).
103. Zhou, X. (*), Zhong, M. (2007). Single-Track Train Timetabling with Guaranteed Optimality: Branch and Bound Algorithms with Enhanced Lower Bounds. *Transportation Research Part B: Methodological*, 41(3), 320-341. (Top 10 most cited articles in the period of 2007-2012, in Transportation Research Part B).
104. Chiu, Y.-C., Zhou, X., and Hernandez, J. (2007). Evaluating Central Business District Flow Configuration Using a Dynamic Traffic Modeling Approach. *Journal of Urban Planning and Development, ASCE*. 133(4), 222-232.
105. Zhou, X. and Mahmassani, H. S. (2006). Dynamic OD Demand Estimation Using Automatic Vehicle Identification Data. *IEEE Transactions on Intelligent Transportation Systems*, 7(1), 105- 114
106. Zhou, X., Erdogan, S., Mahmassani, H.S. (2006). Dynamic OD Trip Demand Estimation for Subarea Analysis of ITS Deployment Alternatives. *Journal of Transportation Research Board*, No. 1964, 176-184.
107. Lu, C.-C., Zhou, X., Mahmassani, H.S. (2006). Heterogeneous Users and Toll Pricing: Model and Solution Algorithm for the Bi-criterion Dynamic Traffic Assignment Problem. *Journal of Transportation Research Board*, No. 1964, 19-26.
108. Eisenman, S., Fei, X., Zhou, X., Mahmassani, H.S. (2006). Number and Location of Sensors for Real-Time Network Traffic Estimation and Prediction: A Sensitivity Analysis. *Journal of Transportation Research Board*, No. 1964, 260-269.
109. Zhou, X. (*), Zhong, M. (2005) Bicriteria Train Scheduling for High-Speed Passenger Railroad Planning Applications, *European Journal of Operational Research*, 167(3) 752-771.

Xuesong (Simon) Zhou's CV

110. Zhou, X., Mahmassani, H.S. (2005). Recursive Approaches for Online Consistency Checking and OD Demand Updating for Real-time Dynamic Traffic Assignment Operation. Journal of Transportation Research Board, No. 1923, 218-226.
111. Mahmassani, H.S. Zhou, X, Lu, C.-C. (2005). Toll Pricing and Heterogeneous Users: Approximation Algorithms for Finding Bi-Criterion Time-Dependent Efficient Paths in Large-Scale Traffic Networks. Journal of Transportation Research Board, No. 1923, 28-36.
112. Zhou, X., Qin, X. and Mahmassani, H. S. (2003). Dynamic Origin-Destination Demand Estimation Using Multi-Day Link Traffic Counts for Planning Applications, Journal of Transportation Research Board, No. 1831, 30-38.
113. Zhou, X., Mahmassani, H. S. (2002). Dynamic Programming Approach for On-line Freeway Flow Propagation Adjustment, Journal of Transportation Research Board, No. 1802, 263-270.

Intellectual Property from ASU: Patents 0; Patents pending 1

Intellectual Property prior to ASU: Patents 2; Patents pending 0

1. US patent application, 2020, Nov. (# 63/107,224) Method for data collection, analysis, and a reward system for zero plastic pollution. Co-inventor: Xenia Zhao (‡, high school student), Applied from ASU Scottsdale Innovation Center Skysong M20-261P-PR1
2. US 8,204,649 (Issued) Integrated Systems and Method for Preventing Mobile Computing Device Use While Driving, 06/21/2012, Co-inventor: Wallace M. Curry, Jr
3. US 8,971,927 (Issued) System and method for preventing cell phone use while driving, 03/03, 2015 Co-inventor: Wallace M. Curry, Jr

