

XUEGANG (JEFF) BAN
Curriculum Vitae

Civil and Environmental Engineering
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EDUCATIONAL HISTORY

University of Wisconsin, Madison

PhD in Transportation, July, 2005

Dissertation: *Quasi-Variational Inequality Formulations and Solution Approaches for Dynamic User Equilibria* (Advisor: Bin Ran)

University of Wisconsin, Madison

MS in Computer Sciences, May, 2003

Tsinghua University, Beijing, China

MS in Automotive Engineering, July, 2000

Thesis: *GPS-based Autonomous Vehicle Navigation Systems*

Tsinghua University, Beijing, China

BS in 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

- Franz Edelman Finalist Award, INFORMS (The Institute for Operations Research and the Management Sciences), 2017 (1 of the 6 teams selected as the Finalists for 2017).
- *Best Paper Award (2nd Prize)*, IEEE Intelligent Vehicles Symposium, 2017 (1 of the 2 papers selected from over 300 papers submitted to the Symposium).
- *Honorable Mention, Stella Dafermos Best Paper Award*, Network Modeling Committee (ADB30), Transportation Research Board, National Academies, 2017 (1 of the 2 papers selected from over 100 papers submitted to the Committee).
- *New Oriental Scholar*, Shanghai Maritime University, May 2015 – May 2018.
- *School of Engineering Research Excellence Award* (Junior Faculty), Rensselaer Polytechnic Institute, 2014
- *New Faculty Award*, Council of Transportation Research Centers (CUTC) and American Road & Transportation Builders Association (ARTBA), 2012
- *CAREER Award*, National Science Foundation, 2011
- *UTRC's 2008 Best Paper Award*, University of Transportation Research Center Region 2, 2008
- *Robert H. Paddock Graduate Student Scholarship*, University of Wisconsin, Madison, 2004
- *Vilas Travel Award*, University of Wisconsin, Madison, 2004
- *IET Scholarship*, Tsinghua University, China, 1998
- *Outstanding Graduate Medal*, Tsinghua University, China, 1997

AFFILIATIONS AND OTHER APPOINTMENTS

Associate professor (by curtesy) in the Department of Industrial and Systems Engineering, Rensselaer Polytechnic Institute, September 2014 – August 2016

PUBLICATIONS

Note: * indicates my students (or visiting students); *Italic* indicates the corresponding author of the paper; my name is highlighted in **bold** text

Refereed archival journal publications

Total Google Scholar Citations as of July 03, 2017: 2690 (h-index: 22; h10-index: 48).

1. Yang, X.*, **Ban, X.**, Mitchell, J., 2017. Modeling multimodal transportation network emergency evacuation considering evacuees' cooperative behavior. *Transportation Research, Part A*, accepted.
2. Sun, Z.*, **Ban, X.**, 2017. Identifying multiclass vehicles using GPS data. *Journal of Intelligent Transportation Systems, Accepted*.
3. Ji, X.F.*, **Ban, X.**, Zhang, J., Ran, B., 2017. Subjective-utility travel time budget modeling in the stochastic traffic network assignment. *Journal of Intelligent Transportation Systems, Accepted*.
4. Ma, R.*, **Ban, X.**, Pang, J.S., 2017. A Link-Based Dynamic Complementarity System Formulation for Continuous-time Dynamic User Equilibria with Queue Spillbacks. *Transportation Science*, accepted.
5. Di, X., Liu, H, **Ban, X.**, Yang, H., 2017. Ridersharing user equilibrium and its implications for High-Occupancy-Toll lane pricing. *Transportation Research Record*, accepted.

6. Ji, X.F.*, **Ban, X.**, Li, M., Zhang, J., Ran, B., 2017. Non-expected route choice model under risk on stochastic traffic networks. *Networks and Spatial Economics*, in press. DOI: 10.1007/s11067-017-9344-3.
7. Yang, X.*, **Ban, X.**, Ma, R.*, 2017. Mixed equilibria with common constraints on transportation networks. *Networks and Spatial Economics* 17(2), 547-579.
8. Ma, R.*, **Ban, X.**, Szeto, W.Y., 2017. Emission modeling and pricing on single-destination dynamic traffic networks. *Transportation Research Part B* 100, 255-283.
9. 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.
10. 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.
11. Di, X., Liu, H., **Ban, X.**, 2016. Second best toll pricing within the framework of bounded rationality. *Transportation Research Part B* 83, 74-90.
12. Zhao, J., Li, W.*, 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.
13. Hao, P.*, and **Ban, X.**, 2015. Long queue estimation using short vehicle trajectories for signalized intersections. *Transportation Research Part B*, 82, 54-73.
14. Sánchez-Díaz, I., Holguin-Veras, J., **Ban, X.**, 2015. A time-dependent freight tour synthesis model. *Transportation Research Part B*, 78, 144-168.
15. Sun, Z.*, **Ban, X.**, Hao, P.*, Yang, D., 2015. Trajectory-based vehicle energy/emission estimation for signalized arterials using mobile sensing data. *Transportation Research Part D* 34, 27-40.
16. Yang, X.*, Sun, Z.*, **Ban, X.**, Holguin-Veras, J., 2015. Urban freight delivery stop identification using GPS data. *Transportation Research Record* 2411, 55-61.
17. Ma, R.*, **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.
18. Ma, R.*, **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.
19. Ma, R.*, 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.
20. Yushimito, W.*, **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.
21. Hao, P.*, **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.
22. Ge, Y.E., Stewart, K., Sun, B., **Ban, X.**, Zhang, S., 2014. Investigating undesired spatial and temporal boundary effects of congestion charging. *Transportmetrica B: Dynamics*, in press.
23. Wang, X., Wang, J., Zhang, J., **Ban, X.**, 2014. Lane-changing model with dynamic consideration of driver's propensity. *International Journal of Modern Physics C: Computational Physics and Physical Computation*, in press.
24. Ma, R.*, **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.

