

# Yu (Marco) Nie

## Curriculum Vitae

December 2021

Address: Department of Civil and Environmental Engineering, Northwestern University, Evanston, Illinois 60208, USA.

Phone: +1 847-467-0502

Email: y-nie@northwestern.edu

WWW: <http://www.mccormick.northwestern.edu/research-faculty/directory/profiles/nie-yu.html>

## Appointments

2017 - present	Professor	Civil and Environmental Engineering, Northwestern University, affiliated with Northwestern University Transportation Center
2012 - 2017	Associate Professor	Civil and Environmental Engineering, Northwestern University, affiliated with Northwestern University Transportation Center
2015 - present	Visiting Adjunct Professor	School of Transportation and Logistics, Southwestern Jiaotong University, Chengdu, China
2006 - 2012	Assistant Professor	Civil and Environmental Engineering, Northwestern University, affiliated with Northwestern University Transportation Center

## Education and Qualifications

1999	B.Sc.(Hons)	Tsinghua University	Civil Engineering
2001	M.Eng.	National University of Singapore	Civil and Environmental Engineering
2006	Ph.D.	University of California, Davis	Civil and Environmental Engineering

## Honors and Awards

2021	Meritorious Service Award	Transportation Science
2019	Best Paper Award	Transportation Research Part C
2018	Stella Dafermos Best Paper Award	TRB Transportation Network Modeling Committee
2006 -2009	Louis Berger Junior Chair	Northwestern University
2007-2008	Searle Junior Faculty Fellow	Northwestern University
2003-2004	John Muir Fellowship	University of California, Davis
1999	Outstanding Student Award	Tsinghua University
1998	United Technology RongHong Scholarship	Tsinghua University

## Publications

By December 2021, I have authored or co-authored 111 articles in peer-reviewed journals, including 37 in *Transportation Research Part B* and 8 in *Transportation Science*. My H-Index is 32 according to Scopus<sup>1</sup> and 39 according to Google Scholar.

## Refereed articles

1. Lu, G., Z. Shen, X. Liu, Y. M. Nie, and Z. Xiong (2022). Are autonomous vehicles better off without signals at intersections? A comparative computational study. *Transportation Research Part B* **155**, 26–46.
2. Farahani, H. R., A. A. Rassafi, K. Zhang, and Y. M. Nie (2021). A multi-hop control scheme for traffic management. *Transportation Research Part C: Emerging Technologies* **130**, 103278.
3. Li, R., Y. M. Nie, and X. Liu (2021). Auction-based permit allocation and sharing system (A-PASS) for travel demand management. *Transportation Science* **in press**.
4. Nie, Y. M. and R. Li (2021). Potential of carpool for network traffic management. *International Journal of Transportation Science and Technology* **Available on-line**.

<sup>1</sup><https://www.scopus.com/authid/detail.uri?authorId=23568634300>

5. Wang, Y., R. Jiang, Y. Nie, and Z. Gao (2021). Impact of information on topology-induced traffic oscillations. *Transportation science* **55**(2), 475–490.
6. Wu, Z., Y. Li, X. Wang, J. Su, L. Yang, Y. Nie, and Y. Wang (2021). Mining Factors Affecting Taxi Detour Behavior From GPS Traces at Directional Road Segment Level. *IEEE Transactions on Intelligent Transportation Systems* **In press**.
7. Xu, Z., J. Xie, X. Liu, and Y. M. Nie (2021). Hyperbush Algorithm for Strategy based Equilibrium Traffic Assignment Problems. *Transportation Science* **In press**.
8. Zhang, K. and Y. Nie (2021a). Inter-platform competition in a regulated ride-hail market with pooling. *Transportation Research Part E* **151**(102327).
9. Zhang, K. and Y. Nie (2021b). To pool or not to pool: Equilibrium, pricing and regulation. *Transportation Research Part B* **151**, 59–90.
10. Zheng, H., K. Zhang, and M. Nie (2021). Plunge and Rebound of a Taxi Market Through COVID-19 Lockdown: Lessons Learned From Shenzhen, China. *Transportation Research Part A: Policy and Practice* **150**, 349–366.
11. Feng, L., J. Xie, Y. Nie, and X. Liu (2020). Efficient Algorithm for the Traffic Assignment Problem with Side Constraints. *Transportation Research Record* **2674**(4), 129–139.
12. Li, R., Y. M. Nie, and X. Liu (2020). Pricing carpool rides based on schedule displacement. *Transportation Science* **54**(4), 1134–1152.
13. Liu, X., G. Lu, F. Zheng, R. Li, P. Cao, Y. Kong, and Y. Nie (2020). Coordinated management and control of autonomous traffic systems. *Kexue Tongbao/Chinese Science Bulletin* **65**(6), 434–441.
14. Luo, S. and Y. Nie (2020a). On the role of route choice modeling in transit sketchy design. *Transportation Research Part A: Policy and Practice* **136**, 223–243.
15. Luo, S. and Y. Nie (2020b). Paired-line hybrid transit design considering spatial heterogeneity. *Transportation Research Part B: Methodological* **132**, 320–339.
16. Miller, J. and Y. Nie (2020). Dynamic trucking equilibrium through a freight exchange. *Transportation Research Part C: Emerging Technologies* **113**, 193–212.
17. Miller, J., Y. M. Nie, and X. Liu (2020). Hyperpath Truck Routing in an Online Freight Exchange Platform. *Transportation Science* **54**(6), 1676–1696.
18. Ren, T., H.-J. Huang, T.-L. Liu, and Y. Nie (2020). Some analytical results on spatial price differentiation in first-best congestion pricing schemes. *Transportation Research Part C: Emerging Technologies* **114**, 425–445.
19. Wang, Y., R. Jiang, Y. M. Nie, and Z. Gao (2020). Impact of Information on Topology-Induced Traffic Oscillations. *Transportation Science* **Accepted**.
20. Wu, Z., J. Xie, Y. M. Nie, and Y. Wang (2020). Map Matching based on Multi-layer Road Index. *Transportation Research Part C* **118**, 102651.
21. Xu, Z., J. Xie, X. Liu, and Y. Nie (2020a). Hyperpath-based algorithms for the transit equilibrium assignment problem. *Transportation Research Part E* **143**, 102102.
22. Xu, Z., J. Xie, X. Liu, and Y. M. Nie (2020b). Quantifying the competitiveness of transit relative to taxi with multifaceted data. *Transportmetrica A: Transport Science* **in press**.
23. Zheng, S., Y.-E. Ge, X. Fu, Y. (Marco) Nie, and C. Xie (2020). Demand information sharing in port concession arrangements. *Transportation Research Part B: Methodological* **138**, 118–143.
24. Zhong, L., K. Zhang, Y. (Marco) Nie, and J. Xu (2020). Dynamic carpool in morning commute: Role of high-occupancy-vehicle (HOV) and high-occupancy-toll (HOT) lanes. *Transportation Research Part B: Methodological* **135**, 98–119.
25. Gan, M., Y. M. Nie, X. Liu, and D. Zhu (2019). Whereabouts of Truckers: An Empirical Study of Predictability. *Transportation Research Part C* **104**, 184–195.
26. Lu, G., Y. M. Nie, X. Liu, and D. Li (2019). Trajectory-based Traffic Management Inside an Autonomous Vehicle Zone. *Transportation Research Part B* **120**, 76–98.
27. Luo, S. and Y. M. Nie (2019a). Paired-line hybrid transit system in a monocentric city with exponential demand pattern. *Transportation Research Record* **2673**(9), 614–626.

