XUEGANG (JEFF) BAN
Curriculum Vitae

Civil and Environmental Engineering
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EDUCATIONAL HISTORY

University of Wisconsin, Madison, WI
PhD, Civil and Environmental Engineering
July 2005
Dissertation: *Quasi-Variational Inequality Formulations and Solution Approaches for Dynamic User Equilibria* (Advisor: Dr. Bin Ran)

University of Wisconsin, Madison, WI
MS, Computer Sciences
May 2003

Tsinghua University, Beijing, China
MS, Automotive Engineering
July 2000
Thesis: *GPS-based Autonomous Vehicle Navigation Systems* (Advisor:Dr. Xiaomin Lian)

Tsinghua University, Beijing, China
BS, Automotive Engineering
July 1997

EMPLOYMENT HISTORY

University of Washington
Seattle, WA, USA
Associate Professor, August 2016 – present

Rensselaer Polytechnic Institute
Troy, NY, USA
Associate Professor, July 2014 – August 2016

Rensselaer Polytechnic Institute
Troy, NY, USA
Assistant Professor, July 2008 – July 2014

University of California, Berkeley
Berkeley, CA, USA
Post-doctoral Researcher, August 2005 – July 2008

Utah State University
Logan, UT, USA
Research Associate, January 2005 – July 2005

University of Wisconsin, Madison
Madison, WI, USA
Graduate Research Assistant, July 2000 – December 2004

AWARDS AND HONORS

AT UNIVERSITY OF WASHINGTON

- *Researcher of the Year Award*, 2019, PacTrans (Pacific Northwest Transportation Consortium)
- *Best Paper Award (2nd Prize)*, 2017, IEEE Intelligent Vehicles Symposium (1 of the 2 papers selected from over 300 papers submitted to the Symposium)
- *Honorable Mention, Stella Dafermos Best Paper Award*, 2017, Network Modeling Committee (ADB30), Transportation Research Board, National Academies (1 of the 3 papers selected from over 100 papers submitted to the Committee)

AT RENSSELAER POLYTECHNIC INSTITUTE

- *Finalist of Franz Edelman Award*, 2017, INFORMS (The Institute for Operations Research and the Management Sciences)
- *School of Engineering Research Excellence Award* (Junior Faculty), 2014, Rensselaer Polytechnic Institute
- *New Faculty Award*, 2012, Council of Transportation Research Centers (CUTC) and American Road & Transportation Builders Association (ARTBA)
- *CAREER Award*, 2011, National Science Foundation
- *UTRC's 2008 Best Paper Award*, 2008, University of Transportation Research Center Region 2
- *IET Scholarship*, 1998, Tsinghua University, China
- *Outstanding Graduate Medal*, 1997, Tsinghua University, China

AFFILIATIONS AND OTHER APPOINTMENTS

Adjunct Associate Professor, September 2018 – present, Department of Urban Design and Planning, University of Washington

Visiting Professor (Eastern Scholar), May 2015 – December 2018, Shanghai Maritime University, China [This is a virtual position with physical appointment during summer months]

Associate Professor (by courtesy), September 2014 – August 2016, Department of Industrial and Systems Engineering, Rensselaer Polytechnic Institute, NY, USA

PUBLICATIONS

[IF=Impact Factor (most recent); citations shown next to each publication based on Google Scholar (GS); Total Google Scholar Citations as of October 29, 2020: 4,876 (h-index: 34; i10-index: 78). Footnote: 1 - graduate students advised as major advisor; 2 – students advised for independent study or non-degree projects; 3 - visiting graduate students supervised as major supervisor of UW; 4 – post-doctoral associate; *Italic* indicates the corresponding author of the paper; my name is highlighted in **bold** text]

Refereed archival journal publications

AT UNIVERSITY OF WASHINGTON

1. *Yang, X.*, Ma, R., Yang. P., **Ban, X.**, 2020. Link Travel Time Estimation in Double-Queue-Based Traffic Models. Journal Promet - Traffic&Transportation, accepted.
2. Yang, H., Liu, C., Zhu, M., **Ban, X.**, Wang, Y., 2020. How Fast You Will Drive? Predicting Speed of Customized Paths Based on Deep Neural Networks. IEEE Transactions on Intelligent Transportation Systems, accepted.
3. Guo, Q.[1], ***Ban, X.***, 2020. Macroscopic fundamental diagram based perimeter control considering dynamic user equilibrium. *Transportation Research Part B* 136, 87-109.
4. Li, W.[1], ***Ban, X.***, Zheng, J., Liu, H., Cheng, G., Li, Y., 2020. A deep learning approach for real-time traffic volume prediction at signalized intersection. *Journal of Transportation Engineering*, 146(8): 04020081.
5. Liu, B., Xie, S., Wang, H., *Hong Y.*, **Ban, X**., 2019. VTDP: Privately Sanitizing Fine-grained Vehicle Trajectory Data with Boosted Utility. *Transactions on Dependable and Secure Computing*, in press (DOI: 10.1109/TDSC.2019.2960336).
6. Li, W. [1], ***Ban, X.***, 2020. Connected vehicle based traffic signal coordination. *Engineering*, in press (https://www.sciencedirect.com/science/article/pii/S2095809920303015). [IF: 4.568; Citations: 2]
7. Li, W.[1], Wang, J. [1], Fan, R. [1], Guo, Q. [1], Zhang, Y. [1], Siddique, N. [1], ***Ban, X.,*** 2020. Short-term traffic state prediction from latent structures: accuracy vs. efficiency. *Transportation Research Part C* 111, 72-90.
8. ***Ban, X.***, Dessouky, M., Pang, J.S., Fan, R.[1], 2019. A general equilibrium model for transportation systems with e-hailing services and flow congestion. *Transportation Research Part B* 129, 273-304. [IF: 4.574; Citations: 8]
9. *Di, X.*, **Ban, X.**, 2019. A mixed link-node and path formulation for equilibrium of new mobility systems. *Transportation Research Part B* 129, 50-78. [IF: 4.574; Citations: 1]
10. Wang, F., Wang, J. [1], Cao, J., Chen, C., ***Ban, X.***, 2019. Extracting trips from multi-sourced data for mobility pattern analysis: An app-based data example. *Transportation Research Part C* 105, 183-202. [IF: 5.775; Citations: 0]
11. Wang, J.P.[3], *Huang, H.J.*, **Ban, X.**, 2019. Optimal capacity allocation for high occupancy vehicle (HOV) lane in morning commute. *Physica A* 524, 354-361. [IF: 2.500; Citations: 0]
12. Guo, Q.[1], *Li, L.*, **Ban, X.**, 2019. Urban traffic signal control with connected and automated vehicles: A survey. *Transportation Research Part C* 101, 313-334. [IF: 5.775; Citations: 10]
13. Wang, J.P.[3], ***Ban, X.***, Huang, H.J., 2019. Dynamic ridesharing with variable-ratio charging-compensation scheme for morning commute. *Transportation Research Part B* 122, 390-415. [IF: 4.574; Citations: 1]
14. Li, W.[3], Cui. Z., Li, Y., ***Ban, X.,*** 2019. Characterization of ridesplitting based on observed data: A case study of Chendu, China. *Transportation Research Part C 100,* 330-353. [IF: 5.775; Citations: 2]
15. Siddique, C.[1], ***Ban, X.***, 2019. State-Dependent self-adaptive sampling (SAS) method for vehicle trajectory data. *Transportation Research Part C* 100, 224-237. [IF: 5.775; Citations: 1]
16. Ji. X.F.[3], ***Ban, X.***, Li, M., Zhang, J., Ran, B., 2019. Moment-based travel time reliability assessment with Lasserre's relaxation. *Transpormetrica B: Dynamics* 7 (1), 401-422. [IF: 2.229; Citations: 2]

17. Li, W.[1], ***Ban, X.***, 2019. Connected vehicle based traffic signal timing optimization. *IEEE Transactions on Intelligent Transportation Systems* 20(12), 4354-4366. [IF: 5.744; Citations: 15]
18. Xu, B.[3], Li, S.E., Bian, Y., Li, S., **Ban, X.**, Wang, J., *Li, K.*, 2018. Distributed conflict-free cooperation for multiple connected vehicles at unsignalized intersections. *Transportation Research Part C* 93, 322-334. [IF: 5.775; Citations: 12]
19. Xu, B.[3], **Ban, X.**, Bian, Y., Li, W.[1], Wang, J., *Li, K.*, 2018. Cooperative method of traffic signal optimization and speed control of connected vehicles at isolated intersections. I*EEE Transactions on Intelligent* Transportation Systems 20 (4), 1390-1403. [IF: 5.744; Citations: 10]
20. *Di., X.*, Ma, R., Liu, X., **Ban, X.**, Yang, H., 2018. Network design for ridesharing user equilibrium. *Transportation Research Part B* 112, 230-255. [IF: 4.574; Citations: 11]
21. Yang, X.[1], ***Ban, X.***, Mitchell, J., 2018. Modeling multimodal transportation network emergency evacuation considering evacuees' cooperative behavior. *Transportation Research Part A* 114(B), 380-397. [IF: 3.693; Citations: 7]
22. Li, W.[3], *Li, Y.*, **Ban, X.**, Deng, H., Shu, H., Xie, D., 2018. Exploring the relationships between the non-work trip frequency and accessibility based on mobile phone data. *Transportation Research Record* 2672, 91-102. [IF: 0.695; Citations: 0]
23. Ma, R.[1], ***Ban, X.***, Pang, J.S., 2018. A link-based dynamic complementarity system formulation for continuous-time dynamic user equilibria with queue spillbacks. *Transportation Science 52(3)*, 564-592. [IF: 3.310; Citations: 11]
24. *Sun, Z.[1]*, **Ban, X.**, 2018. Identifying multiclass vehicles using GPS data. *Journal of Intelligent Transportation Systems* 22(1), 1-9. [IF: 2.568; Citations: 1]
25. Ji. X.F.[3], ***Ban, X.***, Zhang, J., Ran, B., 2017. Subjective-utility travel time budget modeling in the stochastic traffic network assignment. *Journal of Intelligent Transportation Systems* 21(6), 439-451. [IF: 2.568; Citations: 2]
26. *Holguin-Veras, J.*, (10 other co-authors), **Ban, X.**, (and 16 other co-authors), 2017. The New York city off-hour delivery program: A business and community-friendly sustainability program. *Interfaces* 48(1), 1-17. [IF: 0.729; Citations: 5]
27. *Di, X.*, Liu, H, **Ban, X.**, Yang, H., 2017. Ridersharing user equilibrium and its implications for High-Occupancy-Toll lane pricing. *Transportation Research Record* 2667, 39-50. [IF: 0.695; Citations: 8]
28. Ji. X.F.[3], ***Ban, X.***, Li, M., Zhang, J., Ran, B., 2017. Non-expected route choice model under risk on stochastic traffic networks. *Networks and Spatial Economics* 17(3), 777-807. [IF: 2.084; Citations: 7]
29. Yang, X.[1], ***Ban, X.***, Ma, R.[1], 2017. Mixed equilibria with common constraints on transportation networks. *Networks and Spatial Economics* 17(2), 547-579. [IF: 2.084; Citations: 10]
30. Ma, R.[1], ***Ban, X.***, Szeto, W.Y., 2017. Emission modeling and pricing on single-destination dynamic traffic networks. *Transportation Research Part B* 100, 255-283. [IF: 4.574; Citations: 19]
31. *Liu, J.*, Elrahman, S., **Ban, X.**, 2016. Understanding social media program usage in public transit agencies. *International Journal of Transportation Science and Technology* 5 (2), 83-92. [IF: NA; Citations: 7]

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32. Luo, L., *Ge, Y.*, Zhang, F., **Ban, X.**, 2016. Real-time route diversion control in a model predictive control framework with multiple objectives: Traffic efficiency, emission reduction and fuel economy. *Transportation Research Part D 48*, 332-356. [IF: 4.051; Citations: 11]

33. *Ge, Y.E.*, Stewart, K., Sun, B., **Ban, X.**, Zhang, S., 2016. Investigating undesired spatial and temporal boundary effects of congestion charging. *Transportmetrica B: Dynamics* 4(2), 135-157. [IF: 2.229; Citations: 10]
34. *Di, X.*, Liu, H., **Ban, X.**, 2016. Second best toll pricing within the framework of bounded rationality. *Transportation Research Part B* 83, 74-90. [IF: 4.574; Citations: 40]
35. Zhao, J., Li, W.[1], *Wang, J.*, **Ban, X.**, 2016. Dynamic traffic signal timing optimization strategy incorporating various vehicle fuel consumption characteristics. *IEEE Transactions on Vehicular Technology* 65 (6), 3874-3887. [IF: 5.339; Citations: 23]
36. Hao, P.[4], and ***Ban, X.***, 2015. Long queue estimation using short vehicle trajectories for signalized intersections. *Transportation Research Part B*, 82, 54-73. [IF: 4.574; Citations: 34]
37. *Sánchez-Díaz,* I., Holguin-Veras, J., **Ban, X**., 2015. A time-dependent freight tour synthesis model. *Transportation Research Part B*, 78, 144-168. [IF: 4.574; Citations: 14]
38. *Sun, Z.[1]*, **Ban, X.**, Hao, P.[1], Yang, D., 2015. Trajectory-based vehicle energy/emission estimation for signalized arterials using mobile sensing data. *Transportation Research Part D* 34, 27-40. [IF: 4.051; Citations: 33]
39. Yang, X.[1], Sun, Z.[1], ***Ban, X.***, Holguin-Veras, J., 2015. Urban freight delivery stop identification using GPS data. *Transportation Research Record* 2411, 55-61. [IF: 0.695; Citations: 22]
40. Ma, R.[1], ***Ban, X.***, Pang, J.S., Liu, X., 2015. Time discretization of continuous-time dynamic network loading models. *Networks and Spatial Economics* 15(3), 419-441. [IF: 2.084; Citations: 10]
41. Ma, R.[1], ***Ban, X.***, Pang, J.S., Liu, X., 2015. Approximating time delays in solving continuous-time dynamic user equilibria. *Networks and Spatial Economics* 15(3), 443-463. [IF: 2.084; Citations: 12]
42. *Yushimito, W.*[1], **Ban, X.**, Holguin-Veras, J., 2015. Correcting the market failure in work trips with work rescheduling: an analysis using bi-level models for the firm-workers interplay, *Networks and Spatial Economics* 15(3), 883-915. [IF: 2.084; Citations: 6]
43. Hao, P.[1], ***Ban, X.***, Yu, J.W., 2015. Kinematic equation based vehicle queue location estimation method for signalized intersections using mobile sensor data. *Journal of Intelligent Transportation Systems* 19(3), 256-272. [IF: 2.568; Citations: 39]
44. Di, X., *Liu, H.*, **Ban, X**., and Yu, J.W., 2015. On the stability of a boundedly rational day to day dynamic. *Networks and Spatial Economics* 15(3), 537-557. [IF: 2.084; Citations: 29]
45. *Wang, X.*, Wang, J., Zhang, J., **Ban, X.**, 2015. Lane-changing model with dynamic consideration of driver's propensity. *International Journal of Modern Physics C* 26(2), 19 pages. [IF: 1.699; Citations: 9]
46. Ma, R.[1], ***Ban, X.***, Pang, J.S., 2014. Continuous-time dynamic system optimal for single-destination traffic networks with queue spillbacks. *Transportation Research Part B* 68, 98-122. [IF: 4.574; Citations: 39]
47. Hao, P.[1], ***Ban, X.***, Guo, D.[2], Ji, Q., 2014. Cycle by cycle intersection queue length distribution estimation using sample travel times. *Transportation Research Part B* 68, 185-204. [IF: 4.574; Citations: 34]
48. Yushimito, W.[1], ***Ban, X.***, Holguin-Veras, J., 2014. A two stage optimization model for staggered work hours. *Journal of Intelligent Transportation Systems* 18(4), 410-425. [IF: 2.568; Citations: 13]
49. Sun, Z.[1], ***Ban, X.***, 2013. Vehicle classification using GPS Data. *Transportation Research Part C* 37, 102-117. [IF: 5.775; Citations: 68]
50. Sun, Z.[1], ***Ban, X.***, 2013. Vehicle trajectory reconstruction for signalized intersections using mobile traffic sensors. *Transportation Research Part C* 36, 268-283. [IF: 5.775; Citations: 74]