Open-source Software Packages: 5

1. DTALite, light-weight open-source traffic simulation engine <https://github.com/asu-trans-ai-lab/DTALite>, Officially used in Maryland Transportation Statewide Model, Northern Virginia Transportation Authority's long-range planning model.
2. Network EXplorer for Traffic Analysis (NEXTA) visualization platform, used in FHWA AMS datahub prototype, <https://github.com/asu-trans-ai-lab/NeXTA4GMNS>; <https://www.fhwa.dot.gov/publications/research/operations/13036/004.cfm>
3. Python package "osm2gmns", a network conversion tool from OpenStreetMap to General Modeling Network Specification (GMNS), managed by Volpe/FHWA. <https://pypi.org/project/osm2gmns/>. Co-author: ASU Ph.D. student Lu. J. Total downloads: 70K. <https://pepy.tech/project/osm2gmns>
4. Python package "grid2demand". A rapid demand generation tool for traffic analysis and simulation based on GMNS. <https://pypi.org/project/grid2demand/> Co-author: ASU Ph.D. student Kim T. Total downloads: 50K <https://pepy.tech/project/grid2demand>
5. Python package "path4gmns". A shortest path calculation and static traffic assignment tool based on GMNS. <https://pypi.org/project/path2gmns/>. Co-author: Dr. Peiheng Li, PH.D. graduate from ASU,. Total downloads: 30K <https://pepy.tech/project/path2gmns>

PROFESSIONAL ACTIVITIES AND SERVICE

SUMMARY OF PROFESSIONAL ACTIVITIES AND SERVICE

Editor, Associate Editor for 3 peer-reviewed journals

1. **Associate Editor**, (2014-2023) Transportation Research Part C: Emerging Technologies.
2. **Associate Executive Editor-in-Chief, Executive Editor-in-Chief** (2015-) Urban Transit Rail.
3. **Associate Editor**, (2015-) Networks and Spatial Economics.

Xuesong (Simon) Zhou's CV

3 International/national conferences chaired

1. TRB Innovations in Travel Analysis and Planning Conference, June 4-6, 2023 in Indianapolis, IN (300 participants, service as chair with co-chair Rosella Picado, WSP. Inc)
2. International Workshop on High-speed Rail Planning and Operations, January 2015

7 International/national conferences committees

1. Board Member, Zephyr Foundation, a non-profit organization that advocates for and supports the development of more valuable, credible, and transparent travel analysis methods and tools to promote equitable and sustainable transportation and land use decision-making.
2. TRB Committee on Transportation Network Modeling (ADB30), April 2009- Present.
3. TRB Committee on Travel Forecasting Resource (ADB40), April 2009- 2020.
4. Transportation Advisory Board, Salt Lake City, Utah, September 2009- August 2014.
5. 2012,2013,2014, 2020 INFORMS Railway Application Section Problem Solving Competition Organizing Committee.
6. 2013 INFORMS Railway Application Section Student Paper Competition Organizing Committee.
7. Associate Editor, 2011 14th International IEEE Conference on Intelligent Transportation Systems (ITSC).
8. Co-organizer, IEEE Workshop on Advanced Technologies and Innovative Concepts for Promoting Traffic Safety and Mobility (TC3), ITSC 2012.

5 International/national conference sessions chaired

1. Chair (2018), International workshop for connected and autonomous vehicle policies at ASU, invited speakers include Deputy Secretary General, General Office of the People's Government of Beijing Municipality, and Matthew Clark, Policy Advisor on Transportation and Municipal Government.
2. Chair (2016-2017), Vice Chair (2015-2016), Public Relations Officer (2013-2014), Institute for Operations Research and the Management Sciences, Railway Applications Section (RAS).
3. Academic Chair (2017-), Rail Transit Committee, World Transport Convention (WTC).
4. Co-Chair, (2011-) IEEE Intelligent Transportation Systems Society, Technical Committee on Traffic and Travel Management.
5. Subcommittee Chair, (2013-2017) Network Equilibrium, (2018-) Network Models in Practice Subcommittee, TRB Committee on Transportation Network Modeling (ADB30).

Member of Editorial Board 2

1. Editorial Board Member (2015-) Transportation Research Part B: Methodological.
2. Editorial Board Member (2016-) International Journal of Transportation Science and Technology.

PERSONNEL: STUDENT SUPERVISION / MENTORING, TEACHING, DISSERTATION COMMITTEES, RESEARCHERS, AND OUTREACH

SUMMARY OF MENTORING:

Mentored Personnel in US Academia (Tenure-track Positions): 1

1. Monirehalsadat Mahmoudi, Assistant Professor, Michigan State University

Postdoctoral Researchers: 6

1. Xin Wu (2019-2022)
2. Jiangtao Liu (2018-2019)
3. Jeffrey Stempihar (2017)
4. Yunchao Qu (2016)
5. Pengfei Taylor Li (2014-2015)
6. Milan Toplica Zlatkovi (2013)
7. Sammy Chen (2010)