28. Luo, S. and Y. M. Nie (2019b). The impact of ride-pooling on the nature of mass transit dimpact. *Transportation Research Part B* **129**, 175–192.
29. Luo, S., Y. M. Nie, and L. Zhu (2019). Intersection operation with nontraditional dynamic lane scheme through vehicle-to-signal connection. *Transportation Research Record* **2673**(8), 322–332.
30. Wei, X., S. Luo, and Y. M. Nie (2019). Diffusion behavior in a docked bike-sharing system. *Transportation Research Part C* **107**, 510–524.
31. Xiao, F., G. Kou, W. Tu, Y. M. Nie, and J. Long (2019). Promoting Social Equity with Cyclic Tradable Credits. *Transportation Research Part B* **121**, 56–73.
32. Xie, J. and Y. M. Nie (2019). A New Algorithm for Achieving Proportionality in User Equilibrium Traffic Assignment. *Transportation Science* **53**(2), 566–584.
33. Zarrinmehr, A., H. Z. Aashtiani, Y. M. Nie, and H. Azizian (2019). Complementarity formulation and solution algorithm for auto-transit assignment problem. *Transportation Research Record* **2673**(4), 384–397.
34. Zhang, K., Y. Chen, and Y. M. Nie (2019). "Hunting Image": Taxi Search Strategies Recognition Using Sparse Subspace Clustering. *Transportation Research Part C* **109**, 250–266.
35. Chen, P. and Y. M. Nie (2018). Optimal Design of Demand Adaptive Paired-Line Hybrid Transit: Case of Radial Route Structure. *Transportation Research Part E* **110**, 71–89.
36. Li, R., X. Liu, and Y. M. Nie (2018). Managing Partially Automated Network Traffic Flow: Efficiency vs. Stability. *Transportation Research Part B* **114**, 300–324.
37. Xie, J., Y. M. Nie, and X. Liu (2018). A greedy path-based algorithm for traffic assignment. *Journal of Transportation Research Board* **2672**(48), 36–44.
38. Zhang, K. and Y. M. Nie (2018). Mitigating the impact of selfish routing: An optimal-ratio control scheme (ORCS) inspired by autonomous driving. *Transportation Research Part C* **87**, 75–90.
39. Chen, P. and Y. M. Nie (2017a). Analysis of an Idealized System of Demand Adaptive Paired-Line Hybrid Transit. *Transportation Research Part B* **102**, 38–54.
40. Chen, P. and Y. M. Nie (2017b). Connecting E-Hailing to Mass Transit Platform: Analysis of Relative Spatial Position. *Transportation Research Part C* **77**, 444–461.
41. Liu, Y. and Y. M. Nie (2017). A credit-based congestion management scheme in general two-modes networks with multiclass users. *Networks and Spatial Economics* **17**, 681–711.
42. Ma, H., H. Lu, A. Stathopoulos, and Y. M. Nie (2017). Characterization of Trip-level Pace Variability based on Taxi GPS Trajectory Data. *Journal of Transportatoin Research Board* **2667**, 51–60.
43. Miller, J., A. Stathopoulos, and Y. M. Nie (2017). Crowdsourced Urban Package Delivery: modelling traveler Willingness to Work as Crowdshippers. *Journal of Transportatoin Research Board* **2610**, 67–75.
44. Nie, Y. M. (2017a). How can the Taxi Industry Survive the Tide of Ridesourcing? Evidence from China. *Transportation Research Part C* **79**, 242–256.
45. Nie, Y. M. (2017b). On the Potential Remedies for License Plate Rationing. *Economics of Transportation* **9**, 37–50.
46. Nie, Y. M. (2017c). Why is License Plate Rationing not a Good Transport Policy? *Transportmetrica A* **13**(1), 1–23.
47. Xie, J., Y. M. Nie, and X. Liu (2017). Testing the Proportionality Condition with Taxi Trajectory Data. *Transportation Research Part B* **104**, 583–601.
48. Zheng, S., Y.-E. Ge, X. Fu, Y. M. Nie, and C. Xie (2017). Modeling Collusion-proof Port Emission Regulation of Cargo-handling Activities under Incomplete Information. *Transportation Research Part B* **104**, 543–567.
49. Ghamami, M., Y. M. Nie, and A. Zockaie (2016). Planning Plug-in Electrical Vehicles Charging Infrastructure in City Centers. *Journal of Sustainable Transportation* **10**, 343–353.
50. Ghamami, M., A. Zockaie, and Y. M. Nie (2016). A General Corridor Model for Designing Plug-in Electric Vehicle Charging Infrastructure to Support Intercity Travel, *Transportation Research Part C* **68**, 389–402.