51. Sun, Z.[1], Zan, B., ***Ban, X.***, Gruteser, M., 2013. Privacy protection method for fine-grained urban traffic modeling using mobile sensors. *Transportation Research Part B* 56(1), 50-69. [IF: 4.574; Citations: 35]
52. Hao, P.[1], Sun, X.[1], ***Ban, X.***, Guo, D.[2], Ji, Q., 2013. Vehicle index estimation for signalized intersections using sample travel times. *Transportation Research Part C* 36, 513-529. [IF: 5.775; Citations: 33]
53. *Di, X.*, *Liu, H.*, Pang, J.S., **Ban, X.**, 2013. Boundedly rational user equilibria (BRUE): Mathematical formulation and solution sets. *Transportation Research Part B* 57, 300-313. [IF: 4.574; Citations: 69]
54. ***Ban, X.***, Ferris, M.C., Tang, L., Lu, S., 2013. Risk-neutral second best toll pricing. *Transportation Research Part B*, 48(2), 67-87. [IF: 4.574; Citations: 26]
55. *Holguin-Veras, J.*, Torres, C.A.[1], **Ban, X.**, 2013. On the comparative performance of urban delivery vehicle classes. *Transportmetrica A: Transport Science* 9(1), 50-73. [IF: 1.988; Citations: 32]
56. *Zhang, X.*, He, R., Shi, Q., **Ban, X.**, Ran, B., 2013. Critical traffic control locations for emergency evacuation. *Journal of Transportation Engineering* 139(10), 1030-1038. [IF: 1.29; Citations: 4]
57. Hao, P.[1], ***Ban, X.***, Bennett, K., Ji, Q., Sun, Z.[1], 2012. Signal timing estimation using intersection travel times. *IEEE Transactions on Intelligent Transportation Systems*, 13(2), 792-804. [IF: 5.744; Citations: 44]
58. *Hoh, B.*, Iwuchukwu, T., Jacobson, Q., Gruteser, M., Bayen, A., Herrera, J.C., Herring, R.[2], Work, D., Annavaram, M., **Ban, X,** 2012. Enhancing privacy and accuracy in probe vehicle based traffic monitoring via virtual trip lines. *IEEE Transactions on Mobile Computing*, 11(5), 849-864. [IF: 4.474; Citations: 80]
59. ***Ban, X.***, Pang, J.S., Liu, X., Ma, R.[1], 2012. Continuous-time point-queue models in dynamic network loading. *Transportation Research Part B*, 46(3), 360-380. [IF: 4.574; Citations: 65]
60. ***Ban, X.***, Pang, J.S., Liu, X., Ma, R.[1], 2012. Modeling and solution of continuous-time instantaneous dynamic user equilibria: A differential complementarity systems approach. *Transportation Research Part B*, 46(3), 389-408. [IF: 4.574; Citations: 38]
61. ***Ban, X.***, Hao, P.[1], Sun, Z.[1], 2011. Real time queue length estimation for signalized intersections using sample travel times from mobile sensors. *Transportation Research Part C*, 19(6), 1133-1156. [IF: 5.775; Citations: 216]
62. *Holguin-Veras, J.*, Jaller, M., Destro, L., **Ban, X.**, Lawson, C., 2011. Freight generation, freight trip generation, and the perils of using constant trip rates. *Transportation Research Record* 2224, 68-81. [IF: 0.695; Citations: 114]
63. ***Ban, X.***, Chu, L., Herring, R.[2], Margulici, J.D., 2011. A sequential modeling framework for optimal sensor placement for multiple ITS applications. *Journal of Transportation Engineering* 137(2), 112-120. [IF: 1.29; Citations: 25]
64. ***Ban, X.***, Li, Y., Skabardonis, A., Margulici, J.D., 2010. Performance evaluation of travel time estimation methods for real time traffic applications. *Journal of Intelligent Transportation Systems* 14(2), 54-67. [IF: 2.568; Citations: 64]
65. *Herrera, J.C.*, Work, D.B., Herring, R.[2], **Ban, X.,** Bayen, A., 2010. Evaluation of traffic data obtained via GPS-enabled mobile phones: the mobile century field experiment. T*ransportation Research Part C*, 18(4), 568-583. [IF: 5.775; Citations: 844]
66. ***Ban, X.,*** Ferris, M., Liu, H., 2010. Numerical studies on reformulation techniques for continuous network design problems with asymmetric user equilibrium. *International Journal of Operations Research and Information Systems*, 1(1), 52-72. [IF: NA; Citations: 5]

67. ***Ban, X.***, Liu, H., 2009. A link-node discrete-time dynamic second best toll pricing model with a relaxation solution algorithm. *Networks and Spatial Economics* 9(2), 243-267. [IF: 2.084 ; Citations: 26]
68. ***Ban, X.***, Herring, R.[2], Hao, P. [1], Bayen, A., 2009. Delay pattern estimation for signalized intersections using sampled travel times. *Transportation Research Record* 2130, 109-119. [IF: 0.695; Citations: 148]
69. *Margulici, J.D.*, **Ban, X.**, 2008. Benchmarking travel time estimates. *IET Journal of Intelligent Transport Systems* 2(3), 228-237. [IF: 2.05; Citations: 13]
70. ***Ban, X.,*** Liu, H., Ferris, M.C., Ran, B., 2008. A link-node complementarity model and solution algorithm for dynamic user equilibria with exact flow propagations. *Transportation Research, part B*, 42(9), 823-842. [IF: 4.574; Citations: 70]
71. ***Ban, X.***, Chu, L., Benouar, H., 2007. Bottleneck identification and calibration for corridor management planning. *Transportation Research Record* 1999, 40-53. [IF: 0.695; Citations: 50]
72. *Liu, H.*, **Ban, X.**, Ma, W.T., Mirchandani, P., 2007. Model reference adaptive control framework for real time traffic management under emergency evacuation. *ASCE Journal of Urban Planning and Development* 133(1), 43-50. [IF: 2.246; Citations: 136]
73. ***Ban, X.,*** Liu, H., Ferris, M., Ran, B., 2006. A general MPCC model and its solution algorithm for continuous network design problem. *Mathematical and Computer Modeling* 43, 493-505. [IF: 2.15; Citations: 63]
74. ***Ban, X.***, Liu, H, and Ferris, M.C., 2006. Decomposition scheme for continuous network design problem with asymmetric user equilibria. *Transportation Research Record* 1964, 185-192. [IF: 0.695; Citations: 25]
75. *Lu, J.G.*, Yang, F., **Ban, X.**, Ran, B., 2006. Moments analysis for improving decision reliability based on travel time. *Transportation Research Record* 1968, 109-116. [IF: 0.695; Citations: 6]
76. *Lu, J.G.*, **Ban, X**., Qiu, Z.J., Yang, F., Ran, B., 2005. A robust optimization model for route guidance based on ATIS. *Transportation Research Record* 1935, 1-7. [IF: 0.695; Citations: 2]
77. *Liu, H.*, **Ban, X**., Ran, B., Mirchandani, P., 2003. Formulation and solution algorithm for fuzzy dynamic traffic assignment model. *Transportation Research Record* 1854, 114-123. [IF: 0.695; Citations: 30]
78. *Yang, F.*, Liu, H., H, R., **Ban, X**, Ran, B., 2003. Bi-level formulation for optimal traffic information dissemination. *Transportation Research Record* 1836, 21-28. [IF: 0.695; Citations: 8]
79. *Liu, H.*, **Ban, X**., Ran, B., Mirchandani, P., 2002. Analytical dynamic traffic assignment model with probabilistic network and travelers' perceptions. *Transportation Research Record* 1783, 125-133. [IF: 0.695; Citations: 50]

Under review

1. Fan, R.[1], ***Ban, X.***, 2020. Commuting service platform: Concept and analysis. Submitted to *Transportation Research Part B*. arXiv: https://arxiv.org/submit/3001111/view
2. Siddique, N.[1], ***Ban, X.***, 2019. Self-adaptive online trajectory sampling (SAOTS) using spectral domain properties. Submitted to *Transportation Research Part C*, 2nd revision.
3. Guo, Q, ***Ban, X.***, Aziz, H.M.A., 2020. Mixed traffic flow of human driven vehicles and connected/automated vehicles on a dynamic transportation network. Full paper submitted to International Symposium on Transportation and Traffic Theory (ISTTT) 2021.
4. Guo, Q.1, Liu, Z.[1], Angah, O.[1], ***Ban, X.***, 2020. Hybrid deep reinforcement learning based eco-driving for low-level connected and automated vehicles along signalized corridors. Submitted to *Transportation Research Part C*.

5. Sun, F., *Moudon*, A., Shen, Q., **Ban, X.**, Lee, B., 2020. The impact of shared mobility option on demand. Submitted to Transportation Research Part A.
6. Wang, F., Wang, J., Zhang, Y., Chen, C., ***Ban, X***., 2020. Travelers' Adaptive Behaviors in Response to Seattle's Alaskan Way Viaduct Replacement. Submitted to the 100th Annual Meeting of Transportation Research Board.
7. Fan, R.[1], McCabe, D.[1], ***Ban, X***., 2020. A General Equilibrium Model for Integrated CAV Ridesourcing and Transit Services for the Morning Commute. Submitted to the 100th Annual Meeting of Transportation Research Board.
8. Chen, C., Tu, Y., ***Ban, X.***, 2020. Using Mobile Sensor Data for Evaluating Mobility Pattern Changes from Before to After an Event: Lessons Learned from the Seattle Alaskan Viaduct Replacement Project. Submitted to the 100th Annual Meeting of Transportation Research Board.
9. McCabe, D.[1], ***Ban, X.***, 2020. Charging infrastructure location for battery electric buses: A mixed integer linear programming approach. Submitted to the 100th Annual Meeting of Transportation Research Board.
10. Bian, Z., Zuo, F., Guo, J., Chen, Y., Pavuluri, S., Bernardes, S.D., Ozbay, K., **Ban, X.**, Wang, J., 2020. Time Lag Effects of COVID-19 Policies on Transportation Systems: A Comparative Study of New York City and Seattle. Submitted to the 100th Annual Meeting of Transportation Research Board.

Working papers:

1. Luo, X.[3], **Ban, X.**, *Wang, D*., 2019. Using license plate recognition data to gain insight into urban travel time distributions. Working paper.

Conference proceedings and other non-journal articles

Fully refereed publications

AT UNIVERSITY OF WASHINGTON

1. Siddique, N.[1], ***Ban, X.***, 2019. Spectral analysis method for vehicle trajectory data, In *Transportation Research Procedia* 24.
2. Li, W.[1], Siddique, N.[1], ***Ban, X.***, 2018. Data-driven travel time prediction from latent structures using multiple data sources. In *Proceedings of the 7th International Workshop on Urban Computing* (held in conjunction with the 24th *ACM SIGKDD* 2018), August 20, 2018, London, UK.
3. Chen, C., ***Ban, X., 2018***. Transportation big data: promises, issues, and implications. In *Proceedings of the 97th Annual Meeting of Transportation Research Board*, Washington, DC.
4. Li, W.[1], ***Ban, X.***, 2017. Traffic signal optimization under the connected vehicle environment. *In Proceedings of the Intelligent Vehicles Symposium,* June 11-14, 2017, Redondo Beach, CA..
5. Xu, B.[3], **Ban, X.**, Bian, Y., Wang, J., Li, K., 2017. V2I based Cooperation between Traffic Signal and Approaching Automated Vehicles. In *Proceedings of the IEEE Intelligent Vehicle Symposium*, June 11-14, 2017, Redondo Beach, CA. (Selected for the Best Paper Award (2nd Prize) of the Symposium)
6. Yang, X.[1], ***Ban, X.***, Mitchell, J., 2017. Modeling multimodal transportation network emergency evacuation considering evacuees' cooperative behavior. In *Transportation Research Procedia* 23, 1038-1058.

7. Li, W.[1], ***Ban, X.***, 2017. Big data analysis based decision-making tool for applying adaptive traffic control systems. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
8. Siddique, C.[1], ***Ban, X.***, 2017. Traffic state estimation based on vehicle trajectory segmentation. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
9. Ji, X.[3], ***Ban, X.***, Qu, X., Zhang, J., and Ran, B., 2017. Impact on target on travelers' multiple-criteria route choice decisions. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
10. Di, X., Liu, H, **Ban, X.**, Yang, H., 2017. Ridersharing user equilibrium and its implications for High-Occupancy-Toll lane pricing. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
11. Li, W.[1], **Ban, X.**, & Wang, J., 2016. Traffic signal timing optimization incorporating individual vehicle fuel consumption characteristics under connected vehicles environment. In *Connected Vehicles and Expo (ICCVE), 2016 International Conference on* (pp. 13-18). IEEE, September, Seattle, WA, USA.

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12. Ji. X.F.[3], **Ban, X.**, Li, M., Zhang, J., Ran, B., 2016. Nonlinear-Expectation Risk-Averse User Equilibrium on Stochastic Traffic Networks. In *Proceedings of the 95th Annual Meeting of Transportation Research Board*, Washington, DC.
13. Ji. X.F.[3], ***Ban, X.***, Li, M., Zhang, J., Ran, B., 2016. Beyond Distribution: Realistic Assessment of System-Wide Travel Time reliability in the Stochastic Traffic Network. In *Proceedings of the 95th Annual Meeting of Transportation Research Board*, Washington, DC.
14. Yang, X.[1], Ma. R.[1], **Ban, X.**, Ge, Y., 2016. Link Travel Time Approximation in Double Queue Traffic Model. Presented at *the 95th Annual Meeting of Transportation Research Board*, Washington, DC.
15. Sun, Z.[1], Hao, P.[1], ***Ban, X.***, 2016. Data fusion and information integration for fine-Grained arterial traffic modeling. In *Proceedings of the 95th Annual Meeting of Transportation Research Board*, Washington, DC.
16. Ma, R.[1], ***Ban, X.***, Szeto, W.Y., 2015. Emission modeling and pricing in dynamic traffic networks. In *Transportation Research Procedia* 9, 106-129.
17. Sun, Z.[1], ***Ban, X.***, 2015. Multiclass vehicle classification using GPS data. Presented at the 94th Annual Meeting of Transportation Research Board.
18. Sun, Z.[1], Hao, P.[1], ***Ban, X.***, 2015. Fine-Grained modeling of arterial traffic: A data fusion and information integration approach. In *Proceedings of the* 94th Annual Meeting of Transportation Research Board.
19. Yang, X.[1], Ma, R.[1], ***Ban, X.***, 2015. Modeling Mixed Equilibria on Transportation Networks with Link Constraints. Presented at the 94th Annual Meeting of Transportation Research Board.
20. Ma, R.[1], ***Ban, X.***, 2015. Continuous-time Instantaneous Dynamic User Equilibria on A Real World Traffic Network. Presented at the 94th Annual Meeting of Transportation Research Board.
21. *Sanchez, I.*, Holguin-Veras, J., and **Ban, X.**, 2014. A time-dependent freight tour synthesis model. In *Proceedings of the 93rd Annual Meeting of Transportation Research Board*, Washington, DC.
22. Hao, P.[1], ***Ban, X.***, 2014. Platoon based arterial corridor route travel time estimation using sample travel times. In *Proceedings of the 93rd Annual Meeting of Transportation Research Board*, Washington, DC.