Xuesong (Simon) Zhou's CV

Ph.D. Students Graduated: 9

1. Jiawei Lu (Fall, 2022), Connected and Automated Mobility Modeling on Layered Transportation Networks: Cross-Resolution Architecture of System Estimation and Optimization. Current Job placement: Postdoctoral Fellow at Georgia Institute of Technology
2. Tae Hooie Kim (Fall, 2021), Co-chaired with Ram Pendyala, Integrate Transportation Planning Models with Machine Learning Algorithms: A Computational Graph Framework in a Data-Rich Environment Hong Kong Society for Transportation Studies (HKSTS) Outstanding Dissertation Award (Honourable Mention), Current Job placement: Research Scientist at UrbanSim Inc.
3. Baloka Belezamo. (October, 2020) Data-driven Methods for Characterizing Transportation System Performances Under Congested Conditions: A Phoenix Study. Current Job placement: Senior Manager, Arizona State University.
4. Monirehalsadat Mahmoudi (February 2018), Shared Mobility Optimization in Large Scale Transportation Networks: Methodology and Applications. Current Job placement: Assistant Professor at Michigan State University.
5. Jiangtao Liu (March 2018), Passenger-focused scheduled transportation systems: from increased observability to shared mobility. Current Job placement: Operations Research Engineer at Intel Corporation.
6. Jay Przybyla (Summer 2013), Enhancing transportation safety and security. Current Job placement: Managing Engineer at Focus Forensics
7. Hao Lei (Summer 2013), Estimate travel time reliability and emissions for active traffic and demand management. Current Job placement: Software Principal Engineer at DELL EMC
8. Tao Xing (Spring 2012), Information-theoretic sensor network design and reliable route guidance. Current Job placement: Senior Software Engineer at Otter.ai
9. Mingxin Li (Fall 2010), Modeling Network-wide Impacts of Traffic Bottleneck Mitigation Strategies under Stochastic Capacity Conditions. Current Job placement: Scientist at University of Delaware

Ph.D. Students

1. Alisa Doll
2. Xiangyong Roy Luo
3. Fang (Alicia) Tang
4. Mustafa Gadah
5. Mohammad Abbasi
6. Yunus Emre Avci

M.S. Students Graduated:

1. Peyton Wisch (2023)
2. Mehdi Naderi (2022)
3. Mayur Patil (2022)
4. Brandon Schaack (2022)
5. Golnoosh Miri (2019)
6. Isaiah Rubin (2018)
7. Yudi Lei (2018)
8. Shreyas Deshmukh (2017)
9. Nana Zhu (2016)
10. Hossein Jalali (2015)
11. Matthew Wilson (2015)
12. Jaesik Choi (2014)
13. Li Su (2012)
14. Jay Przybyla (2010)

Xuesong (Simon) Zhou's CV

15. Hyun-Chan Kim (2008)

Undergraduate Students (Research):

1. Sohum Berdia, Traffic signal optimization, Fall 2022-Present
2. Isabella Dicaro. Multimodal accessibility evaluation. Spring 2021.
3. Coleen Jillian Barcena, traffic signal timing design. Fall 2020.
Isabel Brunetti and Adam Tran. Analyzing potential solutions for traffic congestion at the intersection of forest and sr-89a in Sedona, AZ using traffic modeling software, 2020.
4. Corbin Bendel, Jared Kahler, Sarah Zinke, Autonomous Vehicle Effects on Geometric Design, 2019
5. Devon Jennings, (2016-2017) Research in transportation network app based systems, Currently he is a civil engineer at US Navy, attending UC Irvine for a PhD program.

High School Students (Research): 3

1. Eddie Zhu, Basis Phoenix, Project title: Queue-based Temperature Model. 2023.
2. Brandon Jiang, project title: space time state based shortest path (2016-2017)
3. Xenia Zhao, project title: Toward packaging-free aisles (2019-2020), Hamilton High School, Chandle AZ.