51. Li, Q., Y. M. Nie, S. Vallamsundar, J. Lin, and T. Homem-de Mello (2016). Finding Efficient and environmentally friendly paths for risk-averse freight carriers. *Networks and Spatial Economics* **16**(1), 255–275.
52. Nie, Y. M., M. Ghamami, A. Zockaie, and F. Xiao (2016). Optimization of incentive policies for plug-in electric vehicles. *Transportation Research Part B: Methodological* **84**, 103–123.
53. Zarrinmehr, A., M. Saffarzadeh, S. Seyedabrishami, and Y. M. Nie (2016). A path-based greedy algorithm for multi-objective transit routes design with elastic demand. *Journal of Public Transport* **8**, 261–293.
54. Zockaie, A., H. Z. Aashtiani, M. Ghamami, and Y. M. Nie (2016). Solving Detour-Based Fuel Stations Location Problems. *Computer-Aided Civil and Infrastructure Engineering* **31**(2), 132–144.
55. Zockaie, A., H. S. Mahmassani, and Y. M. Nie (2016b). Path Finding in Stochastic Time Varying Networks with Spatial and Temporal Correlations for Heterogeneous Travelers. *Journal of Transportation Research Board*, **2567**, 105–113.
56. Chen, H., Y. Liu, and Y. M. Nie (2015). Solving the step-tolled bottleneck model with general user heterogeneity. *Transportation Research Part B: Methodological* **81**, 210–229.
57. Chen, H., Y. M. Nie, and Y. Yin (2015). Optimal multi-step toll design under general user heterogeneity. *Transportation Research Part B: Methodological* **81**, 775–793.
58. Chen, P. W. and Y. M. Nie (2015a). Optimal transit routing with partial online information. *Transportation Research Part B: Methodological* **72**, 40–58.
59. Chen, P. W. and Y. M. Nie (2015b). Stochastic optimal path problem with relays. *Transportation Research Part C: Emerging Technologies* **59**, 48–65.
60. Li, Q., P. W. Chen, and Y. M. Nie (2015). Finding optimal hyperpaths in large transit networks with realistic headway distributions. *European Journal of Operational Research* **240**(1), 98–108.
61. Li, Q., J. Ma, M. Ghamami, and Y. Nie (2015). Urban Travel Time Reliability Analysis with Consumer GPS Data. *Transportation Research Record: Journal of the Transportation Research Board* **2497**, 73–83.
62. Liu, Y., Y. M. Nie, and J. Hall (2015). A semi-analytical approach for solving the bottleneck model with general user heterogeneity. *Transportation Research Part B: Methodological* **71**, 56–70.
63. Nie, Y. M. (2015). A new tradable credit scheme for the morning commute problem. *Networks and Spatial Economics* **15**(3), 719–741.
64. Zhao, T., Y. M. Nie, and Y. Zhang (2014). Extended spectral envelope method for detecting and analyzing traffic oscillations. *Transportation Research Part B: Methodological* **61**, 1–16.
65. Zockaie, A., Y. Nie, and H. Mahmassani (2014a). Simulation-Based Method for Finding Minimum Travel Time Budget Paths in Stochastic Networks with Correlated Link Times. *Transportation Research Record: Journal of the Transportation Research Board* (2467), 140–148.
66. Chen, P. and Y. M. Nie (2013). Bicriterion shortest path problem with a general nonadditive cost. *Transportation Research Part B: Methodological* **57**, 419–435.
67. He, F., Y. Yin, N. Shirmohammadi, and Y. M. Nie (2013). Tradable credit schemes on networks with mixed equilibrium behaviors. *Transportation Research Part B: Methodological* **57**, 47–65.
68. Nie, Y. M. and M. Ghamami (2013). A corridor-centric approach to planning electric vehicle charging infrastructure. *Transportation Research Part B: Methodological* **57**, 172–190.
69. Nie, Y. M. and Q. Li (2013). An eco-routing model considering microscopic vehicle operating conditions. *Transportation Research Part B: Methodological* **55**, 154–170.
70. Nie, Y. M. and Y. Yin (2013). Managing rush hour travel choices with tradable credit scheme. *Transportation Research Part B: Methodological* **50**, 1–19.
71. Shirmohammadi, N., M. Zangui, Y. Yin, and Y. Nie (2013). Analysis and design of tradable credit schemes under uncertainty. *Transportation Research Record: Journal of the Transportation Research Board* **2333**, 27–36.

72. Wu, X. and Y. Nie (2013). Solving the Multiclass Percentile User Equilibrium Traffic Assignment Problem: A Computational Study. *Transportation Research Record: Journal of the Transportation Research Board* (2334), 75–83.
73. Xie, J., Y. M. Nie, and X. Yang (2013). Quadratic approximation and convergence of some bush-based algorithms for the traffic assignment problem. *Transportation Research Part B: Methodological* **56**, 15–30.
74. Zhang, H., Y. Nie, and Z. Qian (2013). Modelling network flow with and without link interactions: the cases of point queue, spatial queue and cell transmission model. *Transportmetrica B: Transport Dynamics* **1**(1), 33–51.
75. Zockaie, A., Y. Nie, X. Wu, and H. Mahmassani (2013). Impacts of Correlations on Reliable Shortest Path Finding: A Simulation-Based Study. *Transportation Research Record: Journal of the Transportation Research Board* **2334**, 1–9.
76. Bar-Gera, H., D. Boyce, and Y. M. Nie (2012). User-equilibrium route flows and the condition of proportionality. *Transportation Research Part B: Methodological* **46**(3), 440–462.
77. Kumar, A., S. Peeta, and Y. Nie (2012). Update Strategies for Restricted Master Problems for User Equilibrium Traffic Assignment Problem: Computational Study. *Transportation Research Record: Journal of the Transportation Research Board* **2283**, 131–142.
78. Liu, Y. and Y. Nie (2012). Welfare Effects of Congestion Pricing and Transit Services in Multiclass Multimodal Networks. *Transportation Research Record: Journal of the Transportation Research Board* **2283**, 34–43.
79. Nie, Y. M. (2012a). A Note on Bar-Gera's Algorithm for the Origin-Based Traffic Assignment Problem. *Transportation Science* **46**(1), 27–38.
80. Nie, Y. M. (2012b). Transaction costs and tradable mobility credits. *Transportation Research Part B: Methodological* **46**(1), 189–203.
81. Nie, Y. M., X. Wu, J. F. Dillenburg, and P. C. Nelson (2012b). Reliable route guidance: A case study from Chicago. *Transportation Research Part A: Policy and Practice* **46**(2), 403–419.
82. Nie, Y. M., X. Wu, and T. Homem-de Mello (2012). Optimal path problems with second-order stochastic dominance constraints. *Networks and Spatial Economics* **12**, 561–587.
83. Liu, Y. and Y. M. Nie (2011). Morning commute problem considering route choice, user heterogeneity and alternative system optima. *Transportation Research Part B: Methodological* **45**(4), 619–642.
84. Nie, Y. M. (2011a). A cell-based Merchant-Nemhauser model for the system optimum dynamic traffic assignment problem. *Transportation Research Part B: Methodological* **45**(2), 329–342.
85. Nie, Y. M. (2011b). Multi-class percentile user equilibrium with flow-dependent stochasticity. *Transportation Research Part B: Methodological* **45**(10), 1641–1659.
86. Wu, X. and Y. Nie (2011). Application of discrete Fourier transform to find reliable shortest paths. *Transportation Research Record: Journal of the Transportation Research Board* **2263**, 82–91.
87. Wu, X., Y. Nie, et al. (2011). Modeling heterogeneous risk-taking behavior in route choice: A stochastic dominance approach. *Transportation Research-Part A Policy and Practice* **45**(9), 896–915.
88. Lu, S. and Y. M. Nie (2010). Stability of user-equilibrium route flow solutions for the traffic assignment problem. *Transportation Research Part B: Methodological* **44**(4), 609–617.
89. Nie, Y. M. (2010a). A class of bush-based algorithms for the traffic assignment problem. *Transportation Research Part B: Methodological* **44**(1), 73–89.
90. Nie, Y. M. (2010b). Equilibrium analysis of macroscopic traffic oscillations. *Transportation Research Part B: Methodological* **44**(1), 62–72.
91. Nie, Y. M. and Y. Liu (2010). Existence of self-financing and Pareto-improving congestion pricing: Impact of value of time distribution. *Transportation Research Part A: Policy and Practice* **44**(1), 39–51.
92. Nie, Y. M. and H. M. Zhang (2010a). A Relaxation Approach for Estimating Origin–Destination Trip Tables. *Networks and Spatial Economics* **10**(1), 147–172.