23. Hao, P.[1], ***Ban, X.***, Guo, D.[2], and Ji, Q., 2014. Cycle by cycle intersection queue length distribution estimation using sample travel times. In *Proceedings of the 93rd Annual Meeting of Transportation Research Board*, Washington, DC.
24. Yang, X.[1], Sun, Z.[1], ***Ban, X.***, Wojtowicz, J., Holguin-Veras, J., 2014. Urban freight performance measurement using GPS data. In *Proceedings of the 93rd Annual Meeting of Transportation Research Board*, Washington, DC.
25. Zan, B., Sun, Z.[1], Gruteser, M., Ban, X., 2013. Linking anonymous location traces through driving characteristics, In *Proceedings of the 3rd ACM conference on Data and Application Security and Privacy (CODASPY)*.
26. Hao, P.[1], and ***Ban, X.***, 2012. Long queue estimation using short vehicle trajectories for signalized intersections. In *Proceedings of the 92nd Annual Meeting of Transportation Research Board*, Washington, DC.
27. Richardson, E.[1], ***Ban, X.***, and Holguin-Veras, J., 2013. Identifying and classifying freight trip stops from GPS data. In *Proceedings of the 92nd Annual Meeting of Transportation Research Board*, Washington, DC.
28. ***Ban, X.***, and Gruteser, M., 2012. Towards fine-grained urban traffic knowledge extraction using mobile sensing. In *Proceedings of the ACM SIGKDD International Workshop on Urban Computing*, pages 111-117.
29. *Cruz, T.[1]*, Holguin-Veras, J., and **Ban, X.**, 2012. Assessment of externality trade-offs among urban delivery vehicles. In *Proceedings of the 91st Transportation Research Board Annual Meeting*, Washington, DC.
30. Ma, R.[1], ***Ban, X.***, Pang, J.S., Liu, X., 2012. Convergence of time discretization schemes for continuous-time dynamic network loading models. In *Proceedings of the 91st Transportation Research Board Annual Meeting*, Washington, DC.
31. ***Ban, X.***, Pang, J.S., Liu, X., Ma, R.[1]., 2012. Continuous-time dynamic user equilibria I: point-queue models for dynamic network loading. In *Proceedings of the 91st Transportation Research Board Annual Meeting*, Washington, DC.
32. Hao, P.[1], Guo, D.[2], ***Ban, X.***, and Ji, Q., Sun, Z.[1], 2012. Vehicle index inference for signalized intersections using sample travel times. In *Proceedings of the 91st Transportation Research Board Annual Meeting*, Washington, DC.
33. Sun, Z.[1], and ***Ban, X.***, 2012. Vehicle trajectory reconstruction for signalized intersections using mobile traffic sensors. In *Proceedings of the 91st Transportation Research Board Annual Meeting*, Washington, DC.
34. *Di, X.*, Liu, X., Pang, J.S., and **Ban, X.**, 2012. On the mathematical properties of the boundedly rational user equilibria. In *Proceedings of the 91st Transportation Research Board Annual Meeting*, Washington, DC.
35. Zan, B., Sun, Z.[1], *Gruteser, M.*, and **Ban, X.**, 2011. VTL zone-based path cloaking algorithm. In Proceedings of the 14th *IEEE conference on Intelligent Transportation Systems*, Washington, DC.
36. Sun, Z.[1], Zan, B., ***Ban, X.***, Gruteser, M., and Hao, P.[1], 2011. Evaluation of privacy preserving algorithms using traffic knowledge based adversary models. In Proceedings of the 14th *IEEE conference on Intelligent Transportation Systems*, Washington, DC.
37. ***Ban, X.***, and Gruteser, M., 2010. Mobile sensors as traffic probes: addressing transportation modeling and privacy protection in an integrated framework. In *Proceedings of the 7th International Conference on Traffic and Transportation Studies*, Kunming, China.
38. ***Ban, X.***, and Hao, P.[1], 2010. Real time queue length estimation for signalized intersections using sampled travel times. In *Proceedings of the 89th Transportation Research Board Annual Meeting (CD-ROM)*.

39. *Li, Y.*, **Ban, X**, Skabardonis, A., 2010. Survey analysis of travelers' responses towards travel times displayed on changeable message signs. In *Proceedings of the 89th Transportation Research Board Annual Meeting (CD-ROM)*.
40. ***Ban, X.***, Chu, L., Herring, R.[2], and Margulici, J.D., 2009. Optimal sensor placement for both traffic control and traveler information applications. In *Proceedings of the 88th Annual Meeting of Transportation Research Board*.
41. *Liu, X.*, He, X., and Ban, X., 2009. A Cell-Based Many-to-One Dynamic System Optimal Model and Its Heuristic Solution Method for Emergency Evacuation. In *Proceedings of the 88th Annual Meeting of Transportation Research Board*.
42. *Mortazavi, A.*, and **Ban, X**., 2008. Methods for generating travel time representation from probe vehicle data. In *Proceedings of the 15th ITS World Congress* (CD-ROM).
43. *Margulici, J.D.* and **Ban, X.**, 2008. Developing quality measures for evaluating travel time estimation methods. In *Proceedings of the 15th ITS World Congress* (CD-ROM).
44. Amin, S., Andrews, S., Apte, S., Arnold, J., **Ban, X.**, etc., 2008. Mobile century using gps mobile phones as traffic sensors: A field experiment. In *Proceedings of the 15th ITS World Congress* (CD-ROM).
45. *Alm, E.*, Lingham, V., Benouar, H., **Ban, X.**, and Chu, L., 2008. An integrated methodology for corridor management planning. In *Proceedings of the 87th Transportation Research Board Annual Meeting (CD-ROM)*.
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47. ***Ban, X.***, Chu, L., and Benouar, H., 2007. Bottleneck calibration in micro-simulation for corridor management using data from single loop detectors. In *Proceedings of the 14th ITS World Congress* (CD-ROM).
48. ***Ban, X.,*** Li, Y., and Skabardonis, A., 2007. Local MAD Method for Probe Vehicle Data Processing. In *Proceedings of the 14th ITS World Congress*.
49. ***Ban, X.,*** Liu, H., Ferris, M.C., and Ran, B., 2006. A link-node complementarity model and solution algorithm for dynamic user equilibria with exact flow propagations. In *Proceedings of DTA 2006: the First International Symposium on Dynamic Traffic Assignment*, Leeds, UK.
50. ***Ban, X.,*** Liu, H, and Ferris, M.C., 2006. A link-node based complementarity model and its solution algorithm for asymmetric user equilibria. In *Proceedings of the 85th Transportation Research Board Annual Meeting (CD-ROM)*.
51. *Liu, H.*, **Ban, X**., Ma, M.T., and Mirchandani, P., 2006. Model reference adaptive control framework for real time traffic management under emergency evacuation. In *Proceedings of the 85th Transportation Research Board Annual Meeting (CD-ROM)*.
52. *Liu, H.*, Ding, L., **Ban, X.**, Chen, A., and Chootinan, P., 2006. A Streamlined Network Calibration Procedure for California SR41 Corridor Traffic Simulation Study. In *Proceedings of the 85th Transportation Research Board Annual Meeting (CD-ROM)*.
53. ***Ban, X.***, Liu, H., and Ran, B. (2005) A link based quasi-variational inequality model for dynamic user equilibria, towards real time traffic operations. In *Proceedings of the 8th IEEE International Conference on Intelligent Transportation Systems (CD-ROM)*.
54. *Liu, H.*, Ma., W., **Ban, X**., and Mirchandani, P., 2005. Dynamic equilibrium assignment with microscopic traffic simulation. In *Proceedings of the 8th IEEE International Conference on Intelligent Transportation Systems*.
55. ***Ban, X.***, Liu, H, and Ran, B., 2004. Traffic assignment model with fuzzy travel time perceptions. In *Proceedings of 83rd Transportation Research Board Annual Meeting (CD-ROM)*.
56. *Liu, H,* **Ban, X.**, Ran, B., and Mirchandani, P., 2002. Real-time dynamic network load management with variable message signs. In *Proceedings of the 7th International*

Conference on Applications of Advanced Technology in Transportation, pp.8-15, Cambridge, Massachusetts.

57. Zuo, L., Lian, X., **Ban, X.**, and Jiang, X., 1999. Development of DDS-based arbitrary waveform generator PC-compatible card with double RAMs, *Journal of Tsinghua University* 39(2), 90-93.

Complete books written

None.

Parts of books (chapters in edited books)

AT UNIVERSITY OF WASHINGTON

None

AT RENSSELAER POLYTECHNIC INSTITUTE

1. Hao, P.[1], Sun, Z.[1], ***Ban, X.***, Guo, D.[2], Ji, Q., 2013. Vehicle index estimation for signalized intersections using sample travel times. In: *Transportation and Traffic Theory* (Hoogendoorn, S.P., Knoop, V.L., and Lint, H. eds), Elsevier, 473-490.
2. *Di, X.*, Liu, H., Pang, J.S., **Ban, X.**, 2013. Boundedly rational user equilibria (BRUE): Mathematical formulation and solution sets. In: *Transportation and Traffic Theory* (Hoogendoorn, S.P., Knoop, V.L., and Lint, H. eds), Elsevier, 231-248.
3. ***Ban, X.***, Herring, R.[2], Margulici, J.D., and Alex Bayen, 2009. Optimal sensor placement for freeway travel time estimation. In: *Transportation and Traffic Theory*, Chpt. 34 (W.H.K. Lam, S.C. Wong, H.K. Lo eds.), Springer, 697-721.
4. ***Ban, X.***, Lu, S., Ferris, M.C., Liu, H., 2009. Risk-averse second best toll pricing. In: *Transportation and Traffic Theory*, Chpt. 10 (W.H.K. Lam, S.C. Wong, H.K. Lo eds.), Springer, 197-218.
5. *Liu, H.*, Xin, W., Adam, Z.M., **Ban, X.**, 2007. A game theoretical approach for modeling merging and yielding behavior at freeway on-ramp section. In: *Transportation and Traffic Theory* (Heydecker, G., Allsop, R.E. eds.), Elsevier, Amsterdam, The Netherlands, 197-211.

Books edited

None.

Journal issues edited

AT UNIVERSITY OF WASHINGTON

1. Ban, X., Yang, D., Wang, J., Hamdar, S., 2020. Connected and automated vehicle based traffic-vehicle control. *Transportation Research Part C*, 112, 116-119.
2. Ozbay, K., ***Ban, X.***, Yang, D., 2018. Developments in Connected and Automated Vehicles, Part II. *Journal of Intelligent Transportation Systems*, 22(3), 187-189.
3. Yang, D., Ozbay, K., ***Ban, X.***, 2017. Developments in Connected and Automated Vehicles. *Journal of Intelligent Transportation Systems*, 21(4), 251-254.

Patents submitted and/or awarded

None

Abstracts, letters, non-refereed papers, technical reports *(last five years only)*

Technical Reports:

AT UNIVERSITY OF WASHINGTON

1. **Ban, X.**, Abramson, D., Zhang, Y.[1], 2020. Drones for improving traffic safety of the RITI communities in Washington State. Final Report Submitted to the CSET (Center for Safety Equity in Transportation) Tier 1 UTC, University of Alaska, Fairbanks.
2. **Ban, X**., Guo, Q.[1], 2019. Integrative traffic-vehicle control in connected/automated cities. Final Report Submitted to the C2Smart (Connected Cities with Smart Transportation) Tier 1 UTC, New York University.
3. **Ban, X**., Li, W.[1], 2018. Connected Vehicle Based Traffic Signal Optimization. Final Report Submitted to the C2Smart (Connected Cities with Smart Transportation) Tier 1 UTC, New York University.
4. **Ban, X.**, Chen, C., Wang, F., Wang, J.[1], Zhang, Y.[1], 2018. Promises of Data from Emerging Technologies for Transportation Applications: Puget Sound Region Case Study. Final Report Submitted to Federal Highway Administrations (FHWA), US Department of Transportation, and Washington Department of Transportation (WSDOT).
5. Chen, C., **Ban, X**., Wang, F., Wang, J.[1], Siddique, N.[1], Fan, R.[1], Lee, J., 2017. Understanding GPS and Mobile Phone Data for Origin-Destination Analysis. Final Report Submitted to Federal Highway Administrations (FHWA), US Department of Transportation.
6. **Ban, X.**, Yang, X.[1], Mitchell, J., 2017. Developing A Macroscopic Decision Making Tool for Emergency Evacuation Planning. Final Report to UTRC2 and USDOT.

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7. **Ban, X.**, Wojtowicz, J., Li, W.[1], 2016. Decision-Making Tool for Applying Adaptive Traffic Signal Control System. Final Report to NYSERDA and NYSDOT.
8. **Ban, X.**, 2015. Network System Effects of Mileage Fee. Final Report Submitted to UTRC2 and USDOT/RITA.
9. **Ban, X.**, Kamga, C., Wang, X., Wojtowicz, J., Klepadlo, E.[2], Sun, Z.[1], Mouskos, K.[2], 2014 Adaptive Traffic Signal Control System (ACS-Lite) for Wolf Road, Albany, New York. Final Report to NYSDOT and UTRC2.