25. Hao, P.*, **Ban, X.**, Guo, D.*, and Ji, Q., 2014. Cycle by cycle intersection queue length distribution estimation using sample travel times. *Transportation Research Part B* 68, 185-204.
26. Feng, F.L., Guo, X.F., **Ban, X.**, 2014. Robust overbooking strategy of railway freight transport. *Journal of Central South University (English)*, accepted.
27. Yushimito, W.*, **Ban, X.**, and Holguin-Veras, J., 2014. A two stage optimization model for staggered work hours. *Journal of Intelligent Transportation Systems* 18(4), 410-425.
28. Di, X., Liu, H., **Ban, X.**, and Yu, J.W., 2013. One the stability of a boundedly rational day to day dynamic. *Networks and Spatial Economics*, in press. DOI: 10.1007/s11067-014-9233-y.
29. Sun, Z.*, and **Ban, X.**, 2013. Vehicle classification using GPS Data. *Transportation Research Part C* 37, 102-117.
30. Sun, Z. *, and **Ban, X.**, 2013. Vehicle trajectory reconstruction for signalized intersections using mobile traffic sensors. *Transportation Research Part C* 36, 268-283.
31. Sun, Z. *, Zan, B., **Ban, X.**, and Gruteser, M., 2013. Privacy protection method for fine-grained urban traffic modeling using mobile sensors. *Transportation Research Part B* 56(1), 50-69.
32. Hao, P.*, Sun, X.*, **Ban, X.**, Guo, D.*, and Ji, Q., 2013. Vehicle index estimation for signalized intersections using sample travel times. *Transportation Research Part C* 36, 513-529.
33. Di, X., Liu, H., Pang, J.S., and **Ban, X.**, 2013. Boundedly rational user equilibria (BRUE): Mathematical formulation and solution sets. *Transportation Research Part B* 57, 300-313.
34. **Ban, X.**, Ferris, M.C., Tang, L., and Lu, S., 2013. Risk-neutral second best toll pricing. *Transportation Research Part B*, 48(2), 67-87.
35. Holguin-Veras, J., Torres, C.A., and **Ban, X.**, 2013. On the comparative performance of urban delivery vehicle classes. *Transportmetrica A: Transport Science* 9(1), 50-73.
36. 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.
37. Hao, P.*, **Ban, X.**, Bennett, K., Ji, Q., and Sun, Z.*, 2012. Signal timing estimation using intersection travel times. *IEEE Transactions on Intelligent Transportation Systems*, 13(2), 792-804.
38. Hoh, B., Iwuchukwu, T., Jacobson, Q., Gruteser, M., Bayen, A., Herrera, J.C., Herring, R., Work, D., Annavaram, M., and **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.
39. **Ban, X.**, Pang, J.S., Liu, X., and Ma, R.*, 2012. Continuous-time Point-Queue Models in Dynamic Network Loading. *Transportation Research Part B*, 46(3), 360-380.
40. **Ban, X.**, Pang, J.S., Liu, X., and Ma, R.*, 2012. Modeling and Solution of Continuous-Time Instantaneous Dynamic User Equilibria: A Differential Complementarity Systems Approach. *Transportation Research Part B*, 46(3), 389-408.
41. **Ban, X.**, Hao, P. *, and Sun, Z. *, 2011. Real time queue length estimation for signalized intersections using sample travel times from mobile sensors. *Transportation Research Part C*, 19(6), 1133-1156. (Most Cited Transportation Research Part C articles since 2011: <http://www.journals.elsevier.com/transportation-research-part-c-emerging-technologies/most-cited-articles/>)
42. Holguin-Veras, J., Jaller, M., Destro, L., **Ban, X.**, and Lawson, C., 2011. Freight generation, freight trip generation, and the perils of using constant trip rates. *Transportation Research Record* 2224, 68-81.
43. **Ban, X.**, Chu, L., Herring, R., and Margulici, J.D., 2011. A sequential modeling framework for optimal sensor placement for multiple ITS applications. *ASCE Journal of Transportation Engineering* 137(2), 112-120.

44. **Ban, X.**, Li, Y., Skabardonis, A., and 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.
45. **Herrera, J.C.**, Work, D.B., Herring, R., **Ban, X.**, and Bayen, A., 2010. Evaluation of traffic data obtained via GPS-enabled mobile phones: the Mobile Century field experiment. *Transportation Research Part C*, 18(4), 568-583.
46. **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.
47. **Ban, X.**, and 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.
48. **Ban, X.**, Herring, R., Hao, P.*, and Bayen, A., 2009. Delay pattern estimation for signalized intersections using sampled travel times. *Transportation Research Record* 2130, 109-119.
49. **Margulici, J.D.**, and **Ban, X.**, 2008. Benchmarking travel time estimates. *IET Journal of Intelligent Transportation Systems* 2(3), 228-237.
50. **Ban, X.**, Liu, H., Ferris, M.C., and 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.
51. **Ban, X.**, Chu, L., and Benouar, H., 2007. Bottleneck identification and calibration for corridor management planning. *Transportation Research Record* 1999, 40-53.
52. **Liu, H.**, **Ban, X.**, Ma, W.T., and 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.
53. **Ban, X.**, Liu, H., Ferris, M., and Ran, B., 2006. A general MPCC model and its solution algorithm for continuous network design problem. *Mathematical and Computer Modeling* 43, 493-505.
54. **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.
55. **Lu, J.G.**, Yang, F., **Ban, X.**, and Ran, B., 2006. Moments analysis for improving decision reliability based on travel time. *Transportation Research Record* 1968, 109-116.
56. **Lu, J.G.**, **Ban, X.**, Qiu, Z.J., Yang, F., and Ran, B., 2005. Robust route guidance model based on advanced traveler information systems. *Transportation Research Record* 1935, 1-7.
57. **Liu, H.**, **Ban, X.**, Ran, B., and Mirchandani, P., 2003. Formulation and solution algorithm for fuzzy dynamic traffic assignment model. *Transportation Research Record* 1854, 114-123.
58. **Yang, F.**, Liu, H., H, R., **Ban, X.** and Ran, B., 2003. Bi-level formulation for optimal traffic information dissemination. *Transportation Research Record* 1836, 21-28.
59. **Liu, H.**, **Ban, X.**, Ran, B., and Mirchandani, P., 2002. Analytical dynamic traffic assignment model with probabilistic network and travelers' perceptions. *Transportation Research Record* 1783, 125-133.
60. 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.
61. Zheng, S., **Ban, X.**, Zou, X., and Lian, X., 2002. Research on creation of navigation road-net map based on GPS. *Journal of Highway and Transportation Research and Development* 19(3), 115-118 (in Chinese).