93. Nie, Y. M. and H. M. Zhang (2010b). Solving the dynamic user optimal assignment problem considering queue spillback. *Networks and Spatial Economics* **10**(1), 49–71.
94. Nie, Y. M. and X. Wu (2009b). Shortest path problem considering on-time arrival probability. *Transportation Research Part B: Methodological* **43**(6), 597–613.
95. Nie, Y. M. and M. H. Zhang (2009). Numerical solution procedures for the morning commute problem. *Mathematical and Computer Modelling* **49**(7), 1295–1310.
96. Wu, X. and Y. M. Nie (2009). Implementation Issues for the Reliable A Priori Shortest Path Problem. *Transportation Research Record: Journal of the Transportation Research Board* **2091**, 51–60.
97. Zhang, H, J. Ma, and Y. Nie (2009). Local synchronization control scheme for congested interchange areas in freeway corridor. *Transportation Research Record: Journal of the Transportation Research Board* **2128**, 173–183.
98. Nie, Y. and H. M. Zhang (2008a). Oscillatory traffic flow patterns induced by queue spillback in a simple road network. *Transportation Science* **42**(2), 236–248.
99. Nie, Y. M., J. Ma, and H. M. Zhang (2008). A polymorphic dynamic network loading model. *Computer-Aided Civil and Infrastructure Engineering* **23**(2), 86–103.
100. Nie, Y. M. and H. M. Zhang (2008c). A variational inequality formulation for inferring dynamic origin–destination travel demands. *Transportation Research Part B: Methodological* **42**(7), 635–662.
101. Zhang, H, Y. Nie, and Z. Qian (2008). Estimating Time-Dependent Freeway Origin-Destination Demands with Different Data Coverage: Sensitivity Analysis. *Transportation Research Record: Journal of the Transportation Research Board* (2047), 91–99.
102. Bai, S., Y. Nie, and D. A. Niemeier (2007). The impact of speed post-processing methods on regional mobile emissions estimation. *Transportation Research Part D: Transport and Environment* **12**(5), 307–324.
103. Shen, W., Y. Nie, and H. Zhang (2007b). Dynamic network simplex method for designing emergency evacuation plans. *Transportation Research Record: Journal of the Transportation Research Board* **2022**, 83–93.
104. Fan, Y. and Y. Nie (2006). Optimal routing for maximizing the travel time reliability. *Networks and Spatial Economics* **6**(3), 333–344.
105. Nie, Y. and Y. Fan (2006). Arriving-on-time problem: discrete algorithm that ensures convergence. *Transportation Research Record: Journal of the Transportation Research Board* **1964**, 193–200.
106. Nie, Y., H. Zhang, and W. Recker (2005). Inferring origin-destination trip matrices with a decoupled GLS path flow estimator. *Transportation Research Part B: Methodological* **39**(6), 497–518.
107. Nie, Y., H. Zhang, and D.-H. Lee (2004). Models and algorithms for the traffic assignment problem with link capacity constraints. *Transportation Research Part B: Methodological* **38**(4), 285–312.
108. Lee, D.-H., Y. Nie, and A. Chen (2003). A conjugate gradient projection algorithm for the traffic assignment problem. *Mathematical and computer modelling* **37**(7-8), 863–878.
109. Lee, D.-H., Y. Nie, A. Chen, and Y. C. Leow (2002). Link-and Path-Based Traffic Assignment Algorithms: Computational and Statistical Study. *Transportation Research Record: Journal of the Transportation Research Board* **1783**, 80–88.
110. Nie, Y. and D.-H. Lee (2002). Uncoupled method for equilibrium-based linear path flow estimator for origin-destination trip matrices. *Transportation Research Record: Journal of the Transportation Research Board* **1783**, 72–79.
111. Lee, D.-H. and Y. Nie (2001). Accelerating strategies and computational studies of the Frank-Wolfe algorithm for the traffic assignment problem. *Transportation Research Record: Journal of the Transportation Research Board* **1771**, 97–105.

## Book chapters

1. Nie, Y. M., J. Xie, and D. Boyce (2021). “Encyclopedia of Transportation”. In: ed. by R. Vickerman. El. Chap. Full Feedback and Equilibrium Modelling in Urban Travel Forecasting.



2. Ma, J., Y. M. Nie, and H. M. Zhang (2013). “Solving the integrated corridor control problem using simultaneous perturbation stochastic approximation”. In: *Advances in Dynamic Network Modeling in Complex Transportation Systems*. Springer New York, pp.89–113.

## Papers in ISTTT proceedings <sup>2</sup>

1. Nie, Y. M. and X. Wu (2009a). Reliable a priori shortest path problem with limited spatial and temporal dependencies. *Transportation and traffic theory 2009: golden jubilee*, 169–195.
2. Shen, W., Y. Nie, and H. M. Zhang (2007a). On path marginal cost analysis and its relation to dynamic system-optimal traffic assignment. *Transportation and Traffic Theory* (p327-60).

## PhD thesis

1. Nie, Y. (2006). “A variational inequality approach for inferring dynamic origin-destination travel demands”. PhD thesis. UNIVERSITY OF CALIFORNIA DAVIS.