Other significant research dissemination (web site, media reports of research and opinions)

AT UNIVERSITY OF WASHINGTON

1. Website: iUTS Lab at the University of Washington (http://depts.washington.edu/iuts/)
2. COVID-19 infection modeling and prediction, Times Union (https://www.timesunion.com/news/article/RPI-researcher-uses-simple-formula-for-chemical-15667043.php)
3. CDC on COVID-10 Forecasts: Death (October 21, 2020), RPI-UW Model is one of the models that contributes to the CDC Ensemble Model to forecast COVID-19 deaths: https://www.cdc.gov/coronavirus/2019-ncov/covid-data/forecasting-us.html
4. RPI News (October 21, 2021): COVID-19 Model Inspired by Gas-Phase Chemistry Predicts Disease Spread: https://news.rpi.edu/content/2020/10/21/covid-19-model-inspired-gas-phase-chemistry-predicts-disease-spread
5. UW News (May 22, 2020): UW research team seeks campus input with survey on coronavirus mobility impacts: https://www.washington.edu/news/2020/05/21/uw-

research-team-seeks-campus-input-with-survey-on-coronavirus-mobility-impacts/?utm_source=UW_News_Subscribers&utm_medium=email&utm_campaign=UW_Today_row&mkt_tok=eyJpIjoiTldFeE9ETXdNekk1WWpZNCIsInQiOiJBSVpkK2JcL0Y5Z2dDR3Arall3T1llK0RmM2praWZjZzl5MjN1ckNnTTJnVVBjYkh6cmNcL3g1Vm5ncUEraGVQbEx0c3VVZDBIUHF4SlR6UTB1REV0WVdBdTE2NXN4Q3JCQm4xSFlhOXI0NUxielR4QVdlOHlKbEJheVpFRnJ6SWY0In0%3D

6. C2Smart, NYU (May 5, 2020): COVID-19 Transportation Data Dashboard and White Paper Issue 2: http://c2smart.engineering.nyu.edu/covid-19-update-2.
7. UW CEE News (Feb. 2019): Transportation Forecasting Competition Award: https://www.ce.washington.edu/news/article/2019-02-25/transportation-forecasting-competition-award
8. UW CEE News (Oct. 2018): Transportation Leaders Gather for Big Data Discussion: https://www.ce.washington.edu/news/article/2018-10-08/transportation-leaders-gather-big-data-discussion
9. PacTrans News & Events (Sep. 2018): PacTrans and WSDOT TDM/CTR Workshop Sees Great Turn Out: https://www.ce.washington.edu/news/article/2018-10-08/transportation-leaders-gather-big-data-discussion
10. Seattle Times (Dec. 2017): quoted in "Feeling rushed crossing Mercer Street on foot? Here's why, and what Seattle is doing about it" by Jessica Lee (https://www.seattletimes.com/seattle-news/transportation/feeling-rushed-crossing-mercer-street-on-foot-heres-why-and-what-seattle-is-doing-about-it/)

AT RENSSELAER POLYTECHNIC INSTITUTE

11. Inside Rensselaer (Apr. 2017): Research collaboration with DOT to develop new urban delivery system honored (http://www.insiderensselaer.com/new-urban-delivery-system-honored/)
12. Coverage about NSF Career Award (Apr., 2011): HighBeam Research (https://www.highbeam.com/doc/1G1-253753031.html); RPI news (https://news.rpi.edu/luwakkey/2852);
13. *Discover Magazine* (Sep. 2010): quoted in "Tomorrow's Cars May Finally Realize the Driver's Great Dream: A Cure for the Common Traffic Jam" by David H. Freedman (http://discovermagazine.com/2010/sep/26-future-tech-car-smart-enough-to-prevent-traffic-jams)

OTHER SCHOLARLY ACTIVITY

Invited lectures and seminars

AT UNIVERSITY OF WASHINGTON

1. C2Smart Tier UTC, New York University, *Traffic signal optimization and coordination in connected cities*, March, 2020 (webinar).
2. Department of Industrial and Systems Engineering, University of Washington. *Modeling E-Hailing mobility serves on A Transportation Network*, February 2020.
3. Nanjing University of Science and Technology, *Transportation big data: promises, issues, implications, and potential solutions*, July 2019.
4. Southeast University, *Modeling dynamic transportation networks using differential variational inequalities*, July 2019.
5. Hong Kong University of Science and Technology, *Equilibrium modeling of e-hailing services on a transportation network* (one of the invited speeches at the Smart Mobility Workshop), May 2019.

6. The University of Tokyo, *Transportation big data: promises, issues, implications, and potential solutions* (the invited speech at the International Mini-Workshop on Transport and Traffic Big-Data: Theory and Practice), February 2019.
7. University of California, Berkeley (Institute of Transportation Studies), M*odeling dynamic transportation networks using differential complementarity systems*, November 2018.
8. University of Michigan (The Center for the Study of Complex Systems), *Transportation big data: promises and issues in the era of connectivity, automation, and sharing* (one of the six invited speeches at the Symposium on Complexity in Transportation Science: Connectivity, Data & Automation), October 2018.
9. University of Michigan, *Promises and issues of transportation big data* (one of the two keynote talks at the first SIGIR Workshop on Intelligent Transportation Informatics), July 2018.
10. Capital University of Economics and Business, *Modeling dynamic user equilibria using differential complementarity systems* (one of the keynote speeches at the 10th International Workshop on Computational Transportation Science), July 2018.
11. Tsinghua University, Transportation big data: promises, issues, and implications (one of the plenary speeches at the CICTP annual conference), July 2018.
12. University of California, Davis, *Congestion effect of E-hailing transportation services*, October 2017.
13. University of Illinois - Urbana Campaign (Department of Civil and Environmental Engineering), *Transportation big data: promises, issues, and implications*, July 2017.
14. University of Michigan (USDOT Center for Connected Automated Transportation), *Transportation big data: promises, issues, and implications*. July 2017.
15. University of California, Los Angeles (Institute of Pure and Applied Mathematics), *Network congestion effect of E-hailing transportation services*, June 2017.
16. Portland State University (Transportation Research and Education Center), *Network congestion effect of E-hailing transportation services*, May 2017.
17. Southwest Jiaotong University (School of Transportation), *Urban traffic modeling with mobile sensing*, September 2016.

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18. University of California, Riverside (Center for Environmental Research & Technology), *Urban traffic modeling with mobile sensing*, November 2015.
19. University of California, Los Angeles (Institute of Pure and Applied Mathematics), *Modeling Dynamic User Equilibria as Differential Complementarity Systems (DCS)*. October 2015.
20. University of Southern California (Epstein Department of Industrial and Systems Engineering), *Emission Modeling and Control on Dynamic Transportation Networks*, October 2015.
21. University of Massachusetts at Amherst (Department of Civil and Environmental Engineering), *Future Transportation in A Connected World*, October 2014.
22. Rutgers University (Department of Civil and Environmental Engineering), *Urban traffic modeling with mobile sensing*, October 2014.
23. University of Wisconsin-Madison (Department of Civil and Environmental Engineering), *Urban traffic modeling using mobile sensing*, August 2014.
24. Tsinghua University (Department of Civil and Environmental Engineering), *Urban traffic modeling using mobile sensing*, July 2014.
25. University of Buffalo (Department of Civil and Environmental Engineering), *Fine-grained urban traffic knowledge extraction from mobile sensing*, November 2013.
26. University of Maryland (Department of Civil and Environmental Engineering), *Fine-grained urban traffic knowledge extraction from mobile sensing*, May 2013.
27. National Science Foundation, *Modeling the dynamics of traffic user equilibrium using differential variational inequalities* (invited presentation at the BECS (Building Engineered Complex Systems) Workshop), January 2013.

28. National University of Singapore (Future Cities Laboratory), *Fine-grained urban traffic knowledge extraction from mobile sensing*, December 2012.
29. Tsinghua University (Department of Automotive Engineering), *Fine-grained urban traffic knowledge extraction from mobile sensing*, December 2012.
30. University of California, Berkeley (Institute of Transportation Studies), *Fine-grained urban traffic knowledge extraction from mobile sensing*, October 2012.
31. China Mobile Research Institute, *Fine-grained urban traffic knowledge extraction from mobile sensing*, August 2012.
32. TongJi University (School of Transportation), *Modeling and solving continuous-time dynamic user equilibria: A differential complementarity system approach*, August 2011.
33. National Science Foundation, *Modeling the dynamics of traffic user equilibrium using differential variational inequalities* (invited presentation at the BECS (Building Engineered Complex Systems) Workshop), March 2011.
34. The 90th Annual Meeting of Transportation Research Board, Washington, DC, *Privacy-preserving IntelliDrive data for signalized intersection performance measurement* (invited presentation at the special session on Intellidrive: Data Management Research Needs and Emerging Solutions), January 2011.
35. Dalian Jiaotong University (School of Transportation), *Signalized intersection delay pattern and queue length estimation using mobile traffic sensors*, August 2010.
36. Harbin Institute of Technology (Department of Civil and Environmental Engineering), *A link-node complementarity formulation and solution approach for dynamic user equilibria (DUE)*, August 2010.
37. China Urban Sustainable Transport Research Center, *Signalized intersection delay pattern and queue length estimation using mobile traffic sensors*. August 2010.
38. Rutgers University, *Delay pattern and queue length estimation for signalized intersections using mobile sensors* (invited presentation at the NSF Dynamic Route Guidance and Coordinated Traffic Control Workshop), June 2010.
39. Tsinghua University (Department of Automation), *A link-node dynamic user equilibrium model and its application to dynamic congestion pricing*, July 2009.
40. *University of Massachusetts at Amherst* (Department of Civil and Environmental Engineering), *Optimal sensor placement for ITS applications*, December 2008.
41. University of California, Davis (Department of Civil and Environmental Engineering), *Modeling transportation network design problems while UE solution is not unique*, February 2007.

Presentations given at conferences *(incomplete list from 2004 only)*
(P indicates poster presentation; the name in *italic* was the presenter)

AT UNIVERSITY OF WASHINGTON

1. *Wan Li*[1], Jingxing Wang[1], Rong Fan[1], Yiran Zhang[1], Qiangqiang Guo[1], Nazib Siddique[1], Xuegang (Jeff) Ban, 2020. Short-Term Traffic State Prediction from Latent Structures: Accuracy vs. Efficiency, Presented at the *99th Annual Meeting of Transportation Research Board*, Washington, DC. P
2. *Xuan Di*, Xuegang (Jeff) Ban, A Unified Equilibrium Framework of New Shared Mobility Systems, Presented at the *99th Annual Meeting of Transportation Research Board*, Washington, DC.
3. Feiyang Sun, Anne Moudon, Qing Shen, Xuegang (Jeff) Ban, Brian Lee, 2020. The Impact of Shared Mobility Options on Travel Demand, Presented at the *99th Annual Meeting of Transportation Research Board*, Washington, DC. P

4. *Jingxing Wang*[1], Shu Lu, Xuegang (Jeff) Ban, 2020. Exploring Insignificant OD Pairs: A Compressed Sensing Model for OD Demand Estimation, Presented at the *99th Annual Meeting of Transportation Research Board*, Washington, DC.
5. Qiangqiang Guo[1], Xuegang (Jeff) Ban, Reinforcement Learning Based Traffic Signal Control Using Trajectory Data from Connected Vehicles, Presented at the *99th Annual Meeting of Transportation Research Board*, Washington, DC. P
6. *Xiaoqin Luo*[3], Xuegang Ban, Dianhai Wang, 2020. Using License Plate Recognition Data to Gain Insight into Urban Travel Time Distributions, Presented at the *99th Annual Meeting of Transportation Research Board*, Washington, DC. P
7. *Jay Zhang*, Menyao Zhu, Xuegang Ban, Yifan Zhang, Method for Verifying the Identification Accuracy of Critical Segments Considering Highly Correlated Characteristics of Traffic Flow, Presented at the *99th Annual Meeting of Transportation Research Board*, Washington, DC. P
8. *Wang, J.*[1]., Lu, S., **Ban, X.**, 2019. Exploring insignificant OD pairs: a compressed sensing model for OD demand estimation. Presented at the INFORMS Annual Meeting, Seattle, WA, Oct. 20-23, 2019.
9. *Li, W* [1], **Ban. X.**, 2019. Deep learning methods for real time traffic volume prediction for signalized intersections. Presented at the INFORMS Annual Meeting, Seattle, WA, Oct. 20-23, 2019.
10. Guo, Q. [1], **Ban, X.**, 2019. Reinforced learning based traffic signal control. Presented at the INFORMS Annual Meeting, Seattle, WA, Oct. 20-23, 2019.
11. *Zhang, Y.* [1], Guo, Q. [1], **Ban, X.**, 2019. Simulating CAVs on urban transportation networks. Presented at the INFORMS Annual Meeting, Seattle, WA, Oct. 20-23, 2019.
12. Siddique, N.[1], ***Ban, X.***, 2019. Self-adaptive online trajectory sampling (SAOTS) using spectral domain properties. Presented at the 23rd International Symposium on Transportation and Traffic Theory, Lausanne, Switzerland. P
13. Li, W.[1], ***Ban, X.***, 2019. Real-time movement-based traffic volume prediction for signalized intersections. Presented at *the 19th CICTP Annual Conference*, Nanjing, China.
14. ***Ban, X.***, 2019. Smart urban mobility with mobile sensing. Presented at the *2nd Forum on Frontiers of Science and Engineering*, Tsinghua University, Beijing, China.
15. *Guo, Q.*[1], Parks, S.[2], **Ban, X.**, 2019. Macroscopic fundamental diagram based perimeter control considering dynamic user equilibrium. Presented at the *Canadian Transportation Research Forum*, Vancouver, BC, Canada.
16. Wang, J.P.[3], Huang, H.J, ***Ban, X.*** 2019. Dynamic ridesharing with variable-ratio charging-compensation scheme for morning commute. Presented at the *98th Annual Meeting of Transportation Research Board*, Washington, DC.
17. *Wang, F.*, Wang, J.[1], Cao, J., Chen, C., **Ban, X.**, 2019. Extracting trips from multi-sourced data for mobility pattern analysis: An app-based data example. Presented at the *98th Annual Meeting of Transportation Research Board*, Washington, DC. P
18. *Wang, J.*[1], Wang, F., **Ban, X.**, *Chen, C.*, 2019. Comparative analysis of big data and small (survey) data for deriving human mobility patterns. Presented at the *98th Annual Meeting of Transportation Research Board*, Washington, DC.
19. *Li, W.*[1], **Ban, X.**, 2019. Connected vehicle based traffic signal coordination. Presented at the *98th Annual Meeting of Transportation Research Board*, Washington, DC. P
20. *Li, W.[1]*, **Ban, X**., 2019. A deep learning approach for lane-based traffic volume prediction at signalized intersection. Presented at the *98th Annual Meeting of Transportation Research Board*, Washington, DC.
21. *Li, W.*[1], **Ban, X.,** 2018. Connected vehicle based traffic signal timing optimization. Presented at the *International Conference on Transportation & Development* 2018, July 15-18, 2018 Pittsburgh, PA.

22. ***Ban, X.***, 2018. Modeling dynamic user equilibria using differential complementarity systems. Presented at the 7th *International Symposium on Dynamic Traffic Assignment*, June 06, 2018. Hong Kong.
23. *Siddique, C.*[1], **Ban, X.**, 2018. Self-adaptive sampling of GPS data. Presented at the *97th Annual Meeting of Transportation Research Board*, Washington, DC. P
24. Chen, C., ***Ban, X.,*** 2018. Transportation big data: promises, issues, and implications. Presented at *the 97th Annual Meeting of Transportation Research Board*, Washington, DC. P
25. *Li, W.*[1], **Ban, X.**, 2018. Traffic signal timing optimization with connected vehicles. Presented at *the 97th Annual Meeting of Transportation Research Board*, Washington, DC. P
26. ***Ban, X.***, 2018. Urban traffic modeling with mobile sensing. Presented at the *ITS Washington Annual Meeting*, December 12, 2017.
27. ***Ban, X.***, 2017. Transportation big data: promises, issues, and implications. Presented at the *Annual Conference of the Pacific Northwest Transportation Consortium (PacTrans)*, October 06, 2017, Seattle, Washington.
28. *Yang, X.*[1], **Ban, X.**, Mitchell, J., 2017. Modeling multimodal transportation network emergency evacuation considering evacuee's' cooperative behavior. Presented (poster) at the *22nd Internal Symposium on Transportation and Traffic Theory (ISTTT)*, Chicago, IL, USA. P
29. *Li, W.*[1], **Ban, X.**, 2017. Traffic signal optimization under the connected vehicle environment. Presented at the *IEEE Intelligent Vehicles Symposium*, Los Angeles, CA.
30. *Xu, B.*[3], **Ban, X.**, Bian, Y., Wang, J., *Li, K.*, 2017. V2I based Cooperation between Traffic Signal and Approaching Automated Vehicles. Presented at the *IEEE Intelligent Vehicle Symposium*, June 11-14, 2017, Redondo Beach, CA. (Selected for the Best Paper Award (2nd Prize) of the Symposium).
31. ***Ban, X.***, *2017.* Congestion effect of e-hailing transportation services. Presented at the 17th CICTP Annual Conference, Shanghai, China.
32. *Yang, X.*[1], **Ban, X.**, Mitchell, J., 2017. Modeling multimodal transportation network emergency evacuation considering evacuees' cooperative behavior. Presented at *the 96th Annual Meeting of Transportation Research Board*, Washington, DC. P
33. *Li, W.*[1], **Ban, X.**, 2017. Big data analysis based decision-making tool for applying adaptive traffic control systems. Presented at *the 96th Annual Meeting of Transportation Research Board*, Washington, DC. P
34. *Siddique, C.*[1], **Ban, X.**, 2017. Traffic state estimation based on vehicle trajectory segmentation. Presented at *the 96th Annual Meeting of Transportation Research Board*, Washington, DC. P
35. Ji, X.[3], ***Ban, X.***, Qu, X., Zhang, J., and Ran, B., 2017. Impact on target on travelers' multiple-criteria route choice decisions. Presented at *the 96th Annual Meeting of Transportation Research Board*, Washington, DC. P
36. *Di, X.*, Liu, H, **Ban, X.**, Yang, H., 2017. Ridersharing user equilibrium and its implications for High-Occupancy-Toll lane pricing. Presented at *the 96th Annual Meeting of Transportation Research Board*, Washington, DC. P
37. *Li, W.*[1], **Ban, X.**, Wang, J., 2016. Traffic signal timing optimization incorporating individual vehicle fuel consumption characteristics under connected vehicles environment. Presented at the *Connected Vehicles and Expo (ICCVE), 2016 International Conference on*. IEEE, September, Seattle, WA, USA.