Under review

1. Siddique, C.*, **Ban, X.**, 2017. Self-adaptive sampling of GPS data. Submitted to the 97th Annual Meeting of Transportation Research Board, Washington, DC.
2. Chen, C., **Ban, X.**, 2017. Transportation big data: promises, issues, and implications. Submitted to the 97th Annual Meeting of Transportation Research Board, Washington, DC.
3. Kim, J.*, **Ban, X.**, 2017. WorkFlex: a study of workplace schedule flexibility practices in the Puget Sound, Washington. Submitted to the 97th Annual Meeting of Transportation Research Board, Washington, DC.
4. Li, W.*, **Ban, X.**, 2017. Traffic signal timing optimization with connected vehicles. Submitted to the 97th Annual Meeting of Transportation Research Board, Washington, DC.
5. Liu, Y.*, **Ban, X.**, Jiang, J., Zhang, Y.*, 2017. Optimal location distribution of fast charging station along a single highway based on minimum energy consumption. Submitted to the 97th Annual Meeting of Transportation Research Board, Washington, DC.
6. Fan, R.*, **Ban, X.**, 2017. The first-mile transit problem on a traffic network with connected automated vehicles. Submitted to the 97th Annual Meeting of Transportation Research Board, Washington, DC.
7. Gao, Y., Ge, Y., Hu, H., Ban, X., 2017. CTM-based online estimation of traffic performances. Submitted to *Journal of Transportation Engineering*.
8. Xu, B.*, Ban, X., Bian, Y., Li, W.*, Wang, J., Li, K., 2017. V2I based Cooperation between Traffic Signal and Approaching Automated Vehicles. Submitted to *IEEE Transactions on Intelligent Transportation Systems*.
9. Di., X., Ma, R.*, Liu, X., **Ban, X.**, Yang, H., 2017. Network design for ridesharing user equilibrium. Submitted to *Transportation Research, Part B*.
10. **Ban, X.**, Dessouky, M., Pang, J.S., 2017. A general equilibrium model for transportation systems with e-hailing services and flow congestion. Submitted to *Operations Research*.
11. Ji, X.F., **Ban, X.**, Li, M., Zhang, J., Ran, B., 2016. Moment-based travel time reliability assessment with Lasserre's relaxation. Submitted to *Transpormetrica B: Dynamics (2nd revision)*.

In Preparation

1. Sun, Z., Hao, P., **Ban, X.**, 2016. Fine-Grained arterial traffic modeling: a data fusion and information integration approach.
2. Li, W.*, **Ban, X.**, 2017. Traffic signal optimization under the connected vehicle environment.
3. Fan, R.*, Ban, X., 2017. Transit first-mile problem with connected-automated vehicles.
4. Yang, X.*, Ma, R.*, **Ban, X.**, Ge, Y., 2016. Link Travel Time Approximation in Double Queue Traffic Model. Submitted to *Transpormetrica B: Dynamics (2nd revision)*.

Conference proceedings and other non-journal articles

Fully refereed publications

1. Li, W.* , **Ban, X.**, 2017. Traffic signal optimization under the connected vehicle environment. In Proceedings of the Intelligent Vehicles Symposium, Los Angeles, CA.
2. Xu, B.* , **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)
3. Yang, X., **Ban, X.**, Mitchell, J., 2017. Modeling multimodal transportation network emergency evacuation considering evacuees' cooperative behavior. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
4. Li, W., **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.
5. Siddique, C., **Ban, X.**, 2017. Traffic state estimation based on vehicle trajectory segmentation. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
6. Ji, X., **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.
7. 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.
8. **Li, W.**, Ban, X. J., & 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.
9. Ji. X.F., **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.
10. Ji. X.F., **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.
11. Yang, X.* , Ma. R.* , **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.
12. Sun, Z.* , Hao, P.* , **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.
13. Sun, Z.* , **Ban, X.**, 2015. Multiclass vehicle classification using GPS data. Presented at the 94th Annual Meeting of Transportation Research Board.
14. Sun, Z.* , Hao, P.* , **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*.
15. Yang, X.* , Ma, R.* , **Ban, X.**, 2015. Modeling Mixed Equilibria on Transportation Networks with Link Constraints. Presented at the 94th Annual Meeting of Transportation Research Board.

16. Ma, R.*, **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.
17. *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.
18. Hao, P.*, **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.
19. Hao, P.*, **Ban, X.**, Guo, D.*, 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.
20. Yang, X.*, Sun, Z.*, **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.
21. Zan, B., Sun, Z.*, 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)*.
22. Hao, P.*, 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.
23. Richardson, E.*, **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.
24. **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.
25. Cruz, T., 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.
26. Ma, R.*, **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.
27. **Ban, X.**, Pang, J.S., Liu, X., Ma, R.*, 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.
28. Hao, P.*, Guo, D.*, **Ban, X.**, and Ji, Q., Sun, Z.*, 2012. Vehicle index inference for signalized intersections using sample travel times. In *Proceedings of the 91st Transportation Research Board Annual Meeting*, Washington, DC.
29. Sun, Z.*, 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.
30. 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.
31. Zan, B., Sun, Z.*, 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.
32. Sun, Z.*, Zan, B., **Ban, X.**, Gruteser, M., and Hao, P.*, 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.

33. **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.
34. **Ban, X.**, and Hao, P.*, 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)*.
35. 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)*.
36. **Ban, X.**, Chu, L., Herring, R., 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*.
37. 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*.
38. 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)*.
39. 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)*.
40. 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)*.
41. 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)*.
42. Hoh, B., Gruteser, M., Herring, R., **Ban, X.**, Work, D., Herrera, J., and Bayen, A., 2008. Virtual trip lines for distributed privacy-preserving traffic monitoring. In *Proceedings of The International Conference on Mobile Systems, Applications, and Services*.
43. **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)*.
44. **Ban, X.**, Li, Y., and Skabardonis, A., 2007. Local MAD Method for Probe Vehicle Data Processing. In *Proceedings of the 14th ITS World Congress*.
45. **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.
46. **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)*.
47. 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)*.
48. 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)*.
49. **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)*.

50. 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*.
51. **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)*.
52. 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.

Refereed by abstract only (incomplete list and to 2007 only)

1.

Complete books written

None.

Parts of books (chapters in edited books)

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

Notes: These seven papers were presented at the International Symposium on Transportation and Traffic Theory (ISTTT), and are published (as edited books) in the symposium proceedings. Considered the most prestigious symposium in transportation, the ISTTT's acceptance rate (from an extended abstract to a full paper) is approximately 15%. Most of these papers are also published in Transportation Research Part B or Part C series as shown below.

Books edited

None.

Journal issues edited

Yang, D., Ozbay, K., **Ban, X.**, 2017. Developments in Connected and Automated Vehicles. *Journal of Intelligent Transportation Systems*, .