Student Fellowships and Awards: 31

1. Peyton Wisch, Second Place. 3rd Annual Arizona Student Transportation Summit, 2023
2. Eddie Zhu, Second Place, in the category of Senior Division: Mathematical Sciences, the Arizona Science and Engineering Fair (AzSEF), 2023.
3. Jiawei Lu, Second Place. 2nd Annual Arizona Student Transportation Summit, 2022
4. Tae Hooie Kim. Hong Kong Society for Transportation Studies (HKSTS) Outstanding Dissertation Award (Honourable Mention), 2021.
5. Xenia Zhao, First Place, in the category of Environmental Engineering (ENEV), the Arizona Science and Engineering Fair (AzSEF), 2021.
6. Xenia Zhao, Second Award of \$2000 in the Environmental Engineering category of the Society for Science and Regeneron Global STEM Competition (ENEV074), Titled Rethinking Food Waste: Optimizing the Food Bank Supply Chain to Tackle Food Waste and Food Insecurity.
7. Taehooie Kim. SSEBE Graduate Student Research Symposium Award in Arizona State University 2021.
8. Taehooie Kim. The Seth Bonder Foundation Student Registration Grant - INFORMS Annual Meeting (2020).
9. Jiawei Lu. The Seth Bonder Foundation Student Registration Grant - INFORMS Annual Meeting (2020).
10. Monirehalsadat Mahmoudi, Graduate Research Poster Symposium 2017, School of Sustainable Engineering and the Built Environment, Arizona State University (4th place).
11. Monirehalsadat Mahmoudi, INFORMS 2016 Minority Issues Forum (MIF) Student Poster Competition (Finalist).
12. Monirehalsadat Mahmoudi, INFORMS 2016 IBM Service Science Student Paper Competition (Finalist).
13. Monirehalsadat Mahmoudi, ITE Western District 2016 Student Paper Competition (1st place). <http://westernite.org/annual-meetings/awards/student-paper-award/>
14. Monirehalsadat Mahmoudi, Rural Public & Intercity Bus Transportation 2016 Student Paper Competition (1st place). <https://ncesmart.asu.edu/congratulations-monireh-xuesong/>
15. Monirehalsadat Mahmoudi, ITE 2016 Daniel B. Fambro Student Paper Competition (Finalist).
16. Monirehalsadat Mahmoudi, Graduate Research Poster Symposium 2016, School of Sustainable Engineering and the Built Environment, Arizona State University (3rd place).

Xuesong (Simon) Zhou's CV

17. Monirehalsadat Mahmoudi, ITS Arizona 2015 Graduate Student Paper Competition (1st place). <https://ncesmart.asu.edu/congratulations-monireh-mahmoudi-and-dr-xuesong-zhou-for-receiving-the-its-intelligent-transportation-society-arizona-2015-best-graduate-paper-award/>
18. Monirehalsadat Mahmoudi, Western District ITE Regional Travel Scholarship, ITE Western District Annual Meeting 2017: \$500. <https://westernite.org/annual-meetings/awards/student-regional-travel-scholarship-winners/>
19. Monirehalsadat Mahmoudi, INFORMS 2016 Women in OR/MS (WORMS) Monsanto Travel Award: \$1,300. <https://www.informs.org/Recognizing-Excellence/Award-Recipients/Monirehalsadat-Mahmoudi>
20. Monirehalsadat Mahmoudi, Travel Grant, Graduate and Professional Student Association (GPSA), Arizona State University, 2017.
21. Monirehalsadat Mahmoudi, Travel Scholarship (Full Funding), Rural Public & Intercity Bus Transportation 2016.
22. Monirehalsadat Mahmoudi, Travel Scholarship (Full Funding), ITE Western District Annual Meeting 2016.
23. Monirehalsadat Mahmoudi, Travel Grant, Graduate and Professional Student Association (GPSA), Arizona State University, 2016.
24. Monirehalsadat Mahmoudi, Scholarship, Arizona Conference on Roads & Streets 2016.
25. Monirehalsadat Mahmoudi, Short Program Scholarship, "Modeling and Simulation of Transportation Networks", MIT, 2015: \$1,650 Registration fee waved.
26. Jeffrey Taylor, the Council of University Transportation Centers Pikarsky Award-Science & Technology-MS, 2014.
27. Tie Shi, First Prize in Management Science in Railroad Applications Paper Contest, Institute for Operations Research and Management Science (INFORMS), 2014.
28. Jeffrey Taylor, Jay Przybyla. Finalist for the Fifth Annual National Security Competition. Hosted by National Homeland Defense Foundation, 2011.
29. Lingyun Meng, Second Prize in Management Science in Railroad Applications Paper Contest, Institute for Operations Research and Management Science (INFORMS), 2010.
30. Muhammad Babar Khan, Honorable Mention in Management Science in Railroad Applications Paper Contest, Institute for Operations Research and Management Science (INFORMS), 2008.
31. Tao Xing, Kenneth Williams, Rohan Madtha, Daniel Van Tassell, Windows Mobile Award, Microsoft's Imagine Cup Student Technology Competition, 2009, out of 125 participating student teams in the US.