AT RENSSELAER POLYTECHNIC INSTITUTE

38. ***Ban, X.***, Dynamic transportation network modeling in a connected world. Presented at the *16th CICTP Annual Conference*, Shanghai, China.
39. Ji. X.[3], ***Ban, X.***, Li, M., Zhang, J., Ran, B., 2016. Nonlinear-Expectation Risk-Averse User Equilibrium on Stochastic Traffic Networks. Presented at *the 95th Annual Meeting of Transportation Research Board*, Washington, DC. P

40. Ji. X.[3], ***Ban, X.***, Li, M., Zhang, J., Ran, B., 2016. Beyond Distribution: Realistic Assessment of System-Wide Travel Time reliability in the Stochastic Traffic Network. Presented at *the 95th Annual Meeting of Transportation Research Board,* Washington, DC. P
41. *Yang, X.*[1], Ma. R.[1], ***Ban, X.***, Ge, Y., 2016. Link Travel Time Approximation in Double Queue Traffic Model. Presented at *the 95th Annual Meeting of Transportation Research Board,* Washington, DC. P
42. *Sun, Z.*[1], Hao, P.[1], ***Ban, X.***, 2016. Data fusion and information integration for fine-Grained arterial traffic modeling. Presented at *the 95th Annual Meeting of Transportation Research Board,* Washington, DC. P
43. ***Ban, X.***, 2015. Mobile sensing and emissions. Presented at the *4th Symposium of Connected and Autonomous Vehicles*, Albany, NY, November 05, 2015.
44. *Ma, R.*[1], ***Ban, X.***, Szeto, WY., 2015. Emission modeling and control on dynamic transportation networks. Presented at the *21st Internal Symposium on Transportation and Traffic Theory (ISTTT),* Kobe, Japan, USA. P
45. ***Ban, X***., 2015. Fusion of Mobile and Fixed-Location Traffic Data. Presented at the *First TransInfo Symposium*, August 13, 2015.
46. ***Ban, X***., 2015. Modeling Dynamic Traffic Assignment Problems as Differential Complementarity Systems (DCS). Presented at the *22nd International Symposium on Mathematical Programming*, July 16, 2015.
47. Zhao, J., *Li, W.*, Wang, J., **Ban, X.**, 2015. Traffic Signal Timing Optimization Incorporating Dynamic Vehicle Fuel Consumption Characteristics. Presented at the *15th CICTP Annual conference*, Beijing, China.
48. *Sun, Z.*[1], **Ban, X.**, 2015. Multiclass vehicle classification using GPS data. Presented at the *94th Annual Meeting of Transportation Research Board,* Washington, DC. P
49. *Sun, Z.*[1], Hao, P.[1], **Ban, X.**, 2015. Fine-Grained modeling of arterial traffic: A data fusion and information integration approach. Presented at the *94th Annual Meeting of Transportation Research Board,* Washington, DC. P
50. *Yang, X.*[1], Ma, R.[1], **Ban, X.**, 2015. Modeling Mixed Equilibria on Transportation Networks with Link Constraints. Presented at the *94th Annual Meeting of Transportation Research Board*. P
51. *Ma, R.*[1], **Ban, X.**, 2015. Continuous-time Instantaneous Dynamic User Equilibria on A Real World Traffic Network. Presented at the *94th Annual Meeting of Transportation Research Board,* Washington, DC. P
52. ***Ban, X.***, 2014. Urban traffic modeling using mobile sensing data. Presented at the *3rd Symposium of Connected and Autonomous Vehicles*, Albany, NY, November 05, 2014.
53. *Ma, R.*[1], **Ban, X.**, Pang, J.S., 2014. A link-based continuous-time dynamic user equilibrium model with departure-time choice and queue spillbacks. Presented *at the 5th International Symposium on Dynamic Traffic Assignment*, Salerno, Italy, July, 2014.
54. *Ma, R.*[1], Earle, B.[2], Wetmore, S.[2], **Ban, X.**, 2014. Modeling continuous-time dynamic system optimal and its applications to evacuation. Presented at the *5th International Symposium on Dynamic Traffic Assignment*, Salerno, Italy, July, 2014.
55. *Sun, Z.*[1], Hao, P.[1], **Ban, X.**, 2014. Trajectory-based energy/emissions estimation for signalized arterials using mobile sensing data. Presented at the *93rd Annual Meeting of Transportation Research Board*, January, 2014. P
56. *Yang, X.*[1], Sun, Z.[1], *Ban, X.*, Wojtowicz, J., Holguin-Veras, J., 2014. Urban freight performance evaluation using GPS data, Presented at the *93rd Annual Meeting of Transportation Research Board*, January, 2014. P
57. *Yang, X.*[1], Sun, Z.[1], **Ban, X.**, Holguin-Veras, J., 2014. Urban freight delivery stop identification using GPS data, Presented at the *93rd Annual Meeting of Transportation Research Board*, Washington, DC. P

58. *Ma, R.*[1], **Ban, X.**, Pang, J.S., 2014. Continuous-time dynamic user equilibria with departure time choice and capacitated queues. Presented at the *93rd Annual Meeting of Transportation Research Board*, Washington, DC. P
59. *Hao. P.*[1], **Ban, X.**, 2013. Platoon-based arterial corridor route travel time estimation using sample travel times, Presented at the *93rd Annual Meeting of Transportation Research Board*, January, 2014. P
60. *Yang, X.*[1], **Ban, X.**, Holguin-Veras, J., Wojtowicz, J., 2013. Urban freight performance measurement using GPS data, Presented at the *INFORM Annual Meeting*, Minneapolis, MN, October, 2013.
61. *Hao. P.*[1], **Ban, X.**, 2013. Platoon-based arterial corridor route travel time estimation using sample travel times, Presented at the *INFORM Annual Meeting*, Minneapolis, MN, October, 2013.
62. *Sun, Z.*[1], Hao, P.[1], **Ban, X.**, 2013. Trajectory-based energy/emissions estimation for signalized arterials using mobile sensing data. Presented at the *INFORM Annual Meeting*, Minneapolis, MN, October, 2013.
63. *Hao, P.*[1], Sun, Z.[1], **Ban, X.**, Guo, D.[2], Ji, Q., 2013. Vehicle index estimation for signalized intersections using sample travel times. Presented at the *20th International Symposium on Transportation and Traffic Theory (ISTTT)*, Noordwijk, The Netherlands, July, 2013.
64. ***Ban, X.***, 2013. Freight performance measurement using GPS data. Presented at *the GPS for Transportation Symposium*, Hunter College, New York City, NY, May, 2013.
65. *Ma, R.*[1], **Ban, X.**, Pang, J.S., Liu, H., 2013. Approximating time delays in solving continuous-time dynamic user equilibrium. Presented at the *92nd Annual Meeting of Transportation Research Board*, Washington, DC. P
66. *Ma, R.*[1], **Ban, X.**, Pang, J.S., Liu, H., 2012. Approximating time delays in solving continuous-time dynamic user equilibrium. Presented at the *INFORMS Annual Meeting*, Phoenix, AZ.
67. *Ma, R.*[1], **Ban, X.**, Pang, J.S., 2012. Continuous-time dynamic user equilibrium model with departure-time choice and capacitated queues. Presented at the *INFORMS Annual Meeting*, Phoenix, AZ.
68. ***Ban, X.***, Pang, J.S., Liu, H., Ma, R.[1], 2012. Modeling and solving continuous-time dynamic user equilibria – A differential variational inequality approach. Presented at the *4th International Symposium on Dynamic Traffic Assignment*, Martia's Vineyard, Massachusetts, June, 2012.
69. Yushimito, W.[1], ***Ban, X.***, Holguin-Veras, J., 2012. Correcting the effects of asymmetric interactions in work trips with staggered work hours. Presented at the *4th International Symposium on Dynamic Traffic Assignment*, Martia's Vineyard, Massachusetts, June, 2012.
70. **Ban, X.**, Pang, J.S., Liu, H., *Ma, R.*[1], 2012. Continuous-time point queue model in dynamic network loading. Presented at the *91st Annual Meeting of Transportation Research Board*, Washington, DC. P
71. *Ma, R.*[1], **Ban, X.**, Pang, J.S., Liu, H., 2012. Discretization and convergence of continuous-time dynamic network loading models. Presented at the *91st Annual Meeting of Transportation Research Board*, Washington, DC. P
72. Ma, R.[1], **Ban, X.**, Pang, J.S., Liu, H., 2011. Discretization and convergence of continuous-time dynamic network loading models. Presented at the *INFORMS Annual Meeting*, Charlotte, NC.
73. **Ban, X.**, Pang, J.S., Liu, H., *Ma, R.*[1], 2011. Modeling and solving continuous-time dynamic user equilibria: A differential complementarity system approach. Presented at the *INFORMS Annual Meeting*, Charlotte, NC.
74. *Hao, P.*[1], **Ban, X.**, Bennett, K., Ji, Q., *Sun, Z.*[1], 2011. Signal timing estimation using sample intersection travel times. Presented at the *90th Annual Meeting of Transportation Research Board*, Washington, DC. P
75. *Ma, R.*[1], **Ban, X.**, 2011. Realization probability of traffic user equilibria. Presented at the *90th Annual Meeting of Transportation Research Board*, Washington, DC. P

76. *Sun, Z.*[1], **Ban, X.**, 2011. Vehicle trajectory reconstruction for signalized intersections using variational formulation of traffic flows. Presented at the *90th Annual Meeting of Transportation Research Board*, Washington, DC. P
77. *Hao, P.*[1], **Ban, X.**, 2011. Vehicle queue location estimation for signalized intersections using sample travel times. Presented at the *90th Annual Meeting of Transportation Research Board*, Washington, DC. P
78. ***Ban, X.***, 2010. Link-Node Complementarity Model and Solution Algorithm for Dynamic User Equilibrium, Presented at the *INFORMS Annual Meeting*, Austin, TX.
79. ***Ban, X.***, 2010. Delay Pattern Estimation for Signalized Intersections Using Sample Travel Times, Presented at the *INFORMS Annual Meeting*, Austin, TX.
80. ***Ban, X.***, 2010. Signalized Intersection Delay Pattern and Queue Length Estimation Using Mobile Traffic Sensors. Presented at the *10th International Chinese Conference on Transportation Professionals*, August 04 – August 08, 2010, Beijing, China.
81. ***Ban, X.***, Gruteser, M., 2010. Mobile sensors as traffic probes: addressing transportation modeling and privacy protection in an integrated framework. Presented at the *7th International Conference on Traffic and Transportation Studies*, August 03 – August 05, 2010, Kunming, China.
82. Yushimito, W.F.[1], ***Ban, X.***, Holguin-Veras, J., 2010. Modeling staggered work hours in a dominant firm with government intervention as a bi-level problem. Presented at the *third International Symposium on Dynamic Traffic Assignment*, July 29 – July 31, 2010, Takayama, Japan.
83. ***Ban, X.***, Ma, R.[1], 2010. Optimal mileage fee scheme – a network perspective. Presented at *the Innovations in Pricing of Transportation Systems: Workshop and Conferences*, May 13 – 14, 2010, Orlando, FL.
84. ***Ban, X.***, Ferris, M.C., Tang, L., 2010 Risk-neutral second best toll pricing. Presented at *the 89th Annual Meeting of Transportation Research Board*, Washington, DC. P
85. ***Ban, X.***, Ma, R.[1], 2009. Realization probability of user equilibria and implications to congestion pricing. Presented at the *INFORMS Annual Meeting*, San Diego, CA.
86. ***Ban, X.***, Lu, S., Ferris, M.C., Liu, H., 2009. Risk averse second best toll pricing. Presented at *the 18th International Symposium on Transportation and Traffic Theory (ISTTT)*, Hong Kong, China.
87. ***Ban, X.***, Herring, R.[2], Margulici, J.D., and Alex Bayen, 2009. Optimal sensor placement for freeway travel time estimation. Presented at *the 18th International Symposium on Transportation and Traffic Theory (ISTTT)*, Hong Kong, China.
88. ***Ban, X.***, Ferris, M.C., Tang, L., 2009. Risk-neutral second best toll pricing. Presented at the *20th International Symposium on Mathematical Programming*, Chicago, August 2009.
89. ***Ban, X.***, Alexandre Bayen, Ryan Herring, JD Margulici, 2008. A Dynamic Programming Model for Optimal Sensor Placement for Providing Travel Times. Presented at *the INFORMS Annual Meeting*, Washington, DC.
90. ***Ban, X.***, 2008. A Link-node Complementarity DUE Model with Departure Time Choice. Presented at the *INFORMS Annual Meeting*, Washington, DC.
91. ***Ban. X.***, Ferris, M.C., Tang, L., 2008. Risk-neutral Second Best Toll Pricing. Presented at the *INFORMS Annual Meeting*, Washington, DC.
92. ***Ban, X.***, Lu, S., 2007. Risk taking behaviors in second best toll pricing. Presented at the *86th Transportation Research Board Annual Meeting*. P
93. ***Ban, X.***, Herring, R.[2], Margulici, J.D., Alex Bayen, 2007. Optimal sensor locations for providing freeway travel times. Presented at the *INFORMS Annual Meeting*, Seattle, WA.
94. ***Ban, X.***, Lu, S., 2007. Considering risk taking behaviors in second best toll pricing. Presented at the *INFORMS Annual Meeting*, Seattle, WA.
95. ***Ban, X.***, Liu, H., 2007. A link-node discrete-time dynamic second best toll pricing model with a relaxation solution algorithm. Presented at the *INFORMS Annual Meeting*, Seattle, WA.