Patents submitted and/or awarded

None

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

Technical Reports:

1. **Ban, X.**, Wojtowicz, J., Li, W.*, 2016. Decision-Making Tool for Applying Adaptive Traffic Signal Control System. Final Report to NYSERDA and NYSDOT.
2. **Ban, X.**, 2015. Network System Effects of Mileage Fee. Final Report Submitted to UTRC2 and USDOT/RITA.
3. **Ban, X.**, Kamga, C., Wang, X., Wojtowicz, J., Klepadlo, E. *, Sun, Z. *, Mouskos, K., 2014 Adaptive Traffic Signal Control System (ACS-Lite) for Wolf Road, Albany, New York. Final Report to NYSDOT and UTRC2.
4. **Ban, X.**, Sun, Z.*, 2013. Vehicle Classification Using Mobile Sensing. Final Report to UTRC2 and USDOT.
5. **Ban, X.**, Sun, Z.*, Yang, X.*, Wojtowicz, J., Holguin-Veras, J., 2013. Urban Freight Performance Evaluation Using GPS Data. Chapter 5 of the Final Report on Off-Hour Deliveries submitted to Federal Highway Administrations (FHWA), US Department of Transportation (USDOT).
6. **Ban, X.**, Sun, Z.*, 2013. Simulation-based Decision-making Tool for Adaptive Traffic Signal Control on Tarrytown Road in the City of White Plains. Final Report Submitted to NYSERDA and NYSDOT.
7. Dion, F., Sivakumaran, K., **Ban, X.**, 2012. Evaluation of Utilization of Traffic Simulation Models in the Development of Corridor System Management Plans (CSMPs), California PATH Research Report, UCB-ITS-PRR-2012-2.

Other significant research dissemination (web sites, software, Wikis, etc.)

1. website. iUTS Lab at the University of Washington
(<http://faculty.washington.edu/banx/research.html>)

OTHER SCHOLARLY ACTIVITY

Invited lectures and seminars (webinars)

1. Ban, X. Transportation big data: promises, issues, and implications. Department of Civil and Environmental Engineering, University of Illinois - Urbana Campaign, July 29 – August 01, 2017.
2. Ban, X. Transportation big data: promises, issues, and implications. Michigan Innovative Mobility Symposium, *USDOT Center for Connected Automated Transportation, University of Michigan*, July 20 – 23, 2017.
3. Ban, X., Network congestion effect of E-hailing transportation services. *Institute of Pure and Applied Mathematics (IPAM), University of California, Los Angeles*, June 07th, 2017
4. Ban, X., Network congestion effect of E-hailing transportation services. *Portland State University*, May 12th, 2017 (<http://trec.pdx.edu/events/professional-development/friday-transportation-seminar-topic-tba-3>).
5. Chen, C., **Ban, X.** Prevalence of selection bias in big data--Implications for transportation planning and operations. *Special Topic Webinar, Federal Highway Administrators, US Department of Transportation*, May 2nd, 2017.
6. **Ban, X.**, Urban traffic modeling with mobile sensing, Center for Environmental Research & Technology, *Southwest Jiaotong University, Chengdu, China*, September 28, 2016.
7. **Ban, X.**, Urban traffic modeling with mobile sensing, Center for Environmental Research & Technology, *University of California, Riverside*, November 02, 2015.
8. **Ban, X.**, Modeling Dynamic User Equilibria as Differential Complementarity Systems (DCS). Workshop II: Traffic Estimation, Institute of Pure and Applied Mathematics (IPAM), *University of California, Los Angeles*, October 13, 2015.
9. **Ban, X.** Emission Modeling and Control on Dynamic Transportation Networks. Epstein Department of Industrial and Systems Engineering, *University of Southern California*, October 06, 2015.
10. **Ban, X.** Transportation Network Emergency Evacuation Modeling of Lower Manhattan. *New York City Office of Emergency Management*, September 08, 2015.
11. **Ban, X.**, Future Transportation in A Connected World, Department of Civil and Environmental Engineering, *University of Massachusetts at Amherst*, October 30, 2014.
12. **Ban, X.**, Urban traffic modeling with mobile sensing, Department of Civil and Environmental Engineering, *Rutgers University*, October 08, 2014.
13. **Ban, X.**, Urban traffic modeling using mobile sensing, Department of Civil and Environmental Engineering, *University of Wisconsin-Madison*, August 29, 2014.
14. **Ban, X.**, Urban traffic modeling using mobile sensing, Department of Civil and Environmental Engineering, *Tsinghua University*, July 02, 2014.
15. **Ban, X.**, Fine-grained urban traffic knowledge extraction from mobile sensing. Department of Civil and Environmental Engineering, *University of Buffalo*, November 14, 2013.
16. **Ban, X.**, Fine-grained urban traffic knowledge extraction from mobile sensing. Department of Civil and Environmental Engineering, *University of Maryland*, May 09, 2013.
17. **Ban, X.**, Liu, X., 2013. Modeling the dynamics of traffic user equilibrium using differential variational inequalities, BECS (Building Engineered Complex Systems) Workshop, *National Science Foundation*, January 25, 2013.
18. **Ban, X.**, 2012. Fine-grained urban traffic knowledge extraction from mobile sensing. *Future Cities Laboratory, National University of Singapore*, December 21, 2012.
19. **Ban, X.**, 2012. Fine-grained urban traffic knowledge extraction from mobile sensing. Department of Automotive Engineering, *Tsinghua University*, December 12, 2012.
20. **Ban, X.**, 2012. Fine-grained urban traffic knowledge extraction from mobile sensing. Invited talk at the Friday Seminar, Institute of Transportation Studies, *University of California, Berkeley*, October 05, 2012.
21. **Ban, X.**, 2012. Fine-grained urban traffic knowledge extraction from mobile sensing. Invited talk at the *China Mobile Research Institute*, Beijing, China, August 13, 2012.