## Papers in conference proceedings

1. Li, J., J. Yu, Y. M. Nie, and Z. Wang (2020). End-to-end learning and intervention in games. In: *Advances in Neural Information Processing Systems*, pp.xxx–xxx.
2. Zhang, K., L. Zhong, and Y. M. Nie (2019). Corrercting Mislabeled Taxi Trajectory Occupancy Status Using Input-Output Hidden Markov Method. In: *Proceedings of 2019 Annual Meeting of Transportation Research Board*. No. 19-05030.
3. Liu, X., M Gan, and Y. M. Nie (2016). Understanding truck related greenhouse gas emissions in urban logistics networks. In: *Proceedings of 95th Annual Meeting of Transportation Research Board*. TRB.
4. Nima Shirmohammadi, Y. Y. and Y. M. Nie (2015). A Tradable Credit Scheme for Staggered Work Time. In: *Proceedings of 94th Annual Meeting of Transportation Research Board*. TRB.
5. Zhao, T., Y. Nie, X. Wu, and Y. Zhang (2014). Empirical analysis of the dependence structure in traffic data using copula function. In: *Service Operations and Logistics, and Informatics (SOLI), 2014 IEEE International Conference on*. IEEE, pp.38–42.
6. Bar-Gera, H., Y. Nie, and D. Boyce (2009). Practical implications of finding consistent route flows. *Transportation Planning Applications Conference*.
7. Ma, J., Y. Nie, and H. M. Zhang (2006). Accelerating the OD estimation process for micro simulation: an application of a logit path flow estimator in Paramics. In: *Intelligent Transportation Systems Conference, 2006. ITSC'06. IEEE*. IEEE, pp.1292–1297.
8. Shen, W., Y. Nie, and H. M. Zhang (2006). Path-based system optimal dynamic traffic assignment models: formulations and solution methods. In: *Intelligent Transportation Systems Conference, 2006. ITSC'06. IEEE*. IEEE, pp.1298–1303.
9. Zhang, H. and Y Nie (2005). Modeling network flow with and without link interaction: properties and implications. *84th annual meeting of the Transportation Research Board*.
10. Nie, Y., X. Nie, and H. Zhang (2004). The relative performance of time-dependent shortest path algorithms: a network expansion perspective. *Proceedings of the 8th International Conference on Applications of Advanced Technologies in Transportation*, 66–71.
11. Chen, A, D. Lee, and Y Nie (2000). Path and link based traffic assignment algorithms: a comprehensive computational study. *6th ASCE International Conference on Application of Advanced Technologies in Transportation Engineering, Singapore*.

## Editorials

1. Ouyang, Y., N. Geroliminis, and Y. M. Nie (2015). Optimization of urban transportation service networks. *Transportation Research Part B: Methodological* **81**, 331–332.

<sup>2</sup>Since 2011 all papers appearing in the ISTTT proceedings have also been published in Transportation Research Series.

## Technical reports

1. Nie, Y., X. Wu, Q. Li, and P. Nelson (2013). *Travel Reliability Inventory for Chicago*. Tech. rep. FHWA-ICT-13-011. Illinois Center for Transportation.
2. Hu, Y., D. Boyce, and Y. Nie (2012). *Traffic Assignment by Paired Alternative Segments: A Case Study based on an Ohio Travel Demand Model*. Tech. rep.
3. Boyce, D. E., Y. Nie, H. Bar-Gera, Y. Liu, Y. Hu, et al. (2010). *Field Test of a Method for Finding Consistent Route Flows and Multiple-Class Link Flows in Road Traffic Assignments*. Tech. rep. Transportation Center, McCormick School of Engineering and Applied Science.
4. Nie, Y., X. Wu, J. Zissman, C. Lee, and M. Haynes (2010). *Providing reliable route guidance: Phase II*. Tech. rep. Transportation Center, McCormick School of Engineering and Applied Science.
5. Nie, Y., X. Wu, P. Nelson, and J. Dillenburg (2009). *Providing reliable route guidance using Chicago data*. Tech. rep. Center for the Commercialization of Innovative Transportation Technology.
6. Zhang, M., Y. Nie, W. Shen, M. S. Lee, S. Jansuwan, P. Chootinan, S. Pravinvongvuth, A. Chen, and W. W. Recker (2008). *Development of a path flow estimator for inferring steady-state and time-dependent origin-destination trip matrices*. California PATH Program, Institute of Transportation Studies, University of California at Berkeley.
7. Zhang, M., W. Shen, Y. Nie, and J. Ma (2008). *Integrated construction zone traffic management*. California PATH Program, Institute of Transportation Studies, University of California at Berkeley.
8. Herrera, J. C., S. Amin, A. Bayen, S. Madanat, M. Zhang, Y. Nie, Z. Qian, Y. Lou, Y. Yin, and M. Li (2007). *Dynamic estimation of OD matrices for freeways and arterials*. Institute of Transportation Studies, UC Berkeley.

## Submitted papers

1. Luo, S. and Y. M. Nie (2021). Integrated design of a bus-bike system with route choice. *Transportation Research Part B* **under revision**.
2. Ren, T., H. jun Huang, S. Luo, and Y. Marco (2021). Formation and impact of intercity commuting induced by high-speed rail in Chin. *Journal of Economic Geography* **under review**.
3. Xie, J., Q. Wang, and Y. M. Nie (2021). An efficient algorithm for continuous bi-criteria traffic assignment. *Operations Research* **under review**.
4. Yang, H. and M. Nie (2021). Optimizing operational strategies for mass transit systems in response to a global pandemic. *Transportation Research A* **under revision**.
5. Zhang, K. and M. Nie (2021c). Mitigating traffic congestion induced by Transportation Network Companies: a policy analysis. *Transportation Research Part A: Policy and Practice* **under review**.
6. Zhang, K. and Y. M. Nie (2021d). Ride-hail Vehicle Routing (RIVER) as a congestion game. *Transportation Science* **under review**.
7. Zheng, H., K. Zhang, M. Nie, P. Yan, and Y. Qu (2021). How Many Are Too Many? Analyzing Dockless Bikes sharing Systems with a Parsimonious Model. *Transportation Science* **Under revision**.
8. Lu, G., Y. Nie, and X. Liu (2020). A decomposition scheme for trajectory management in a signal-free autonomous vehicle zone. *The 23rd International Symposium on Transportation and Traffic Theory* **under review**.
9. Lu, G., N. Jia, X. Liu, and Y. M. Nie (2020). Train platforming and rescheduling with flexible interlocking mechanisms: an aggregate approach. *Transportation Research Part E* **under review**.
10. Zhang, K., H. Chen, S. Yao, L. Xu, J. Ge, X. Liu, and Y. M. Nie (2019). An efficiency paradox of uberization. *Science Advances* **under review**.
11. Chen, H., K. Zhang, Y. M. Nie, and X. Liu (2018). A Physical Model of Passenger-Taxi Matching Process. *Transportation Science* **under revision**.



## Grants

As a principal investigator (PI) or a co-PI, I have acquired over \$4 million in research grants since 2008. The majority (about \$2.5 million) was awarded by National Science Foundation.