Research Projects

1. NSF Consortium of Open-Source Multimodal PlaNNing for Equitable and Sustainable Communities and Transportation Systems (CONNECT): PI
2. Re-Engineering for Adaptable Lives and Businesses (NSF): Role: Co-Principal Investigator (Co-PI).
3. EVALUATION OF EMERGING TRANSPORTATION TECHNOLOGIES: VDMS PILOT STUDY, Maricopa Association of Governments , 2022, PI
4. Development of Multi-Scale Traffic Flow Simulation Model for Urban Mobility Applications, DOE: Argonne National Laboratory (ANL), 2022, PI
5. Calibrating highway capacity and volume-delay functions for Arizona statewide traffic demand model (AZTDM), Arizona Department of Transportation,(ADOT), 2022, PI
6. CC* Integration-Large: (BLUE) Software-Defined CyberInfrastructure to enable data-driven smart campus applications, NSF, 2022-2024, Co-PI
7. Loop101 Mobility Project Phase 1 Modeling Effort, Arizona Department of Transportation (ADOT), PI

Xuesong (Simon) Zhou's CV

8. Multi Resolution Modeling for Traffic Analysis DOT: Federal Highway Administration (FHWA), 10/01/2019-09/30/2020, PI
9. Development of Dynamic Traffic Simulation Models and Tools for Emergency Evacuation, Maryland State Highway Administration, 6/01/2020-11/30/2020, PI
10. MAG MODELS INTEGRATION: Calibration of volume-delay function, Maricopa Association of Governments, 5/01/2020-11/30/2021, PI
11. DYNAMIC TRAFFIC ASSIGNMENT MODEL EVALUATION PLAN, Arizona Department of Transportation (ADOT), 6/01/2020-6/30/2021, Co-PI
12. FY 2018 MAG MODELS INTEGRATION ONCALL, Maricopa Association of Governments, 3/20/2019-6/30/2020, PI
13. Development and Demonstration of Advanced Methods for Quantifying Freight Truck Activity Energy Use and Emissions (UTCP YR2), US Department of Transportation (DOT), /20/2015-9/30/2018, Co-PI
14. Real-time Management of Large Fleets of Self-Driving Vehicles Using Virtual Cyber Tracks, National Science Foundation (NSF), 9/1/2017-8/31/2019, PI
15. SHAUM4-02: Maryland Integrated Travel Analysis Modeling System (MITAMS), DOT: Federal Highway Administration (FHWA), 12/18/2014-12/31/2016, PI
16. Data Fusion Aided Freeway Analysis for HCM (UTCP YR2), US Department of Transportation (DOT), 2/20/2015-9/30/2017, PI
17. Maryland SHRP2 Advanced Travel Analysis Tools (C10) Implementation Assistance Project, DOT: Federal Highway Administration (FHWA), 9/5/2014, PI
18. Maryland SHRP2 Advanced Travel Analysis Tools (C10) Implementation Assistance Project, Maryland State Highway Administration, 3/1/2015-9/30/2016, PI
19. Dynamic Transportation Assignment in Nevada, Nevada Department of Transportation, 12/1/2014, PI
20. Collaborative Research: Improving Spatial Observability of Dynamic Traffic Systems through Ubiquitous Sensor Networks, National Science Foundation (NSF), 6/15/2015-5/31/2018, PI
21. Integrated, personalized, real-time traveler information and incentive technology for optimizing energy efficiency in multimodal transportation system, DOE: Advanced Research Projects Agency-Energy (ARPA-E), PI
22. Green Accessibility: Measuring the Environmental Costs of Space-Time Prisms in Sustainable Transportation Planning, National Science Foundation (NSF), 2014, Co-PI
23. Developing a Multi-resolution Traffic Simulation Platform for Integrated Active Traffic Operations Evaluation in Metropolitan Areas (UTCP YR2), US Department of Transportation (DOT), 2/20/2015-6/30/2016, PI
24. Development and Calibration of Regional Dynamic Transportation Assignment Models for the Estimation of Traffic Performance Measures in Nevada, US Department of Transportation (DOT), 1/28/2015-3/31/2017, PI
25. Evaluating and Calibrating Emission Impacts of Traffic Management Strategies through Simplified Emission Estimation Model and Mesoscopic Dynamic Traffic, US Department of Transportation (DOT), 1/1/2014-12/31/2015, PI
26. Traveler Response Architecture using Novel Signaling for Network Efficiency in Transportation (TRANSNET), U.S. Department of Energy's (DOE) Advanced Research Projects Agency – Energy (ARPA-E), 2016-2018, Co-PI
27. Congestion Mitigation Potential of Autonomous (Driverless) Vehicles: A Scenario-Based Approach, University Transportation Center, 2013-2014, Co-PI