22. **Ban, X.**, 2011. Traffic crowdsourcing using mobile sensors. Invited talk at the *Social Cognitive Networks Academic Research Center (SCNARC)*, RPI, Troy, NY, October 27, 2011.
23. **Ban, X.**, 2011. Modeling the dynamics of traffic user equilibrium using differential variational inequalities, BECS (building engineered complex systems) Workshop, *National Science Foundation*, March 29, 2011.
24. **Ban, X.**, 2011. Modeling and solving continuous-time dynamic user equilibria: A differential complementarity system approach. Invited talk at the *Traffic Control and Simulation Symposium at Tongji University*, Shanghai, China, August 18, 2011.
25. **Ban, X.**, 2011. Privacy-preserving IntelliDrive data for signalized intersection performance measurement. Invited talk at special session on **Intellidrive: Data Management Research Needs and Emerging Solutions**, 90th Annual Meeting of Transportation Research Board, Washington, DC, January 24, 2011.
26. **Ban, X.**, 2010. Signalized Intersection Delay Pattern and Queue Length Estimation Using Mobile Traffic Sensors. Invited talk at *Dalian Jiaotong University*, August 14, 2010.
27. **Ban, X.**, 2010. A Link-Node Complementarity Formulation and Solution Approach for Dynamic User Equilibria (DUE). Invited talk at *Harbin Institute of Technology*, August 10, 2010.
28. **Ban, X.**, 2010. Signalized Intersection Delay Pattern and Queue Length Estimation Using Mobile Traffic Sensors. Invited talk at *China Urban Sustainable Transport Research Center*, August 05, 2010.
29. **Ban, X.**, 2010. Delay pattern and queue length estimation for signalized intersections using mobile sensors. Invited talk at **the NSF Dynamic Route Guidance and Coordinated Traffic Control Workshop**, Rutgers University, June 07 – 08, 2010.
30. **Ban, X.**, 2009. A Link-Node Dynamic User Equilibrium Model and Its Application to Dynamic Congestion Pricing. **Invited talk** at the Department of Automation, *Tsinghua University* (July 1, 2009).
31. **Ban, X.**, 2008. A traffic engineering perspective to PHEV modeling. Invited talk at *GE Global Research Center*, December 16, 2008.
32. **Ban, X.**, 2008. Optimal sensor placement for ITS applications. Invited talk at the Civil and Environmental Engineering Department of the *University of Massachusetts at Amherst*, December 11, 2008.
33. **Ban, X.**, 2008. Towards Statewide Travel Times on Variable Message Signs. Invited talk at *New York State Department of Transportation*, September 10, 2008.
34. **Ban, X.**, 2007. Link-Node Complementarity Formulation and Solution Approaches for Dynamic User Equilibria. Invited talk at TOPL (Transportation Operations and Planning) Research Group, *University of California, Berkeley*.
35. **Ban, X.**, 2007. Modeling transportation network design problems while UE solution is not unique. Invited talk at Civil and Environmental Engineering Department, *University of California, Davis*.
36. **Ban, X.**, 2005. Quasi-variational inequality formulations and solution approaches for dynamic user equilibria. Presented at the **Seminar on Doctoral Student Research in Transportation Modeling** at the 84th *Transportation Research Board Annual Meeting*, Washington, DC.

Presentations given at conferences (*incomplete list from 2003 only*)

1. Yang, X.*, **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.
2. Li, W.*, **Ban, X.**, 2017. Traffic signal optimization under the connected vehicle environment. In Proceedings of the Intelligent Vehicles Symposium, Los Angeles, CA.

3. Xu, B.*, **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)
4. Yang, X., **Ban, X.**, Mitchell, J., 2017. Modeling multimodal transportation network emergency evacuation considering evacuees' cooperative behavior. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
5. Li, W., **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.
6. Siddique, C., **Ban, X.**, 2017. Traffic state estimation based on vehicle trajectory segmentation. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
7. Ji, X., **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.
8. Di, X., Liu, H, **Ban, X.**, Yang, H., 2017. Riderssharing user equilibrium and its implications for High-Occupancy-Toll lane pricing. In *Proceedings of the 96th Annual Meeting of Transportation Research Board*, Washington, DC.
9. **Li, W.**, Ban, X. J., & 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.
10. Ji, X.F., **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.
11. Ji, X.F., **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.
12. Yang, X.*, Ma, R.*, **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.
13. Sun, Z.*, Hao, P.*, **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.
14. Ban, X., 2015. Mobile sensing and emissions. Presented at the 3rd Symposium of Connected and Autonomous Vehicles, Albany, NY, November 05, 2015.
15. Ma, R.*, **Ban, X.**, Szeto, WY., 2015. Emission modeling and control on dynamic transportation networks. Presented (poster) at the 21st Internal Symposium on Transportation and Traffic Theory (ISTTT), Kobe, Japan, USA.
16. **Ban, X.**, 2015. Fusion of Mobile and Fixed-Location Traffic Data. Presented at the First TransInfo Symposium, August 13, 2015.
17. **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.
18. Sun, Z.*, **Ban, X.**, 2015. Multiclass vehicle classification using GPS data. Presented at the *94th Annual Meeting of Transportation Research Board*, Washington, DC.
19. Sun, Z.*, Hao, P.*, **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.

20. Yang, X.*, Ma, R.*, **Ban, X.**, 2015. Modeling Mixed Equilibria on Transportation Networks with Link Constraints. Presented at the 94th Annual Meeting of Transportation Research Board.
21. Ma, R.*, **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.
22. 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.
23. Ma, R.*, 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.
24. Ma, R.*, Earle, B.*, Wetmore, S.*, 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.
25. Sun, Z.*, Hao, P.*, 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.
26. Yang, X.*, Sun, Z.*, 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.
27. Yang, X.*, Sun, Z.*, 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..
28. Ma, R.*, 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.
29. Hao, P.*, 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.
30. Yang, X.*, 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.
31. Hao, P.*, 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.
32. Sun, Z.*, Hao, P.*, 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.
33. Hao, P.*, Sun, Z.*, Ban, X., Guo, D., and 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.
34. Ban, X., 2013. Freight performance measurement using GPS data. Presented at the GPS for Transportation Symposium, Hunter College, New York City, NY, May, 2013.
35. Ma, R.*, 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.
36. Ma, R.*, 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.
37. Ma, R.*, 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.

38. Ban, X., Pang, J.S., Liu, H., Ma, R.*, 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.
39. Yushimito, W.*, Ban, X. (speaker), and 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.
40. Ban, X., Pang, J.S., Liu, H., Ma, R.*, 2012. Continuous-time point queue model in dynamic network loading. Presented at the 91st Annual Meeting of Transportation Research Board, Washington, DC.
41. Ma, R.*, 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.
42. Ma, R.*, 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.
43. **Ban, X.**, Pang, J.S., Liu, H., Ma, R.*, 2011. Modeling and solving continuous-time dynamic user equilibria: A differential complementarity system approach. Presented at the INFORMS Annual Meeting, Charlotte, NC.
44. Hao, P.*, Ban, X., Bennett, K., Ji, Q., and Sun, Z.*, 2011. Signal timing estimation using sample intersection travel times. Presented at the 90th Annual Meeting of Transportation Research Board, Washington, DC.
45. Ma, R.*, and Ban, X., 2011. Realization probability of traffic user equilibria. Presented at the 90th Annual Meeting of Transportation Research Board, Washington, DC.
46. Sun, Z.*, and 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.
47. Hao, P.*, and 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.
48. Ban, X., 2010. Link-Node Complementarity Model and Solution Algorithm for Dynamic User Equilibrium, INFORMS Annual Meeting, Austin, TX.
49. Ban, X., 2010. Delay Pattern Estimation for Signalized Intersections Using Sample Travel Times, INFORMS Annual Meeting, Austin, TX.
50. 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.
51. Ban, X. (speaker), and 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.
52. Yushimito, W.F.*, Ban, X. (speaker), and 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.
53. Ban, X. (speaker), Ma, R., 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.
54. Ban, X. (speaker), Ferris, M.C., Tang, L., 2010 Risk-neutral second best toll pricing. Presented at the 89th Annual Meeting of Transportation Research Board.