2021 - 2023	\$300,000	co-PI	<b>National Science Foundation</b> , <i>EAGER: Collaborative Research: An Autonomous Modular Vehicle Technology-based Multifaceted Mobility Service Paradigm – A Proof-of-Concept Study.</i>
2021 - 2022	\$150,000	PI	<b>National Science Foundation</b> , <i>SC&amp;C-PG: Improving health care access in marginalized communities through smart and connected technologies</i> . Leading PI
2020 - 2022	\$1,000,000	co-PI	<b>US DOT</b> , <i>Telemobility Tier-I Transportation Center.</i>
2019 - 2022	\$250,000	PI	<b>National Science Foundation</b> , <i>Rethink ride-hail: from understanding limits to reaching full potential.</i> Single PI
2017 - 2019	RMB 180,000	PI	<b>Overseas Scholar Program, National Science Foundation of China</b> , <i>O2O-based Freight Transportation Platform: Strategies for Optimal Resource Allocation.</i> Joint with Southwest Jiaotong University
2015 - 2018	\$1,000,000	PI	<b>National Science Foundation</b> , <i>PFI:BIC Smart CROwdsourced Urban Delivery (CROUD) System.</i> Joint with University of Illinois at Chicago and Roadie Inc., the share of Northwestern University is about 55%
2014 - 2015	\$110,000	co-PI	<b>National Center for Freight and Infrastructure Research and Education</b> , <i>Enabling On-line Logistics Services Auction Platform (OL-SAP): Optimal Eco-Routing Strategies.</i> Joint with University of Illinois at Chicago, the share of Northwestern University is about 50%.
2014 - 2017	\$350,000	PI	<b>National Science Foundation</b> , <i>Collaborative Research: CybeR-Enabled Demand-Interactive Transit (CREDIT) for Sustainable Transportation</i> . Joint with University of Illinois at Chicago, the share of Northwestern University is 50%
2014	\$25,000	co-PI	<b>Northwestern University</b> , <i>Evaluation and Improvement of Northwestern University Shuttle Service.</i> Joint with Hani Mahmassani.
2014-2015	\$25,000	PI	<b>Department of Energy (through Argonne National Laboratory)</b> , <i>Development of Rail Mode Energy and Emissions Characteristics in the GREET Model.</i>
2014	\$15,000	PI	<b>Institute of Sustainability and Energy at Northwestern</b> , <i>Planning Electric Vehicle Charging Infrastructure.</i>
2012-2014	\$200,000	PI	<b>National Science Foundation</b> , <i>From Pricing to Cap-and-Trade: Analysis and Design of Quantity-based Approach to Congestion Management.</i> Joint with University of Florida, the share of Northwestern University is 50%
2012-2013	\$100,000	PI	<b>Transportation Research Board</b> , <i>Urban Travel Reliability Analysis with Consumer GPS Data</i> .
2011-2012	\$25,000	PI	<b>Department of Energy (through Oak Ridge National Laboratory)</b> , <i>Data Analysis for Plug-in Electric Vehicle Studies.</i>
2011-2012	\$67,380	PI	<b>Center for Commercialization of Innovative Transportation Technology</b> , <i>Reliable Routing in Transit Network.</i>
2011 - 2013	\$169,905	co-PI	<b>National Center for Freight and Infrastructure Research and Education</b> , <i>Freight Routing for Efficient, Sustainable and Reliable Travel.</i> Joint with University of Illinois at Chicago, the share of Northwestern University is about 35%.
2010-2011	\$133,444	PI	<b>Illinois Department of Transportation</b> , <i>Develop Travel Reliability Inventory for Highway Networks.</i> Joint with University of Illinois at Chicago, the share of Northwestern University is about 65%.

2009 - 2012	\$536, 483	PI	<b>National Science Foundation</b> , <i>Toward More Reliable Mobility: Improved Decision Support Tools for Transportation Systems</i> . Joint with Hani Mahmassani.
2009 - 2010	\$62, 457	PI	<b>Center for Commercialization of Innovative Transportation Technology</b> , <i>Providing Reliable Route Guidance: Phase II</i> .
2008 - 2009	\$99, 959	PI	<b>Federal Highway Administration</b> , <i>Deployment and Field Testing of a Method for Finding Consistent Multi-class Link and Route Flows</i> . Joint with David Boyce
2008 - 2009	\$99, 941	PI	<b>Center for Commercialization of Innovative Transportation Technology</b> , <i>Providing Reliable Route Guidance Using the Gary-Chicago-Milwaukee Traveler Information System</i> . Joint with University of Illinois at Chicago, the share of Northwestern University is about 65%.

## Consultancy

1. Truck Alliance Inc., 2017 - present.
2. World Bank, 2016 - present.
3. World Resource Institute, 2015.

## Talks and Presentations

### Invited talks

1. Department of Civil and Environmental Engineering, University of Michigan, October, 2021, Are autonomous vehicles better off without signals at intersections? A comparative computational study, Zoom Lecture.
2. School of Transportation and Logistics, Southwestern Jiaotong University, China, June, 2021, Are autonomous vehicles better off without signals at intersections? A comparative computational study, Zoom Lecture.
3. School of Transportation Engineering, Southeast University, China, March, 2021, Are autonomous vehicles better off without signals at intersections? A comparative computational study, Zoom Lecture.
4. Department of Civil and Environmental Engineering, University of Massachusetts Amherst, October, 2020, Plunge and Rebound of a Taxi Market Through COVID-19 Lockdown: Lessons Learned From Shenzhen, China, Zoom lecture.
5. School of Civil Engineering, Tongji University, April 2020, An Efficiency Paradox of Uberization, Zoom lecture.
6. School of Civil and Transportation Engineering, South China University of Technology, November 2019, Auction-based permit allocation and sharing system (A-PASS) for travel demand management.
7. Warren Lecture, Department of Civil, Environmental, and Geo- Engineering, University of Minnesota, October 2019, An Efficiency Paradox of Uberization.
8. School of Management, Tongji University, July 2019, Auction-based permit allocation and sharing system (A-PASS) for travel demand management.
9. School of Transportation Engineering, Shanghai Maritime University, July 2019, Auction-based permit allocation and sharing system (A-PASS) for travel demand management.
10. Invited plenary talk at the 19th COTA International Conference of Transportation Professionals, Southeast University, Nanjing, July 2019, An efficiency paradox of uberization.
11. School of Transportation, Southwest Jiaotong University, May 2019, Auction-based permit allocation and sharing system (A-PASS) for travel demand management.