Awarded Research Projects at University of Utah

28. Technical Support for DYNASMART-P Application, Federal Highway Administration, Office of Planning, 2007-2010
29. Visualization Platform for Dynamic Network Assignment and Simulation, Federal Highway Administration, Office of Planning, 2008-2009

Xuesong (Simon) Zhou's CV

30. Mobile Phone-based Driving Safety Data Collection and Evaluation Systems, Safe Driving System Cooperate, 2009
31. Development and Pilot Demonstration of Mobile Probe-based Traffic Monitoring and Information Provision Systems, California Partners for Advanced Transit and Highways (PATH) as part of US DOT Safe Trip 21 project, 2009-2011
32. Understanding Contribution of Operations, Technology, and Design to Meeting Highway Capacity Needs (SHRP II C05), Strategic Highway Research Program II, 2008-2009
33. SHRP L02 Monitoring Reliability. (SHRP II L02), Strategic Highway Research Program II, 2009-2012
34. Incorporating Reliability Performance Measures in Operations and Planning Modeling Tools (SHRP II L04), Strategic Highway Research Program II, 2009-2011
35. SHRP2 L15A: Providing Origin-to-Destination Travel Time Reliability Information on Google Maps, Funded by TRB Strategic Highway Research Program II, 2010-2011
36. Nuclear forensics education award program, Department of Energy, 2010-2012
37. FHWA Planning BAA: An Open-Source Dynamic Traffic Assignment Tool for Assessing the Effects of Roadway Pricing and Crash Reduction Strategies on Recurring and Non-Recurring Congestion, Sponsored by Federal Highway Administration through Kittelson & Associates Inc, 2010-2013
38. FHWA IDIQ: The Effective Integration of Analysis, Modeling, and Simulation Tools, Federal Highway Administration through Kittelson & Associates Inc, 2010-2013
39. Context-Sensitive Spatial and Temporal Resolution of Onroad Mobile Source Emission Inventories, Environmental Protection Agency through North Carolina State University, 2010-2014
40. Traffic Modeling of Transit Oriented Development, Utah Transit Authority, 2012-2013
41. Simplified Web-based Decision Support Method for Traffic Management and Work Zone Analysis, Utah Department of Transportation, 2012-2015

Major Media Exposure

The transportation equation

<https://news.asu.edu/20220802-transportation-equation>

ASU News (Full Circle), Mar 17, 2023, 2022

Designing next-generation transportation systems

<https://fullcircle.asu.edu/research/designing-next-generation-transportation-systems/>

ASU News (Full Circle), August 2, 2022

Optimizing Municipal Infrastructure with Smart City Planning

<https://www.democracylab.org/projects/639>

Feature as "Core of the Month: Research Computing", in ASU Core Facilities May News.

ASU's Research Computing Newsletter, May 06, 2021

Autonomous Vehicle Assignment and Routing in Congested Transportation Networks.