96. ***Ban, X.***, Li, Y., Skabardonis, A., 2007. Performance evaluation for travel time estimation methods, Presented at the *11th World Conference on Transport Research (WCTR)*, University of California, Berkeley, 2007.
97. ***Ban, X.***, 2007. Modeling route choice behavior under asymmetric user equilibria – A complementarity formulation and its solution algorithm, Presented at the *11th World Conference on Transport Research (WCTR)*, University of California, Berkeley, 2007.
98. ***Ban, X.***, Alkadri, M., Mikkelsen, P., Benouar, H., 2007. Promoting ITS Deployment via ITS Decision Website, Presented at the *ITS America Annual Meeting*, Palm Spring, CA, 2007.
99. ***Ban, X.***, 2007. Systematic Performance Evaluation of Travel Time Calculation Methods, Presented at the *ITS America Annual Meeting*, Palm Spring, CA, 2007.
100. ***Ban, X.***, Liu, H., Ferris, M.C., Ran, B., 2005. A link-based quasi-VI formulation and solution algorithm for dynamic user equilibria. Presented at the *INFORMS Annual Meeting*, San Francisco, CA.
101. Ferris, M.C., Liu, H., ***Ban, X.***, 2005. Solving asymmetric user equilibrium by decomposition and synchronization schemes. Presented at the *INFORMS Annual Meeting*, San Francisco, CA.
102. ***Ban, X.***, 2005. An MPCC model for continuous network design problem with asymmetric user equilibrium. Presented at the *12th ITS World Congress*, San Francisco, CA.
103. ***Ban, X.***, 2005. Using the temporal difference learning method in multi-step freeway speed prediction. Presented at the *12th ITS World Congress*, San Francisco, CA.
104. ***Ban, X.***, Ferris, M.C., Liu, H.X., 2005. Decomposition and synchronization schemes for solving asymmetric user equilibrium. Presented at the *4th International Conference on Complementarity Problems (ICCP)*, Sanford University, CA.
105. ***Ban, X.***, Liu, H., Ran, B., 2004. Quasi-variational inequality formulation for the network user equilibrium problem. Presented at the *INFORMS Annual Meeting*, Denver, Colorado.

Professional society memberships

- Transportation Research Board (TRB), National Research Council, National Academies

Referee/Reviewer

Peer-reviewed Journal Articles	**Number of reviews (approx.)**
Transportation	5
Transportation Science	10
Transportation Research, Part B	>60
Transportation Research, Part C	60
Transportation Research, Part D	8
Transportation Research, Part E	2
IEEE Transactions on Intelligent Transportation Systems	20
Journal of Intelligent Transportation Systems	15
Journal of Transportation Engineering	10
Advanced Transportation	5
Mathematical Programming	1
Mathematics of Operations Reserch	1
Networks and Spatial Economics	40
Information Science	2
Mathematical and Computer Modeling	2
Journal of Computational and Applied Mathematics	3
Computers and Operations Research	1
Annuals of Operations Research	1
Operations Research Letter	1

Applied Mathematical Modeling	2
International Journal on Systems Science	1
Transportmetrica A	10
Transportmetrica B	3

Conferences Proceedings/Abstracts

The International Symposium on Transportation and Traffic Theory (2009-2019)
The International Symposium on Dynamic Traffic Assignment (2007 – 2019)
Transportation Research Board Annual Meetings (2004 – 2019)
World Congress on Transport Research (2007)
ITS World Congress (2005 – 2008)
IEEE International Conference on Intelligent Transportation Systems (2006 – 2016)
IEEE International Conference on Connected Vehicles and Expo (ICCVE), 2016
IEEE Intelligent Vehicle Symposium (2017)

GRADUATE STUDENTS

Chaired Doctoral Degrees

Student Name	Dissertation Title	Completed (Year)	Current Employer
AT UNIVERSITY OF WASHINGTON			
Wan Li	Traffic Signal Timing Optimization with Connected Vehicles	Spring, 2019	Oak Ridge National Laboratory
Nazib Siddique	Adaptive Sampling Methods for Vehicle Trajectory Data	Fall, 2019	Argonne National Laboratory
AT RENSSELAER POLYTECHNIC INSTITUTE			
Sarah (Xia) Yang	Modeling Multimodal Transportation Network Emergency Evacuation Considering Evacuees' Cooperative Behavior	Fall, 2016	SUNY Polytechnic
Zhanbo Sun	Transportation Modeling and Privacy Protection Using Mobile Sensors	Fall, 2014	Southwest Jiaotong University, China
Rui Ma	Modeling and Solving Continuous-Time Dynamic User Equilibria	Fall, 2013	University of Alabama in Huntsville (UAH)
Peng Hao	Urban Arterial Real-Time Performance Measurement Using Privacy Preserving Mobile Sensors	Spring, 2013	University of California, Riverside
Wilfredo Yushimito	Mitigating Peak Congestion with Staggered Work Hours: Effects, Models, and Implications	Fall, 2011	Universidad Adolfo Ibáñez, Chile

Current Doctoral Students

Student Name	Dissertation Title	Status	Expected Graduation Date
AT UNIVERSITY OF WASHINGTON			
Jingxing Wang	Model-Based, Data-Driven Solutions to Address Bias Issues in Transportation Big Data	Passed qualifying exam, 2017	Fall 2021
Rong Fan	Shared Automated Mobility Services for Urban Commuting	Passed qualifying exam, 2017	Fall 2021
Qiangqiang Guo	Urban network traffic control	Passed qualifying exam, 2018	Fall 2022
Yiran Zhang	TBD	Passed qualifying exam, 2019	Fall 2023

Chaired Masters Degrees

Student Name	**Level of Supervision** ("thesis," "project" or "coursework only")	**Thesis/Paper Title** (if applicable)	**Completed (Year)**	**Current Employer**
AT UNIVERSITY OF WASHINGTON				
Alex Lee	Project	*The future of public transportation – Post Covid-19*	Summer, 2020	
Audrey Thai	Project	*Analyzing the effects of flashing yellow arrows on safety in the City of Bellevue*	Spring, 2020	City of Bellevue
He Zhu	Project	*Neighborhood level impacts in Travel patterns from the closure of Alaska Way Viaduct*	Fall, 2019	Graduate School, Northeastern University
Xiang Zhang	Project	*A GIS-based map matching approach for mobile device*	Fall, 2019	N/A
Bihong Xu	Project	*Machine-learning based trajectory prediction for connected vehicle platoon*	Summer, 2019	Apple Inc.
Hao Zeng	Project	*Association between walking purpose and physical activity measured accelerometer and travel diary*	Spring, 2019	NA
Patrick Lee	Project	*On the road to predictive responsive parking pricing in Seattle*	Fall, 2018	Concord Engineering
Yiran Zhang	Project	*Microscopic simulation of travel demand management: Performance of peak hour spreading strategy in downtown area by VISSIM*	Summer, 2018	Ph.D. program, UW
Wenjin Gu	Project	*Exploring the Influential Factors on Ridesourcing Demand and Trip*	Spring, 2018	China Architecture Design Group

		Generation Based on Didi data		
Liming Jin	Project	*A dynamic signal control algorithm based on left-turn bay spillover*	Spring, 2018	Graduate school, Duke Univ.
Tianyi Hu	Project	*Development of a MATSim simulation model for downtown Seattle*	Spring, 2018	Far East Mobility, China
Jessica Kim	Project	*WorkFlex: a study of workplace schedule flexibility practices in the Puget Sound, Washington*	Summer, 2017	WSDOT
Jeffrey Powers	Project	*Safety of Cascade Bicycle Club Free Group Rides program*	Spring, 2017	Cascade Bicycle Club
AT RENSSELAER POLYTECHNIC INSTITUTE				
Eric Richardson	Thesis	*Defining and Evaluating Freight Performance Metrics Using GPS Data*	Fall, 2013	AgileAssets Inc.
Michael Kowalczyk	Thesis	*Experimental Validation of Mobile Sensors as Traffic Probes on Arterial Streets with Traffic Simulation of the Existing Network*	Fall, 2010	FHWA-USDOT
Coral Torres	Thesis	*Assessment of Tradeoffs Among Multiple Vehicle Classes for Urban Deliveries*	Fall, 2009	FHWA-USDOT

Current Masters Students

Student Name	**Level of Supervision** ("thesis," "project" or "coursework only")	**Status**	**Expected Graduation Date**
AT UNIVERSITY OF WASHINGTON			
Dan McCabe	Thesis	First year of course work	Fall, 2022
Ohay Angah	Project	First year of course work	Fall, 2021
Zhijun Liu	Project	First year of course work	Fall, 2021
Sai Pavuluri	Project	First year of course work	Fall, 2021
Michael Berlinger	Project	First year of course work	Fall, 2020

Other significant student supervision
Ph.D committees (serving as a committee member)

AT UNIVERSITY OF WASHINGTON

- Yueshuai He, Ph.D. dissertation committee (CEE), New York University (Advisor: Joseph Chow), Fall 2020
- Xi Zhu, Ph.D. dissertation committee (CEE), UW (Advisor: Cynthia Chen), Summer 2020.
- Zhiyong Cui, Ph.D. dissertation committee (CEE), UW (Advisor: Yinhai Wang), Fall 2020.
- Luke Rodriguez, Ph.D. dissertation committee (CEE), UW (Advisor: Bill Howe), Fall 2021 (expected).

- Ruimin Ke, Ph.D. dissertation committee (CEE), UW (Advisor: Yinhai Wang), Fall 2020.
- Xiasen Wang, Ph.D. dissertation committee (CEE), UW (Advisor: Don Mackenzie), Fall 2020 (expected).
- John Ash, Ph.D. dissertation committee (CEE), UW (Advisor: Yinhai Wang), Fall 2020.
- Zhiyuan Pu, Ph.D. dissertation committee (CEE), UW (Advisor: Yinhai Wang), Fall 2020.
- An Yan, Ph.D. dissertation committee (Information School), UW (Advisor: Bill Howe), Fall 2020 (expected).
- Tianzhe Wang, Ph.D. dissertation committee (Urban Design & Planning), UW, (Advisor: Marina Alberti), Fall 2019 (expected).
- Chase Dowling, Ph.D. dissertation committee (EE), UW, (Advisor: Baosheng Zhang), Fall 2019 (expected).
- Wenbo Zhu, Ph.D. dissertation committee (CEE), UW (Advisor: Yinhai Wang), Spring 2019.
- Christian Henrickson, Ph.D. dissertation committee (CEE), UW, (Advisor: Yinhai Wang), Fall 2018.
- Kaidi Yang, Ph.D. dissertation committee (CEE), ETH, Switzerland (Advisor: Monica Menendez), Winter 2018.

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- Dapeng Zhang, Ph.D. dissertation committee, CEE, RPI (Advisor: Cara Wang), Spring 2016
- Johanna Amaya, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), Spring 2016
- Robyn Marquis, Ph.D. dissertation committee, CEE, RPI (Advisor: Cara Wang), Spring 2016
- Yiwei Zhou, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Cara Wang), Spring 2015
- Felipe Aros Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), Fall 2014
- Carlos Gonzalez, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), Spring 2014
- Ivan Sanchez, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), Spring 2014
- Lijie Bai, Department of Mathematical Sciences, RPI (Advisor: John Mitchell), Spring 2013
- Bin Zan, Department of Electrical and Computer Engineering, Rutgers University (Advisor: Marco Gruteser), Spring 2013
- Jianming Qiu, Ph.D. dissertation committee, ISE, RPI (Advisor: Tom Sharky), Summer 2012
- Ruth Murrugarra, Ph.D. dissertation committee, Department of Industrial and Systems Engineering (ISE), RPI (Advisor: Al Wallace), Fall 2011
- Miguel Jaller, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), Fall 2011
- Noel Perez Rodriguez, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), Fall 2011
- Bin Yu, Ph.D. dissertation committee, ISE, RPI (Advisor: John Mitchell), Fall 2011

- Mike Silas, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), Spring 2009

MS thesis committees

AT UNIVERSITY OF WASHINGTON

- Jiwong Kang, M.S. Thesis Committee (Civil and Environmental Engineering), MS Thesis: *Driving aging effects on car crashes* (Advisor: Yinhai Wang).
- Bochen Xu, M.S. Thesis Committee (Civil and Environmental Engineering), MS Thesis: *Analysis on the independence of the injury severity level and proposed factors in heavy vehicle involved car accidents*, (Advisor: Anne Goodchild).
- Elyse Lewis, M.S. Thesis Committee (Civil and Environmental Engineering), MS Thesis: *Seattle's expanded mobility portfolio* (Advisor: Don Mackenzie).
- Shijie Chen, M.S. Thesis Committee (Civil and Environmental Engineering), MS Thesis: *Shared mobility system implementation in POLARIS framework* (Advisor: Don Mackenzie).
- Parastoo Jabbari, M.S. Thesis Committee (Civil and Environmental Engineering), MS Thesis: *The role of market scale in electric vehicle adoption: consumer and infrastructure perspectives* (Advisor: Don Mackenzie).
- Eric Barber, M.S. Thesis Committee (Civil and Environmental Engineering), MS Thesis: *Exploring the Impact of Shared Mobility: An In-depth Look at How Bike Share Services and Shared Automated Vehicles Will Impact our Transportation Systems* (Advisor: Don Mackenzie).
- Xiatian (Summer) Wu. Thesis Committee (Urban Planning), MS Thesis: *The Effects of Commute Trip Reduction Program on Employee Non-SOV Travel Frequency* (Advisor: Qing Shen).
- Mingjian Fu. Thesis Committee (CEE), MS Thesis: *Travel Time Measurement Using MAC Addressed-Based Mobile Device Sensing Technology: Principles, Practice, and Challenges* (Advisor: Yinhai Wang).
- Mayuree Binjolkar. Thesis Committee (CEE), MS Thesis: *Urban-Traffic-Scene-Understanding Based on Estimated Depth Information from Monocular Images* (Advisor: Yinhai Wang).
- Yifan Zhang. Thesis Committee (CEE), *Wireless Parking Detection System Based on Sensor Fusion and IoT Communication* (Advisor: Yinhai Wang).
- Chris Gottsacker. *A Pilot Data System and Analytical Framework for Tribal and Rural Community Traffic Safety Equity Assessments*. Thesis Committee (CEE), (Advisor: Yinhai Wang).
- Frank Yang. Thesis Committee (CEE), (Advisor: Yinhai Wang).
- Chenxi Liu. Thesis Committee (CEE), (Advisor: Yinhai Wang).
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Undergraduate research supervision *(incomplete list)*

Name	**Project Title**	**Semester**
AT UNIVERSITY OF WASHINGTON		
Araj Shrestha	Local traffic impact analysis of Alaska Tunnel	Winter 2020
Yanyan Chen	Local traffic impact analysis of Alaska Tunnel	Winter 2020
Araj Shrestha	Local traffic impact analysis of Alaska Tunnel	Autumn 2019