55. Ban, X. (speaker), and Ma, R., 2009. Realization probability of user equilibria and implications to congestion pricing. Presented at INFORMS, San Diego, CA.
56. Ban, X. (speaker), Lu, S., Ferris, M.C., and Liu, H., 2009. Risk averse second best toll pricing. Presented at the 18th International Symposium on Transportation and Traffic Theory, Hong Kong, China.
57. Ban, X. (speaker), Ferris, M.C., Tang, L., 2009. Risk-neutral second best toll pricing. Presented at the 20th International Symposium on Mathematical Programming, Chicago, August 2009.
58. Ban, X. (speaker), Alexandre Bayen, Ryan Herring, JD Margulici, 2008. A Dynamic Programming Model for Optimal Sensor Placement for Providing Travel Times. Presented at INFORMS Annual Meeting, Washington, DC.
59. Ban, X., 2008. A Link-node Complementarity DUE Model with Departure Time Choice. Presented at INFORMS Annual Meeting, Washington, DC.
60. Ban, X. (speaker), Ferris, M.C., and Tang, L., 2008. Risk-neutral Second Best Toll Pricing. Presented at INFORMS Annual Meeting, Washington, DC.
61. Ban, X. (speaker), and Lu, S., 2007. Risk taking behaviors in second best toll pricing. Presented at the 86th Transportation Research Board Annual Meeting.
62. Ban, X. (speaker), Herring, R., Margulici, J.D., and Alex Bayen, 2007. Optimal sensor locations for providing freeway travel times. Presented at INFORMS Annual Meeting, Seattle, WA.
63. Ban, X. (speaker), and Lu, S., 2007. Considering risk taking behaviors in second best toll pricing. Presented at INFORMS Annual Meeting, Seattle, WA.
64. Ban, X. (speaker), and Liu, H., 2007. A link-node discrete-time dynamic second best toll pricing model with a relaxation solution algorithm. Presented at INFORMS Annual Meeting, Seattle, WA.
65. Ban, X. (speaker), 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.
66. 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.
67. Ban, X. (speaker), Alkadri, M., Mikkelsen, P., and Benouar, H., 2007. Promoting ITS Deployment via ITS Decision Website, Presented at the ITS America Annual Meeting, Palm Spring, CA, 2007.
68. Ban, X., 2007. Systematic Performance Evaluation of Travel Time Calculation Methods, Presented at the ITS America Annual Meeting, Palm Spring, CA, 2007.
69. Ban, X. (speaker), Liu, H., Ferris, M.C., and Ran, B., 2005. A link-based quasi-VI formulation and solution algorithm for dynamic user equilibria. Presented at INFORMS, San Francisco, CA.
70. Ferris, M.C., Liu, H., and Ban, X. (speaker), 2005. Solving asymmetric user equilibrium by decomposition and synchronization schemes. Presented at INFORMS, San Francisco, CA.
71. Ban, X., 2005. An MPCC model for continuous network design problem with asymmetric user equilibrium. Presented at 12th ITS World Congress, San Francisco, CA.
72. Ban, X., 2005. Using the temporal difference learning method in multi-step freeway speed prediction. Presented at 12th ITS World Congress, San Francisco, CA.
73. Ban, X. (speaker), Ferris, M.C., and 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.
74. Ban, X. (speaker), Liu, H., and Ran, B., 2004. Quasi-variational inequality formulation for the network user equilibrium problem. Presented at INFORMS, Denver, Colorado.

Referee/Reviewer

Peer-reviewed Journal Articles (# updated on Mar. 21, 2017)

Transportation	1
Transportation Science	10
Transportation Research, Part B	>50
Transportation Research, Part C	42
Transportation Research, Part D	4
Transportation Research, Part E	2
IEEE Transactions on Intelligent Transportation Systems	10
Journal of Intelligent Transportation Systems	11
Journal of Transportation Engineering	10
Advanced Transportation	5
Mathematical Programming	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
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 (2009-2017)
- Transportation Research Board Annual Meetings (2004 – 2017)
- 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)

Proposals

UTC Proposals	>20
NSF Panel Reviewer, CMMI program	>50
NSF Panel Reviewer, CISE program	25
NSF Panel Reviewer, ERC	9
ARPA-E	4
Singapore ASTAR	1
Swiss NSF	4

GRADUATE STUDENTS

Chaired Doctoral Degrees

Student Name	Dissertation Title	Completed (Year)	Current Employer
Wilfredo Yushimio (PhD while I was with RPI)	Mitigating Peak Congestion with Staggered Work Hours: Effects, Models, and Implications	2011	Universidad Adolfo Ibáñez, Chile
Peng Hao (PhD while I was with RPI)	Urban Arterial Real-Time Performance Measurement Using Privacy Preserving Mobile Sensors	2013	UC-Riverside

Rui Ma (PhD while I was with RPI)	Modeling and Solving Continuous-Time Dynamic User Equilibria	2013	UC-Davis
Zhanbo Sun (PhD while I was with RPI)	Transportation Modeling and Privacy Protection Using Mobile Sensors	2014	Southwest Jiaotong University, China
Xia Yang (PhD while I was with RPI)	Modeling Multimodal Transportation Network Emergency Evacuation Considering Evacuees' Cooperative Behavior	2016	RPI
Wan Li	Traffic Signal control and coordination under connected vehicle environment	2018 (expected)	
Nazib Siddique	Transportation big data and privacy protection	2019 (expected)	
Jingxing Wang	TBD	2020 (expected)	
Rong Fan	TBD	2020 (expected)	
Qiangqiang Guo	TBD	2021 (expected)	