USDOT ITS Training & Other News October 18, 2018

<https://content.govdelivery.com/accounts/USDOTFHWA/bulletins/2130939>

About Student team wining Windows Mobile Award

(Serving as faculty advisor)

Salt Lake Tribune, May 08, 2009

http://www.sltrib.com/news/ci_12320477

Press release from Microsoft, May 05, 2009

Xuesong (Simon) Zhou's CV

<http://blogs.technet.com/unlimitedpotential/archive/2009/05/05/u-s-imagine-cup-winners-team-multipoint-web.aspx>

About Start-Up Company Safe Driving Systems
(Serving as Chief Scientist)

University of Utah Press Release, July 16, 2009

LIFE-SAVING COMPANIES ARE AMONG 23 STARTED THIS YEAR THROUGH U OF U RESEARCH

<http://www.unews.utah.edu/p/?r=071609-1>

8/26/2009 Psychology Today

[Change That Isn't Persuasion - Texting and Driving](#)

8/26/2009 Blog: Low Country Auto Parts

[Key to Safe Driving.](#)

8/26/2009 Wall Street Journal

[Texting While Driving: Are You an Offender.](#)

8/26/2009 Wall Street Journal

[Firms Racing to End Texting and Driving.](#)

8/25/2009 San Francisco Chronical

[Video Dramatization Shows Deadly Consequences of Texting and Driving.](#)

8/24/2009 Time Magazine

[Distracted Driving: Should Talking, Texting Be Banned?](#)

7/27/2009 "Ridin' Dirty" Radio Interview (AM 830 KLAA Los Angeles)

[Mike Fahnert Explains Key2SafeDriving Solution to Ken Sharp & Heidi Foglesong](#)

7/1/2009 InjuryBoard.com

[Put the Brakes on Driving While Texting](#)

6/25/2009 InjuryBoard.com

[Key2SafeDriving: New Device Jams Cell Phone Use While Driving](#)

4/24/2009 geeksugar

[Key2SafeDriving Turns Off Your Phone While You Drive](#)

About Key2SafeDriving invented by Dr. Xuesong Zhou and Dr. Wallace M. Curry Jr.

ORIGINAL STORIES AND BLOGS -- NATIONAL/INTERNATIONAL

New York Times:

http://www.nytimes.com/2008/12/23/health/23safe.html?_r=2&ref=science

Christian Science Monitor:

<http://features.csmonitor.com/innovation/2008/12/15/smart-key-would-disable-teens-phones-while-driving/>

Xuesong (Simon) Zhou's CV

Science News magazine:

http://www.sciencenews.org/view/generic/id/39348/title/Improved_Cars_Chin_on_It

Ward's Auto (subscription access only):

http://subscribers.wardsauto.com/ar/utah_key_teen_081216/wall.html?return=http://subscribers.wardsauto.com/ar/utah_key_teen_081216/

The Inquirer, London:

<http://www.theinquirer.net/inquirer/news/032/1050032/car-keys-become-mobile-phone-jammers>

PC World magazine:

http://www.pcworld.com/businesscenter/article/155461/wireless_security_keeps_drivers_off_cell_phones.html

Agence France-Presse (AFP):

http://www.google.com/hostednews/afp/article/ALeqM5hMF_Z9sYFVjdETdoNKGgyIa8TyjQ

EE Times (Electronics Engineering Times):

<http://www.eetimes.com/showArticle.jhtml?articleID=212500070>

Edmunds. Com automotive publications:

<http://blogs.edmunds.com/straightline/2008/12/new-technology-prevents-talking-or-texting-on-a-phone-while-driving.html>

Tom's Guide:

<http://www.tomsguide.com/us/Car-Key-Stops-Mobile-Phone,news-3142.html>

Newsfactor Network:

http://business.newsfactor.com/story.xhtml?story_id=03300128K9UX&full_skip=1

Money Times, India:

http://www.themoneytimes.com/articles/20081214/car_key_jams_teen_age_driver_s_cell_phone_and_texting-id-1044697.html

Asian News International (ANI) via Daily India:

<http://www.dailyindia.com/show/286685.php>

New York Post:

http://www.nypost.com/seven/12132008/news/nationalnews/driver_cell_block_143937.htm

Phones Review, U.K.:

<http://www.phonesreview.co.uk/2008/12/13/key2safedriving-could-halt-mobile-usage-while-driving/>

NextGenLog by R. Colin Johnson of EE Times (audio):

<http://homepage.mac.com/guitarmedia/interviews/rcjKey2SafeDriving.mp3>

Story (under Friday Dec. 12):

<http://nextgenlog.blogspot.com/>

Motor Trend magazine:

Xuesong (Simon) Zhou's CV

<http://wot.motortrend.com/6384922/technology/key2safedriving-disables-teens-cell-phone-while-driving/index.html>