Araj Shrestha	Local traffic impact analysis of Alaska Tunnel	Summer 2019
Jeffrey Cheng	Analysis of ridesourcing data	Summer 2019
Adi Stein	Traffic flow and dynamic transportation network modeling	Spring 2019
Yunghan Huang	Data collection and analysis for downtown Seattle	Spring 2019
Devin Li	Simulation model development	Spring 2019
Jeffrey Cheng	Data collection and analysis	Spring 2019
Adi Stein	Traffic flow and dynamic transportation network modeling	Spring 2019
Xiaoming Zhang	Simulation model development for downtown Seattle	Winter 2019
Yunghan Huang	Data collection and analysis for downtown Seattle	Winter 2019
Zackery Aemmer	Mobile app development for traffic data collection and privacy protection	Fall 2018
Zackery Aemmer	Mobile app development for traffic data collection and privacy protection	Summer 2018
Michelle Yeung	Transportation big data analysis	Spring 2018
Zackery Aemmer	Mobile app development for traffic data collection and privacy protection	Spring 2018
Tim Adamson (part time)	Mobile app development for traffic data collection and privacy protection	Winter 2018
Michelle Yeung	Transportation big data analysis	Winter 2018
Zackery Aemmer	Mobile app development for traffic data collection and privacy protection	Winter 2018
Tim Adamson (part time)	Mobile app development for traffic data collection and privacy protection	Fall 2017
Michelle Yeung	Transportation big data analysis	Fall 2017
Zackery Aemmer	Mobile app development for traffic data collection and privacy protection	Fall 2017
Wasif Sarwar	Transportation big data analysis	Summer 2017
Tim Adamson	Mobile app development for traffic data collection and privacy protection	Summer 2017
Tim Adamson	Mobile app development for traffic data collection and privacy protection	Spring 2017
Tim Adamson	Mobile app development for traffic data collection and privacy protection	Winter 2017
AT RENSSELAER POLYTECHNIC INSTITUTE		
Devan Naik	Data collection and analysis of Lower Manhattan Traffic Network	Fall 2015
Donna Li	Data collection of Lower Manhattan Traffic Network	Summer 2015
Devan Naik	NSF REU: Travel patterns from Mobile data	Spring 2015
Jonathan Zou	NSF REU: Mobile data collection and analysis	Spring 2015
Joe Paul	NSF REU: Wolf Road data and simulation	Spring 2015
Donna Li	NSF REU: Wolf Road data and simulation	Spring 2015
Li Sun	NSF REU; Wolf Road data analysis	Spring 2015
Jonathan Zou	NSF REU: Mobile apps development for mobile data collection	Fall 2014
Angel Sanchez	NSF REU: Travel patterns from Mobile data	Fall 2014
Joe Paul	NSF REU: Wolf Road data and simulation	Fall 2014
Donna Li	NSF REU: Wolf Road data and simulation	Fall 2014
Li Sun	Bluetooth data analysis	Fall 2014
Eric Klepadlo	NSF REU: Evaluating adaptive traffic signals	Spring 2014
Angel Sanchez	NSF REU: Adaptive traffic signal level of service analysis	Spring 2014
Max Rusch	NSF REU: arterial travel time analysis	Spring 2014
Sofia	NSF REU	Spring 2014
Lok-Yin Li	NSF REU	Spring 2014

Eric Klepadlo	NSF REU: Evaluating adaptive traffic signals	Fall 2013
Angel Sanchez	NSF REU: Adaptive traffic signal level of service analysis	Fall 2013
Max Rusch	NSF REU: arterial travel time analysis	Fall 2013
Eric Klepadlo	Wolf Road Project	Spring 2013
Obesebea Nhyira Aye-Addo	Wolf Road Project	Spring 2013
Angel Sanchez	Wolf Road Project	Spring 2013
Max Rusch	Wolf Road Project	Spring 2013
Eric Klepadlo	Wolf Road Project	Fall 2012
Doug Das	Wolf Road Project	Fall 2012
Ashley Vassell	Wolf Road Project	Spring 2012
Patrick Kenny	Wolf Road Project	Spring 2012
Eric Klepadlo	Wolf Road Project	Spring 2012
David Hill	Mobile Sensors Project	Fall 2011
Ashley Vassell	Wolf Road Project	Fall 2011
Patrick Kenny	Mobile Sensors Project	Fall 2011
Edmond Liang	Wolf Road Project	Fall 2011
David Hill	Mobile Sensors Project	Summer 2011
David Hill	Mobile Sensors Project	Spring 2011
Patrick Kenny	Mobile Sensors Project	Spring 2011
Michael Gonzalez	Traffic Crowdsourcing Using Mobile Sensors	Spring 2011
Ronald Adomako	Transportation Corridor Study	Fall 2010
Patrick Kenny	Transportation Corridor Study	Fall 2010
Michael Gonzalez	Transportation Corridor Study	Fall 2010
Brian Maleck	Analysis of Mobile Sensor Data for Traffic System Performance Evaluation	Summer 2010
Douglas Das	Mobile Sensors as Traffic Probes	Spring 2010
Ayriel Hunt	ITS Decision Website	Spring 2010
Nick Hopkins	ITS Decision Website	Spring 2010
Horatiu Dragnea	ITS Study	Spring 2010
Tyler Gloski	ITS Decision Website	Fall 2009
Horatiu Dragnea	ITS Decision Website	Fall 2009
Nozawa Nao	ITS Decision Website	Fall 2009
Jacoub Reda	ITS Decision Website	Spring 2009
Michael Kowalczyk	ITS Decision Website	Spring 2009
Monica Louie	ITS Decision Website	Spring 2009
Horatiu Dragnea	ITS Decision Website	Spring 2009
Nick Hopkins	ITS Decision Website	Spring 2009
Ayriel Hunt	ITS Decision Website	Spring 2009

Student Awards

- Graduate students (Yiran Zhang, Wan Li, Jingxing Wang, Rong Fan, Qiangqiang Guo) was awarded the 4th place in the Transportation Forecasting Competition in January 2019, organized by the TRB Standing Committee ABJ70 on Artificial Intelligence and Advanced Computing, supported by IEEE ITSS, and sponsored by Didi Chuxing. Internet Link: https://www.ce.washington.edu/news/article/2019-02-25/transportation-forecasting-competition-award.

RESEARCH ACTIVITIES

Funded Research

Total funding: $11.6 million; my amount: $4.0 million

Funding Agency	Title	Your role with other PI's Co-PI's	Total Amount, Your Amount, (Subcontracts if any, University Matching if any)	Dates (start-finish)
AT UNIVERSITY OF WASHINGTON				
PacTrans/USDOT	Shared mobility options for the commute trip: opportunities for employers and employees	Co-PI (PI: Qing Shen, UW)	Total amount: $120k, my amount: $30k	6/30/2020-12/31/2021
PacTrans/USDOT	Optimal charging infrastructure design for battery electric buses	PI	Total amount: $40k, my amount: $40k	6/30/2020-12/31/2021
CSET/USDOT	Drones for Improving Traffic Safety of the RITI Communities in Washington State (Phase II)	PI (Co-PIs: Dan Abramson, Ed McCormack, Yinhai Wang)	Total amount $132.6k, my amount $40k	9/1/19 - 8/31/20
FHWA/WSDOT	Promises of data from emerging technologies for transportation applications: Puget Sound Region Case Study (Phase I & Phase II)	PI (Co-PI: Cynthia Chen, UW)	Total amount: $450k, my amount: $225k	1/1/2018-12/31/2020
PacTrans/USDOT	The impact of shared mobility options on travel demand.	Co-PI (PI: Anne Moudon, UW)	Total amount: $120k, my amount: $30k	6/30/2018-12/31/2019
NSF	Collaborative Research: Bias Modeling and Estimation of Networked Transportation Data	Lead PI (Collaborator: Yueyue Fan at UC-Davis)	Total amount (UW): $317k My amount: $317k	08/01/2018 – 07/31/2021
Didi Chuxing	Methods for mobile sensing based real time traffic signal control	PI (single PI grant)	Total amount: $100k, my amount: $100k	06/01/2018 – 08/31/2019
CSET/USDOT	Drones for Improving Traffic Safety of the RITI Communities in Washington State	PI (Co-PIs: Dan Abramson, Cynthia Chen, Ed McCormack John Scott, Yinhai Wang)	Total amount $80k, my amount $40k	9/1/18 - 12/31/19

FHWA/RSG	Bridging Data Gaps: A TMIP Series on Understanding Origin-Destination Trip Data	Co-PI (PI: Cynthia Chen)	Total amount: $182k, my amount: $91k	6/1/2017-10/31/2017
PacTrans/USDOT	PacTrans Associate Director	PI (single PI grant)	Total amount: $200k, my amount: $200k	06/1/2017-05/30/2022
NSF	SCC-RCN:MOHERE: Mobility, Health, and Resilience in SCC: Building Capacities and Expanding Impact	Co-PI (PI: Radha Poovendran)	Total amount: $500k, my amount: 0	10/12017-9/302019
NYU/USDOT	Connected Cities for Smart Mobility towards Accessible and Resilient Transportation Center (C2SMART); Tier 1 UTC, led by NYU	PI (Co-PIs: Yinhai Wang, Don Mackenzie)	Total amount: $925k, my amount: $510k	12/2016-12/2021
NSF	Collaborative Research: Transportation network identification - Information Fusion via Stochastic Optimization	PI of UW (Collaborator: Yueyue Fan at UC-Davis)	Total amount: $148k, my amount: $148k	9/1/2016-7/31/2018
NSF	CAREER: Using Mobile Sensors for Traffic Knowledge Extraction and Dynamic Network Management	PI (single PI grant)	Total amount: $160k, my amount: $160k	9/1/2016-4/30/2018
AT RENSSELAER POLYTECHNIC INSTITUTE				
NSF	Collaborative Research: Transportation network identification - Information Fusion via Stochastic Optimization	PI of RPI (Collaborator: Yueyue Fan at UC-Davis)	Total amount: $0, my amount: $0	8/1/2015-8/31/2016
NSF	CAREER: Using Mobile Sensors for Traffic Knowledge Extraction and Dynamic Network Management	PI (single PI grant)	Total amount: $252k, my amount: $252k	5/1/2011-8/31/2016
UTRC2/USDOT	Developing A Macroscopic Decision Making Tool for Emergency Evacuation Planning	PI (Co-PI: John Mitchell)	Total amount: $80k, my amount: $52k	7/1/2015-6/30/2017
NYSERDA/ NYSDOT	Decision-Making Tool for Applying Adaptive Traffic Control Systems	PI (Co-PI: Jeffrey Wojtowicz)	Total amount: $75k, my amount: $64k	7/1/2013-6/30/2015
NITC	Measuring the Impacts of Social Media on Advancing Public Transit, Portland State University	PI (Co-PI: Sam Elrahman)	Total amount: $30k, my amount: $18k	11/08-6/11
UTRC2/USDOT	Investigating the Network Effects of Mileage Fee,	PI (single PI grant)	Total amount: $80k, my amount: $80k	3/1/2014-2/28/2015
USDTO/U of Buffalo	Transportation Informatics University Transportation Center (TransInfo UTC),	Co-PI (PI: Jose Holguin-Veras)	Total amount:$433, my amount: $216.5k	9/30/2013-9/30/2018
Volvo Research and Educational Foundation	Center of Excellence on Sustainable Urban Freight Systems	Co-PI (PI: Jose Holguin-Veras)	Total amount: $4,000k, my amount: $240k	5/1/2013-4/30/2016
UTRC2/ USDOT	The Role of Social Media in Improving the Safety and Efficiency of Traffic Operations During Non-Routine Events Such	Co-PI (PI: Al Wallace)	Total amount: $82.5k; my amount: $41k	12/1/2013-11/30/2014

	as Incidents and Planned Special Events			
NSF	Pan-American Advanced Studies Institute on Sustainable Urban Freight System	Co-PI (PI: Jose Holguin-Veras)	Total amount: $100k, my amount: $15k	1/1/2013-12/31/2014
NYSDOT	Adaptive Traffic Signal Control System (ACS-Lite) for Wolf Road, Albany, NY	PI (Co-PI: Cara Wang)	Total amount: $300k, my amount: $210k	1/1/2012-9/30/2014
NSF	Collaborative Research: Mobile Sensors as Traffic Probes – Addressing Transportation Modeling and Privacy Protection in an Integrated Framework	Lead PI (Collaborator: Marco Gruteser at Rutgers)	Total amount: $177k, my amount: $177k	9/1/2010-8/31/2014
NSF	BECS Collaborative Research: Modeling the Dynamics of Traffic User Equilibria Using Differential Variational Inequalities l	PI of RPI (Collaborators: Henry Liu, UMich; Jong-Shi Pang, USC)	Total amount: $100k, my amount: $100k	9/1/2010-8/31/2014
NYSERDA/NYSDOT	Development of A Decision-Making Tool for Corridor Based Transportation Management	PI (Co-PI: Jose Holguin-Veras)	Total amount: $75k, my amount: $67.5k	7/15/2010-12/31/2012
UTRC2/USDOT	Vehicle Classification Using Mobile Sensors	PI (Co-PI: Jose Holguin-Veras)	Total amount: $50k, my amount: $45k	7/1/2011-6/30/2012
U.S. DOT	Integrative Freight Demand Management in the New York City	Co-PI (PI: Jose Holguin-Veras)	Total amount: $1,536k, my amount: $230k	7/1/2011-9/30/2013
UC-Berkeley / Caltrans	Technical Evaluation of Microscopic Traffic Simulation in Corridor System Management Plan	PI (single PI grant)	Total amount: $48, my amount: $48k	7/1/2010 – 2/28/2012
RPI Seed Fund	Traffic Crowdsourcing Using Mobile Sensors	PI (Co-PIs: Ji Qiang, Kristin Bennett)	Total amount: $40k, my amount: $28k	1/1/2010-6/30/2011
UTRC2/USDOT	Risk Neutral Second Best Toll Pricing	PI (single PI grant)	Total amount: $5k, my amount: $5k	1/1/2009-12/31/2009
NCFRP	Freight Transportation Cost Data Element	Co-PI (PI: Jose Holguin-Veras)	Total amount: $300k, my amount: $75k	12/29/2009 - 12/31/2011
NCFRP	Freight Trip Generation and Land Use	Co-PI (PI: Jose Holguin-Veras)	Total amount: $250k, my amount: $62.5k	5/1/2010-12/31/2011
NYSDOT	Using Lighting to Alter Driver Behavior	Co-PI (PI: John Bullough)	Total amount: $210k, my amount: $25k	9/1/2009-12/31/2010
Old Dominion University / Caltrans	Development of Expert Systems for the ITS Decision Website	PI (single PI grant)	Total amount: $30k, my amount: $30k	9/1/2008-2/28/2010
UC-Berkeley / Caltrans	Intersection Delay Pattern Estimation Using Privacy-Preservation GPS-equipped Cellular Phones	PI (single PI grant)	Total amount: $75k, my amount: $75k	10/1/2008-08/31/2009

NYMTAC	Feasibility Study for Freight Data Collection	Co-PI (PI: Jose Holguin-Veras)	Total amount: $100k, my amount: $25k	10/1/2008-03/31/2009

Pending Proposals

Funding Agency	***Title***	**Your role with other PI's and co-PI's**	**Total Amount, Your Amount, (Subcontracts if any, University Matching if any)**	**Dates (start - finish)**
FHWA	Just-in-time AI-assisted Transportation Analysis (JATA) for Special Events	Co-PI (PI: Cynthia Chen, UW)	Total amount: $ 1,000k; my amount: $200k (estimated)	03/01/2021-02/28/2023
FHWA	Predictive Real-time Traffic Management in Large-Scale Networks Using Model-based AI	UW PI (Lead PI: Sean Qian, CMU)	Total amount: $80k; my amount: $80k	01/01/2021-12/31/2022
DOE	Employered-centered commute service platform (CSP)	PI (Co-PI: Qing Shen, Chiwei Yan, Anne Moudon)	Total amount: $199,101; Subcontractors: DOE ORNL ($400K), Scoop ($250K), Commute Seattle ($50K); my amount: $800k	10/01/2020-12/31/2023

DOCUMENTATION OF TEACHING EFFECTIVENESS

University of Washington

Student Evaluations

All students are asked to rate the course on a scale of 0-5 [0-very poor, 1-poor, 2-fair, 3-good, 4-very good, 5-excellent]. The first four items on the survey were: item 1: "the course as whole as", item 2: "the course content was", item 3: "the instructor's contribution to the course was", item 4: "the instructor's effectiveness in teaching the subject matter was". (median scores are reported).