Chaired Masters Degrees

Student Name	Level of Supervision ("thesis," "project" or "coursework only")	Thesis/Paper Title (if applicable)	Completed (Year)	Current Employer
Coral Torres	Thesis	<i>Assessment of Tradeoffs Among Multiple Vehicle Classes for Urban Deliveries</i>	2009	FHWA-USDOT
Michael Kowalczyk	Thesis	<i>Experimental Validation of Mobile Sensors as Traffic Probes on Arterial Streets with Traffic Simulation of the Existing Network</i>	2010	FHWA-USDOT
Eric Richardson	Thesis	<i>Defining and Evaluating Freight Performance Metrics Using GPS Data</i>	2013	AgileAssets Inc.
Jeffrey Powers	Project	<i>Safety of Cascade Bicycle Club Free Group Rides program</i>	2017	
Jessica Kim	Project	<i>WorkFlex: a study of workplace schedule flexibility practices in the Puget Sound, Washington</i>	2017	WSDOT

Other significant student supervision (serving as a committee member)

Ph.D committees

- Mike Silas, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), June, 2009
- Ruth Murrugarra, Ph.D. dissertation committee, Department of Industrial and Systems Engineering (ISE), RPI (Advisor: Al Wallace), 2011
- Miguel Jaller, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), 2011

- Noel Perez Rodriguez, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), 2011
- Bin Yu, Ph.D. dissertation committee, ISE, RPI (Advisor: John Mitchell), 2011
- Jianming Qiu, Ph.D. dissertation committee, ISE, RPI (Advisor: Tom Sharky), July, 2012
- Lijie Bai, Department of Mathematical Sciences, RPI (Advisor: John Mitchell), May, 2013
- Bin Zan, Department of Electrical and Computer Engineering, Rutgers University (Advisor: Marco Gruteser), May, 2013
- Carlos Gonzalez, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), May 2014
- Ivan Sanchez, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), May 2014
- Felipe Aros Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), August 2014
- Yiwei Zhou, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Cara Wang), May 2015
- Dapeng Zhang, Ph.D. dissertation committee, CEE, RPI (Advisor: Cara Wang), May 2016
- Johanna Amaya, Ph.D. dissertation committee, CEE, RPI (Advisor: Jose Holguin-Veras), May 2016
- Robyn Marquis, Ph.D. dissertation committee, CEE, RPI (Advisor: Cara Wang), May 2016
- Chase Dowling, PhD dissertation committee (EE), UW, (Advisor: Baosheng Zhang), Spring 2018 (expected)

MS thesis committees (list does not include the many non-thesis MS students for whom I serve as the advisor or serve on committees))

- 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).

Undergraduate research supervision (incomplete list)

Name	Project Title	Semester
Merhawi Habte	Traffic data analysis	Spring 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
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

RESEARCH ACTIVITIES

Funded Research (as PI)

Total funding as PI: \$2.7 m; my amount: \$2.0 m

Funding Agency	Title	Total Amount (in K)	Your Amount (in K)	Your Role, Other Pi's co-Pi's	Dates (start-finish)
NSF	Collaborative Research: Transportation network identification - Information Fusion via Stochastic Optimization	\$144.5	\$144.5	PI (single PI grant)	7/1/2015-6/30/2018
NYU/USDOT	Connected Cities for Smart Mobility Transportation Center (Tier 1)	\$1,000	\$500	PI	12/2016-12/2021
NSF	CAREER: Using Mobile Sensors for Traffic Knowledge Extraction and Dynamic Network Management	\$412	\$412	PI (single PI grant)	5/1/2011-4/30/2018
UTRC2/USDOT	Developing A Macroscopic Decision Making Tool for Emergency Evacuation Planning	\$80	\$52	PI	7/1/2015-6/30/2017
NYSERDA/ NYSDOT	Decision-Making Tool for Applying Adaptive Traffic Control Systems	\$75	\$63.75	PI	7/1/2013-6/30/2015
NITC	Measuring the Impacts of Social Media on Advancing Public Transit, Portland State University	\$30	\$18	PI	11/08-6/11
UTRC2/USDOT	Investigating the Network Effects of Mileage Fee,	\$80	\$80	PI (single PI grant)	3/1/2014-2/28/2015
NYSDOT	Adaptive Traffic Signal Control System (ACS-Lite) for Wolf Road, Albany, NY	\$300	\$210	PI	1/1/2012-9/30/2014
NSF	Collaborative Research: Mobile Sensors as Traffic Probes – Addressing Transportation	\$177	\$177	PI (single PI grant)	9/1/2010-8/31/2014

	Modeling and Privacy Protection in an Integrated Framework				
NSF	BECS Collaborative Research: Modeling the Dynamics of Traffic User Equilibria Using Differential Variational Inequalities I	\$100	\$100	PI (single PI grant)	9/1/2010-8/31/2014
NYSDOT	Development of A Decision-Making Tool for Corridor Based Transportation Management	\$27	\$27	PI	7/15/2010-12/31/2012
UTRC2/USDOT	Vehicle Classification Using Mobile Sensors	\$50	\$45	PI	7/1/2011-6/30/2012
UC-Berkeley / Caltrans	Technical Evaluation of Microscopic Traffic Simulation in Corridor System Management Plan	\$48	\$48	PI (single PI grant)	7/1/2010 – 2/28/2012
RPI Seed Fund	Traffic Crowdsourcing Using Mobile Sensors	\$40	\$28	PI	1/1/2010-6/30/2011
UTRC2/USDOT	Risk Neutral Second Best Toll Pricing	\$5	\$5	PI (single PI grant)	1/1/2009-12/31/2009
Old Dominion University / Caltrans	Development of Expert Systems for the ITS Decision Website	\$30	\$30	PI (single PI grant)	9/1/2008-2/28/2010
UC-Berkeley / Caltrans	Intersection Delay Pattern Estimation Using Privacy-Preservation GPS-equipped Cellular Phones	\$75	\$75	PI (single PI grant)	10/1/2008-08/31/2009

Funded Research (as co-PI)

Total funding as co-PI: \$7.7 m; my amount: \$1.0 m

Funding Agency	Title	Total Amount (in K)	Your Amount (in K)	Your Role, Other Pi's co-Pi's	Dates (start-finish)
NSF	SCC-RCN:MOHERE: Mobility, Health, and Resilience in SCC: Building Capacities and Expanding Impact	\$500	??	Co-PI (PI: Radha Poovendran)	2017-2020
FHWA/RSG	Bridging Data Gaps: A TMIP Series on Understanding Origin-Destination Trip Data	\$182	\$91	Co-PI (PI: Cynthia Chen)	6/1/2017-10/31/2017
USDTO/U of Buffalo	Transportation Informatics University Transportation Center (TransInfo UTC),	\$433	\$216.5	Co-PI (PI: Jose Holguin-Veras)	9/30/2013-9/30/2018
Volvo Research and Educational Foundation	Center of Excellence on Sustainable Urban Freight Systems	\$4,000	\$240	Co-PI (PI: Jose Holguin-Veras)	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 as Incidents and Planned Special Events	\$82.5	\$41.25	Co-PI (PI: Al Wallace)	12/1/2013-11/30/2014