12. Department of Transportation Engineering, Wuhan University of Technology, May 2019, Toward Sustainable Transportation: Challenges and Opportunities.
13. School of Economics and Management, Beihang University, April 2019, Will ride-pooling change the nature of mass transit design?
14. Department of Industrial Engineering, National University of Singapore, July, 2018, Hyperpath Truck Routing in an Online Freight Exchange Platform.
15. Department of Transportation Engineering, Chang'an University, July 2018, Toward Sustainable Transportation: Challenges and Opportunities.
16. Invited plenary talk at the 18th COTA International Conference of Transportation Professionals, Tsinghua University, Beijing, July 2018, Inferring Passenger Waiting Time from Taxi GPS Trajectories.
17. Invited plenary talk at the Computational Transpiration Science (CTS) Conference, Beijing, July 2018, Hyperpath Truck Routing in an Online Freight Exchange Platform.
18. Department of Civil Engineering, Tsinghua University, May, 2018, Why does proportionality matter in traffic assignment and how to achieve it?
19. School of Transportation Engineering, Southeast Jiaotong University, March 2018, Toward Sustainable Transportation: Challenges and Opportunities.
20. Invited plenary talk at the 22nd HKSTS International Conference Hong Kong, December 2017, Why does proportionality matter in traffic assignment and how to achieve it?
21. Department of Civil and Environmental Engineering, Hong Kong University of Science and Technology, December 2017, Toward Sustainable Transportation: Challenges and Opportunities.
22. Invited plenary talk at the Third Transportation Symposium at NYU Abu Dhabi, November 2017, Why does proportionality matter in traffic assignment and how to achieve it?
23. School of Economics and Management, Beihang University, September 2017, Toward Sustainable Transportation: Challenges and Opportunities.
24. Keynote speech at the Second Global Conference on Theory and Applications of OR/OM for Sustainability. Beijing, September 2017, Why does proportionality matter in traffic assignment and how to achieve it?
25. School of Department of Civil and Environmental Engineering, Tokyo Institute of Technology, Tokyo, Japan, July, 2017, Why does proportionality matter in traffic assignment and how to achieve it?
26. ITS Laboratory, Kyoto University, Kyoto, Japan, June, 2017, How can the taxi industry survive the tide of ridesourcing?
27. Department of Civil Engineering, Gifu University, Gifu, Japan, June, 2017, Connecting E-hailing to mass transit platform.
28. Department of Civil and Environmental Engineering, ETH, Zurich, Switzerland, October, 2016, Connecting E-hailing to mass transit platform.
29. Department of Automobile Engineering, Tsinghua University, Beijing, China, July, 2016, Connecting E-hailing to mass transit platform.
30. Department of Civil Engineering, Monash University, Clayton, Australia, May, 2016, CybeR-Enabled Demand-Interactive Transit (CREDIT) for Sustainable Transportation.
31. Department of Civil Engineering, Illinois Institute of Technology, March, 2016, Promoting Plug-In Electric Vehicles: Optimization-Based Decision-Making Framework.
32. IPAM, University of California at Los Angeles, November, 2015, On the Potential Remedies for License Plate Rationing.

33. Industrial & Systems Engineering Department, National University of Singapore, August, 2015, Promoting Plug-In Electric Vehicles: Optimization-Based Decision-Making Framework.
34. Department of Civil Engineering, Tsinghua University, July, 2015, Why License Plate Rationing Does Not Work and How to Fix It?
35. Department of Industrial Engineering, Beijing Jiaotong University, July, 2015, Why License Plate Rationing Does Not Work and How to Fix It?
36. School of Transportation Engineering, Chang'an University, Xi'an, China, July, 2015, CybeR-Enabled Demand-Interactive Transit (CREDIT): Optimal Design and Routing Problems.
37. School of Transportation and Logistics, Southwestern Jiaotong University, July, 2015, Promoting Plug-In Electric Vehicles: Optimization-Based Decision-Making Framework.
38. Institute of Transportation Studies, Guangzhou, China, June, 2014, Towards Sustainable Transportation: New Ideas for Managing Travel Demand and Operating Transit Systems.
39. School of Civil and Transportation Engineering, South China University of Technology, Guangzhou, China, June, 2014, Towards Sustainable Transportation: New Ideas for Managing Travel Demand and Operating Transit Systems.
40. School of Transportation and Logistics, Southwest Jiaotong University, June, 2014, Optimal Transit Routing with Online Information.
41. Argonne National Laboratory, Energy Systems Division, June, 2014, Planning Electric Vehicle Charging Infrastructure.
42. Department of Civil and Materials Engineering, University of Illinois, Chicago, April, 2014, Planning Electric Vehicle Charging Infrastructure.
43. Special Session In Honor of Professor David Boyce - his 50th NARSC Conference (organized by Anna Nagurney), Atlanta, November, 2013. A Corridor Centric Approach to Planning Electric Vehicle Charging Infrastructure.
44. Institute of Transportation Studies, University of California, Berkeley, October, 2013. Analysis and Design of Quantity-based Approach to Congestion Management.
45. EPFL-HongKong Transportation Workshop organized by Nikolas Geroliminis, École polytechnique fédérale de Lausanne, Lausanne, Switzerland, July, 2013. Analysis and Design of Quantity-based Approach to Congestion Management.
46. Transportation seminar, University of Buffalo, December, 2012. Modeling Heterogeneous Risk-Taking Behavior in Route Choice: A Stochastic Dominance Approach.
47. CTS Seminar Series, University of Illinois, Chicago, October, 2011. Transaction costs and tradable mobility rights.
48. Department of Civil and Environmental Engineering, University of Maryland, College Park, April, 2011. Modeling Heterogeneous Risk-Taking Behavior in Route Choice: A Stochastic Dominance Approach.
49. NEXTRANS Center, School of Civil Engineering, Purdue University, April, 2011. Modeling Heterogeneous Risk-Taking Behavior in Route Choice: A Stochastic Dominance Approach.
50. School of Civil and Transportation Engineering, South China University of Technology, Guangzhou, China, March, 2011. Modeling Heterogeneous Risk-Taking Behavior in Route Choice: A Stochastic Dominance Approach.
51. Department of Civil Engineering, the University of Hong Kong, Hong Kong, China, March, 2011. Modeling Heterogeneous Risk-Taking Behavior in Route Choice: A Stochastic Dominance Approach.
52. Traffic Flow Webinar, Department of Civil and Environmental Engineering, Georgia Institute of Technology, December, 2010. Morning Commute Problem Considering Route Choice, User Heterogeneity and Alternative-Criteria System Optimum.