AT UNIVERSITY OF WASHINGTON (9/2016-PRESENT)

Course	**Title**	**Quarter**	**Credit Hrs**	**Enrollment**	**Evaluations ? Response**	**Item 1**	**Item 2**	**Item 4**	**Overall Adj. Median**
CEE 327	Transportation Engineering	Spring, 2020	5	73	Yes,				
CET 513	Transportation Networks and Optimization	Autumn, 2019	3	27	Yes, 19/27	3.5	3.7	3.3	3.5
CEE 500	Transportation seminar	Autumn, 2019	1	18	No				
CET 593	Transportation System Analysis	Spring, 2019	3	11	Yes, 7/11	3.6	4.2	3.5	3.7

CEE 327	Transportation Engineering	Winter, 2019	5	65	Yes, 26/65	3.8	3.9	4.1	4.0
CET 585	Analytical Methods II	Autumn, 2018	3	10	Yes, 8/10	4.1	4.3	3.7	4.0
CEE 500	Transportation Seminar	Autumn, 2018	1	12	No				
CET 599	Traffic Flow Theory on Dynamic Transportation Networks	Spring, 2018	3	11	Yes, 10/11	4.1	4.3	4.1	4.2
CEE 327	Transportation Engineering	Winter, 2018	5	78	Yes, 30/78	3.7	4.1	3.7	3.8
CEE 500	Transportation Seminar	Autumn, 2017	1	20	No				
CET 599	Transportation Network Analysis	Spring, 2017	3	13	Yes, 12/13	4.3	4.7	4.8	4.5
CEE 327	Transportation Engineering	Winter, 2017	5	70	Yes, 54/70	3.5	3.7	3.5	3.5

Independent Study

Course	Title or Student Name	Quarter	# of Students (Total Credit Hrs)
CEE 600B	Audrey Tay, He Zhu	Spring, 2019	2 (2)
CEE 600A	Xiang Zhang	Winter, 2019	1 (2)
CEE 600B	Hao Zeng	Winter, 2019	1 (1)
CEE 499	Xiaoming Zhang, Yunghan Huang	Winter, 2019	2 (3)
CEE 600A	Yiran Zhang	Autumn, 2018	1 (2)
CEE 600C	He Zhu	Autumn, 2018	1 (1)
CEE 600A	Wenjin Gu, Liming Jin, Wang Jingxing	Spring, 2018	3 (6)
CEE 600B	Xiang Zhang	Spring, 2018	1 (1)
CEE 600A	Qiangqiang Guo	Winter, 2018	1 (3)
CEE 600B	Bihong Xu, Wenjin Gu, Hao Zeng	Winter, 2018	3 (8)
CEE 600B	Wenjin Gu, Yiran Zhang	Autumn, 2017	2 (3)
CEE 600B	Jeffrey Powers	Spring, 2017	1 (3)
CEE 600B	Jessica Kim, Tianyi Hu, Liming Jin	Winter, 2017	3 (9)
CEE 600A	Wan Li	Autumn, 2016	1 (3)

AT RENSSELAER POLYTECHNIC INSTITUTE (2008-2016)

Course	Title	Semester	Credit Hrs	Enrollment	Evaluations? Response	Overall excellence of teacher* (out of 5.0)	Overall excellence of course* (out of 5.0)
CIVL 6260	Transportation Network Analysis	Spring, 2016	3	9	Yes, 5/9	4.88	4.67
CIVL 4660	Traffic Engineering	Spring, 2016	3	10	Yes, 4/10	4.83	4.5
CIVL 4660	Traffic Engineering	Spring, 2015	3	15	Yes, 7/15	4.62	4.38

CIVL 6270	Traffic Control and Simulation	Spring, 2015	3	7	Yes, 4/7	4.5	3.5
CIVL 6280	Dynamic Transportation Models	Fall, 2014	3	6	Yes, 4/6	5	5
CIVL 6260	Transportation Network Analysis (3 students)	Spring, 2014	3	3	Yes, 2/3	5	5
CIVL 4660	Traffic Engineering	Spring, 2014	3	9	Yes, 3/9	4.25	4.25
CIVL 2030	Introduction to Transportation Engineering	Fall, 2013	4	70	Yes, 35/70	3.96	3.80
CIVL 6270	Traffic Control and Simulation	Spring, 2013	3	7	Yes, 7/7	4.62	4.62
CIVL 6260	Transportation Network Analysis	Spring, 2013	3	7	Yes, 7/7	4.00	4.00
CIVL 2030	Introduction to Transportation Engineering	Fall, 2012	4	63	Yes, *	4.03	4.11
CIVL 2030	Introduction to Transportation Engineering	Fall, 2011	4	73	Yes, 41/73	3.61	3.51
CIVL 4660	Traffic Engineering	Spring, 2011	3	24	Yes, 17/24	4.3	4.0
CIVL 6260	Transportation Network Analysis	Fall, 2010	3	9	Yes, 4/9	4.4	4.4
CIVL 4660	Traffic Engineering	Spring, 2010	3	21	Yes, 16/21	4.3	4.0
CIVL 6270	Traffic Control and Simulation	Fall, 2009	3	14	Yes, 12/14	4.2	4.1
CIVL 4570	Analytical Methods in Civil Engineering Systems	Spring, 2009	3	18	Yes, 12/18	4.4	3.7
CIVL 4660	Traffic Engineering	Fall, 2008	3	18	Yes, 10/18	4.7	4.3

*: The response data is not available

Peer Evaluations (at UW)

- CET593 Transportation System Analysis by Prof. Tim Larson (04/25/2019)
- CEE327 Transportation Engineering by Prof. Joe Mahoney (02/20/2018)
- CEE599 Transportation Network Analysis by Prof. Cynthia Chen (05/25/2017)

Professional Evaluations (at UW)

- ET&L Assessment: CEE 327 Transportation Engineering by Jim Borgford-Parnell (01/25/2018)

Curriculum Development (at UW)

- CET513 Transportation Networks & Optimization: Concepts, methods, and toolboxes on networks and optimization for CEE/transportation applications; Developed the entire course, including syllabus, course modules, lecture notes, reading materials, homework problem sets, course projects, and the final exam; Will be offered in Fall 2019.

- CET593 Transportation System Analysis: System analysis concept and mathematical techniques of transportation systems; Developed the entire course, including syllabus, course modules, lecture notes, reading materials, homework problem sets, course projects, and the mid-term exam. Offered in Spring 2017 (as CET 599) and Spring 2019.

List of other teaching contributions

- Lecture, Fined-Grained Transportation Knowledge Extraction from Mobile Sensing, New York State Association of Transportation Engineers Conference, May 29, 2014.
- Lecturer, Signal Control Training, ITE Northeastern District Meeting, May, 2012.
- Collaboration with Navajo Technical College, curriculum development
- Outreach to Questar III K-12; with instructor designed traffic engineering projects for high school students (how to collect real-world data and follow scientific procedures to design traffic signal timing plans)

SERVICE

AT UNIVERSITY OF WASHINGTON

Departmental service

2017-present	Member, Department Graduate Study Committee
2016-2017	Member, Department Affairs Committee
2017-present	Member, Valle Scholarship Committee
2016-present	Associate Director of Research, Pacific Northwest Transportation Consortium (PacTrans, USDOT-funded University Transportation Center for Region 10)
2016-present	Director of UW & Associate Director for Technology and Data Management, C2SMART Tier 1 UTC (led by New York University)

College Service

2017	College Marshal, UW Commencement Ceremony

University Service

2018-present	Member of the Faculty Council on Multicultural Affairs (FCMA)
2018-present	Member of the Adjudication Panel

Professional society and other service

1. Editorial activities

Associate Editors

2017-present	Transportation Research Part C; 2018 Impact Factor: 5.775
2016-present	IEEE Transactions on Intelligent Transportation Systems; 2018 Impact Factor: 5.744
2016-present	Journal of Intelligent Transportation Systems; 2018 Impact Factor: 2.568

Editorial Board Member

2016-present	Transportation Research Part B: Methodological; 2018 Impact Factor: 4.574
2016-2017	Transportation Research Part C: Emerging Technologies; 2018 Impact Factor: 5.775
2016-present	Networks and Spatial Economics; 2018 Impact Factor: 2.084
2016-present	Transpormetrica B: Transport Dynamics; 2017 Impact Factor: 2.229

2016-present Editorial Board Member of TRB Committee on Transportation Network Modeling (AEP40), responsible for handling the review/recommendation of 10-20 papers annually for the committee.

2. Scientific committee activities

April 2017-Present Chair of Network Equilibrium Subcommittee AEP40(2), Transportation Network Modeling Committee, (AEP40), Transportation Research Board (TRB), the National Academy of Science, Engineering and Medicine

2016-present Member of Transportation Network Modeling Committee (AEP40), TRB, the National Academy of Science, Engineering and Medicine

2016-present Member of Vehicle-Highway Automation Committee (ACP30), TRB, the National Academy of Science, Engineering and Medicine

3. Conference activities (incomplete list from 2008)

2019-2020 Co-Chair, The 8th International Symposium on Dynamic Traffic Assignment, Seattle, Washington, June 29 – July 01, 2020

2019 Chair of the planning committee, Annual Conference of PacTrans (Pacific Northwest Transportation Consortium), Seattle, Washington, Oct. 11, 2019.

2018 Member of the planning committee, Annual Conference of PacTrans (Pacific Northwest Transportation Consortium), Fairbanks, AL, Oct. 11 – 12, 2018.

2018 Session Chair, Enabling Technologies for Connected and Automated Vehicles, ASCE International Conference on Transportation and Development 2018 (ICTD 2018), Pittsburgh, PA, July 15 – 18, 2018.

2018 Session Chair, Within-Day Equilibrium I, the 7th International Symposium on Dynamic Traffic Assignment, Hong Kong, China, June 6-8, 2018

2017 Session Chair, Traffic Flow and Management, 2017 IEEE Intelligent Vehicles Symposium, Redondo Beach, CA, USA, June 11-14, 2017.

4. International, national or government services

2016 – present Proposal reviewer for several University Transportation Centers (UTCS)

2016 – present NSF panel reviewer, CMMI, CISE (CPS), ERC

2018 Proposal reviewer for Ontario Research Fund, Canada

2017 Proposal reviewer for Singapore ASTAR

2017 Proposal reviewer for National Fund for Scientific and Technological Research of Chile (FONDECYT)

2016 Proposal reviewer for DOE ARPA-E

5. Workshop organization

- Organizer and Co-Chairs, Rethinking TDM and CTR in a Shared, Connected World Workshop I: CTR Data and Performance & Planning, jointly organized by UW and WSDOT, March 21, 2018, Seattle, WA.
- Organizer and Co-Chairs, New CTR Strategies for a Shared, Connected, and On-Demand World, jointly organized by UW and WSDOT on next-generation travel demand management strategies with shared mobility services, August 23, 2018, Seattle, WA (http://depts.washington.edu/pactrans/pactrans-and-wsdot-tdm-ctr-workshop-sees-great-turn-out/).

6. Government / Industry outreach seminars

- Washington Department of Transportation (WSDOT), *Transportation big data: promises, issues, and potential solutions*, March, 2020.

- Futurewei Research Lab in Seattle, *Urban traffic modeling and control with mobile sensing*, November 2018.
- Puget Sound Regional Council, *Data fusion for modeling with big data* (invited speech at Model Users Group), October 2018.
- Didi Chuxing Inc., *Urban traffic modeling and management with mobile sensing*, November 2017.
- Washington State Department of Transportation (WSDOT), *Transportation big data: promises, issues, and implications*, October 2017.
- Puget Sound Regional Council (PSRC), *Transportation big data: promises, issues, and implications*, September 2017.
- Federal Highway Administration, US Department of Transportation, *Prevalence of selection bias in big data--Implications for transportation planning and operations*, May 2017.

7. Other services

- Promotion & Tenure Letter Writing: 3
- Member of Mentor Committee of Dr. Sharon Di (March 2018 – present), Department of Civil Engineering and Engineering Mechanics, Columbia University

AT RENSSELAER POLYTECHNIC INSTITUTE

Departmental Service

2008-2016	Instructor for FE Exam Review Session (Transportation)
2009-2014	Member, Undergraduate Study Committee
2014-2016	Chair, Undergraduate Study Committee
2010	Member, 175th Anniversary Committee
2011	Member, Department Head Search Committee
2010-2013	Junior Faculty Search Committees (Transportation, Structural)
2008-2013	Faculty Peer Support Committee

University Service

2012 - 2016 Institute Judicial Review Board

Professional society and other service

1. Editorial activities

Associate Editors

2014-2016 Journal of Intelligent Transportation Systems; 2018 Impact Factor: 2.568

Editorial Board Member

2014-2016	Transportation Research Part B: Methodological; 2018 Impact Factor: 4.574
2015-2016	Transportation Research Part C: Emerging Technologies; 2018 Impact Factor: 5.775
2011-2016	Networks and Spatial Economics; 2018 Impact Factor: 2.084
2012-2016	Transpormetrica B: Transport Dynamics; 2018 Impact Factor: 2.229
2013-2016	Editorial Board Member of TRB Committee on Transportation Network Modeling (ADB30), responsible for handling the review/recommendation of 10-20 papers annually for the committee.

2. Scientific committee activities

2012-2016	Member of Transportation Network Modeling Committee (ADB30), TRB, the National Academy of Science, Engineering and Medicine

2013-2016	Member of Vehicle-Highway Automation Committee (AHB30), TRB, the National Academy of Science, Engineering and Medicine
2012-2013	Chair of the Cluster of ITS SIG (Special Interest Group) of the Transportation Science and Logistics (TSL) Society, The Institute for Operations Research and Management Sciences (INFORMS)
2010-2011	Elected Vice Chair of the Cluster of ITS SIG (Special Interest Group) of the Transportation Science and Logistics (TSL) Society, INFORMS

3. Conference activities (incomplete list from 2008)

2013	Member of the Program Committee, The 16th International IEEE Conference on Intelligent Transportation Systems 2013 (ITSC 2013), The Hague, The Netherlands.
2013	Cluster Chair, ITS SIG, INFORMS Annual Meeting, Minneapolis, MN.
2012	Member of the Local Organization Committee, 4th International Symposium on Dynamic Traffic Assignment, Martha's Vineyard, MA, USA, June 4-6, 2012.
2012	Cluster Chair, ITS SIG, INFORMS Annual Meeting, Phoenix, AZ.
2011	Session Chair, Transportation Modeling and Privacy Protection, the INFORMS Annual Meeting, Charlotte, NC.
2011	Chair, Session 505, Network Equilibrium and Assignment Models, TRB, Washington, DC
2010	Session Chair, Signal Intersection Performance Measurement Using Mobile Sensors, the INFORMS Annual Meeting, Austin, TX.
2010	Member of the Program Committee, The 13th International IEEE Conference on Intelligent Transportation Systems 2010 (ITSC 2010), Madeira Island, Portugal.
2007	Session Chair, Models and Methods for Transportation Network Design Problems, the INFORMS Annual Meeting, Seattle, WA
2008	Session Chair, Sensor Location Modeling for ITS Applications, the INFORMS Annual Meeting, Washington, DC.
2008	Session Chair, Dynamic User Equilibrium, the INFORMS Annual Meeting, Washington, DC.

4. International, national or government services

2008 – 2016	Proposal reviewer for several University Transportation Centers (UTCS)
2009 – 2016	NSF panel reviewer, CMMI, CISE (CPS), ERC
2011, 2012, 2015	Proposal reviewer for Swiss NSF
2011 – 2016	Board Member of ITS-NY and Member of its Education Committee
2010 – 2014	Member of NYSDOT GreenLITES Academic Advisory Committee

5. Government / Industry outreach seminars

- New York City Office of Emergency Management, *Transportation Network Emergency Evacuation Modeling of Lower Manhattan*. September 2015.
- GE Global Research Center, *A traffic engineering perspective to PHEV modeling*, December 2008.
- New York State Department of Transportation, *Towards Statewide Travel Times on Variable Message Signs*, September 2008.