U.S. DOT	Integrative Freight Demand Management in the New York City	\$1,536	\$230.4	Co-PI (PI: Jose Holguin-Veras)	7/1/2011-9/30/2013
NSF	Pan-American Advanced Studies Institute on Sustainable Urban Freight System	\$100	\$15	Co-PI (PI: Jose Holguin-Veras)	1/1/2013-12/31/2014
NCFRP	Freight Transportation Cost Data Element	\$300	\$75	Co-PI (PI: Jose Holguin-Veras)	12/29/2009 - 12/31/2011
NCFRP	Freight Trip Generation and Land Use	\$250	\$62.5	Co-PI (PI: Jose Holguin-Veras)	5/1/2010-12/31/2011
NYSDOT	Using Lighting to Alter Driver Behavior	\$210	\$25	Co-PI (PI: John Bullough)	9/1/2009-12/31/2010
NYMTAC	Feasibility Study for Freight Data Collection	\$100	\$25	Co-PI (PI: Jose Holguin-Veras)	10/1/2008-03/31/2009

DOCUMENTATION OF TEACHING EFFECTIVENESS

(University of Washington)

Documentation of teaching effectiveness comprises at least four measures: student evaluations, peer evaluations, self evaluation, and evaluation by expert professionals, e.g. CELT and CIDR.

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)

University of Washington (9/2009-present)

Course	Title	Quarter	Credit Hrs	Enrollment	Evaluations? Response	Q 1	Q2	Q3	Q4
CEE327	Transportation Engineering	Winter 2017	5	70	Yes, 54/70	3.5	3.3	3.7	3.5
CEE599	Transportation Network Analysis	Spring 2017	3	13	Yes, 12/13	4.3	4.1	4.7	4.8
CEE327	Transportation Engineering	Winter 2018	5						

Rensselaer Polytechnic Institute (2008-2016)

Semester	Course #	Course Name (number of students)	Overall excellence of teacher* (out of 5.0)	Overall excellence of course* (out of 5.0)
Fall 2008	CIVL 4660	Traffic Engineering (18 students)	4.9 (4.7)	4.7 (4.3)
Spring 2009	CIVL 4570	Analytical Methods in Civil Engineering Systems (20 students)	4.5 (4.4)	3.9 (3.7)
Fall 2009	CIVL 6270	Traffic Control and Simulation (14 students)	4.6 (4.2)	4.8 (4.1)

Spring 2010	CIVL 4660	Traffic Engineering (22 students)	4.6 (4.3)	4.5 (4.0)
Fall 2010	CIVL 6260	Transportation Network Analysis (9 students)	4.7 (4.4)	4.7 (4.4)
Spring 2011	CIVL 4660	Traffic Engineering (24 students)	4.6 (4.3)	4.6 (4.0)
Fall 2011	CIVL 2030	Introduction to Transportation Engineering (73 students)	3.61	3.51
Spring 2012	Parental leave			
Fall 2012	CIVL 2030	Introduction to Transportation Engineering (63 students)	3.97 (4.03)	4.03 (4.11)
Spring 2013	CIVL 6260	Transportation Network Analysis (7 students)	4.00 (4.00)	3.86 (4.00)
Spring 2013	CIVL 6270	Traffic Control and Simulation (7 students)	4.57 (4.62)	4.57 (4.62)
Fall 2013	CIVL 2030	Introduction to Transportation Engineering (73 students)	3.69	3.91
Spring 2014	CIVL 4660	Traffic Engineering (9 students)	4.33	4.33
Spring 2014	CIVL 6260	Transportation Network Analysis (3 students)	5.0	5.0
Fall 2014	CIVL 6280	Dynamic Transportation Models (6 students)	5.0	5.0
Spring 2015	CIVL 4660	Traffic Engineering (17 students)	3.75	3.25
Fall 2015	Sabbatical leave			
Spring 2016	CIVL 4660	Traffic Engineering (10 students)	4.25	4.5
Spring 2016	CIVL 6260	Transportation Network Analysis (9 students)	4.8	4.8

* Numbers in parenthesis are scores after adjustment (or the median)

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

Departmental/College-level service

At University of Washington

2016-present	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 of Education, C2SMART Tier 1 UTC (led by New York University)

At Rensselaer Polytechnic Institute

2012-2016	Institute Judicial Review Board
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

Professional society and other service

1. Editorial activities

Associate Editors

2017-present	Transportation Research Part C; 2016 Impact Factor: 3.075
2016-present	IEEE Transactions on Intelligent Transportation Systems; 2015 Impact Factor: 2.377
2014-present	Journal of Intelligent Transportation Systems; 2012 Impact Factor: 1.841

Editorial Board Member

2014-present	Transportation Research Part B: Methodological; 2016 Impact Factor:
2015-2017	Transportation Research Part C: Emerging Technologies; 2016 Impact Factor: 3.075
2011-present	Networks and Spatial Economics; 2012 Impact Factor: 1.226
2012-present	Transportmetrica B: Transport Dynamics; 2016 Impact Factor:
2013-present	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

April 2017-Present	Chair of Network Equilibrium Subcommittee, Transportation Network Modeling Committee, (AHB30), Transportation Research Board (TRB), National Research Council
2012-present	Member of Vehicle-Highway Automation Committee (AHB30), Transportation Research Board (TRB), National Research Council
2013-present	Member of Transportation Network Modeling Committee (ADB30), Transportation Research Board (TRB), National Research Council
2012-2013	Chair of the <i>Cluster</i> of ITS SIG (Special Interest Group) of the Transportation Science and Logistics (TSL) <i>Society</i>
2010-2011	<i>Elected Vice Chair</i> of the <i>Cluster</i> of ITS SIG (Special Interest Group) of the Transportation Science and Logistics (TSL) <i>Society</i>

3. Conference activities (incomplete list)

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

- 2011 – 2016 Board Member of ITS-NY and Member of its Education Committee
- 2010 – 2014 Member of NYSDOT GreenLITES Academic Advisory Committee