53. CATMUG Seminar, Chicago Metropolitan Agency for Planning, Chicago, April, 2010. Arriving On Time? Finding Reliable Shortest Paths in Stochastic Networks.
54. Institute of Transportation Studies, Tsinghua University, Beijing, China, August, 2009. Arriving On Time? Finding Reliable Shortest Paths in Stochastic Networks.
55. The School of Control Science and Engineering, ShanDong University, China, August, 2009. Arriving On Time? Finding Reliable Shortest Paths in Stochastic Networks.
56. Center for Computational Transportation Science, University of Illinois at Chicago, October, 2008. Arriving on Time: Routing in Stochastic Networks.
57. CATMUG Seminar, Chicago Metropolitan Agency for Planning, Chicago, October, 2006. A Variational Inequality Approach For Inferring Dynamic Origin-Destination Trip Demands.
58. Department of Civil Engineering and Engineering Mechanics, the University of Arizona, March, 2006. A Variational Inequality Approach For Inferring Dynamic Origin-Destination Trip Demands.
59. Department of Civil and Environmental Engineering, University of Illinois Urbana-Champaign, March, 2006. A Variational Inequality Approach For Inferring Dynamic Origin-Destination Trip Demands.
60. Department of Civil Engineering, Texas A&M University, March, 2006. A Variational Inequality Approach For Inferring Dynamic Origin-Destination Trip Demands.
61. Department of Civil and Environmental Engineering, Northwestern University, February, 2006. A Variational Inequality Approach For Inferring Dynamic Origin-Destination Trip Demands.
62. Department of Civil and Environmental Engineering, the University of Minnesota, Twin Cities, March, 2005. Dynamic Equilibrium Analysis on Transportation Networks.

### Conference presentations

I have regularly attended the Annual Meeting of Transportation Research Board (TRB) since 2001, the Annual Meeting of Institute for Operations Research and Management Science (INFORMS) since 2005, and Biannual International Symposium on Transportation and Traffic Theory (ISTTT) since 2007. My students and I have made more than 100 presentations at these and other conferences. For brevity I listed only the number of presentations given in each conference in the following. Details of these presentations are available upon request.

Year-Month	#talks	Venue	Conference name
2022-01	4	Washington, D.C.	The 101st TRB Annual Meeting
2021-11	2	Orange county	INFORMS Annual Meeting
2021-01	1	Washington, D.C.	The 100th TRB Annual Meeting
2020-01	3	Washington, D.C.	The 99th TRB Annual Meeting
2019-01	6	Washington, D.C.	The 98th TRB Annual Meeting
2018-11	1	Phoenix	INFORMS Annual Meeting
2018-01	2	Washington, D.C.	The 97th TRB Annual Meeting
2017-11	1	Houston	INFORMS Annual Meeting
2017-07	1	Shanghai, China	COTA International Conference of Transportation Professionals
2017-01	6	Washington, D.C.	The 96th TRB Annual Meeting
2016-11	2	Nashville	INFORMS Annual Meeting
2016-07	1	Shanghai, China	COTA International Conference of Transportation Professionals
2016-01	5	Washington, D.C.	The 95th TRB Annual Meeting
2015-11	2	Philadelphia	INFORMS Annual Meeting
2015-08	2	Kobe, Japan	The 21st ISTTT

2015-07	1	Beijing, China	COTA International Conference of Transportation Professionals
2015-01	5	Washington, D.C.	The 94th TRB Annual Meeting
2014-07	1	Changsha, China	COTA International Conference of Transportation Professionals
2014-01	5	Washington, D.C.	The 93th TRB Annual Meeting
2013-10	4	Minneapolis	INFORMS Annual Meeting
2013-09	1	Chicago	Great Lakes Symposium on Smart Grid and the New Energy Economy
2013-08	1	Evanston	Kuhmo Nectar Conference on Transport Economics
2013-07	1	Noordwijk, Netherland	The 20th ISTTT
2013-01	7	Washington, D.C.	The 92nd TRB Annual Meeting
2012-10	1	Phoenix	INFORMS Annual Meeting
2012-06	1	Martha's Vineyard	The 4th International Symposium on Dynamic Traffic Assignment
2012-01	2	Washington, D.C.	The 91st TRB Annual Meeting
2011-11	1	Charlotte	INFORMS Annual Meeting
2011-07	1	Berkeley	The 19th ISTTT
2011-06	1	Stockholm, Sweden	Kuhmo Nectar Conference on Transport Economics
2011-06	1	Leipzig, Germany	The International Transport Forum Annual Summit
2011-01	2	Washington, D.C.	The 90th TRB Annual Meeting
2010-11	1	Austin	INFORMS Annual Meeting
2010-07	1	Minneapolis	The 4th International Symposium on Transportation Network Reliability
2010-01	5	Washington, D.C.	The 89th TRB Annual Meeting
2009-10	3	San Diego	INFORMS Annual Meeting
2009-08	1	Chicago	The International Symposium on Mathematical Programming
2009-07	1	Hong Kong	The 18th ISTTT
2009-05	1	Houston	The 12th TRB National Transportation Planning Applications Conference
2009-01	4	Washington, D.C.	The 88th TRB Annual Meeting
2008-11	1	Washington D.C.	INFORMS Annual Meeting
2008-01	3	Washington, D.C.	The 87th TRB Annual Meeting
2007-11	1	Seattle	INFORMS Annual Meeting
2007-07	1	London	The 17th ISTTT
2007-01	2	Washington, D.C.	The 86th TRB Annual Meeting
2006-01	3	Washington, D.C.	The 85th TRB Annual Meeting
2006-09	2	Toronto, Canada	The 9th International IEEE Conference on Intelligent Transportation Systems
2005-01	2	Washington, D.C.	The 84th TRB Annual Meeting
2005-11	1	San Francisco	INFORMS Annual Meeting
2004-05	1	Beijing, China	The 8th International Conference on Applications of Advanced Technologies in Transportation
2003-01	1	Washington, D.C.	The 82nd TRB Annual Meeting
2002-01	2	Washington, D.C.	The 81st TRB Annual Meeting
2001-01	1	Washington, D.C.	The 80th TRB Annual Meeting
2000-07	1	Singapore	The 6th ASCE International Conference on Application of Advanced Technologies in Transportation Engineering
2000-06	1	Singapore	The 5th Conference of the Asia-Pacific Operations Research Societies



## Software Packages

Name	Authors	Description
VNET	Y. Nie	A simple, flexible and extensible graphic user interface to support a wide variety of network-related applications. Currently available apps include solutions for the vehicle routing problem, transit and bi-criterion routing problem, bottleneck models, taxi data processing, traffic simulation, static traffic assignment., downloaded at <a href="http://translab.civil.northwestern.edu/nutrend_install/vnet.msi">http://translab.civil.northwestern.edu/nutrend_install/vnet.msi</a>
VPAS	Y. Nie	A project deliverable for Federal Highway Administration, it analyzes route flow solutions produced by commercial and research travel forecasting software tools and visualizes results, downloaded at <a href="http://translab.civil.northwestern.edu/nutrend_install/VPASSetup_2.0.msi">http://translab.civil.northwestern.edu/nutrend_install/VPASSetup_2.0.msi</a>
TaLex	Y. Nie	A solver for static multi-class traffic assignment problems, downloaded at <a href="http://translab.civil.northwestern.edu/nutrend_install/TalexSetup.msi">http://translab.civil.northwestern.edu/nutrend_install/TalexSetup.msi</a>
CTR	Y. Nie	A project deliverable that performs reliable route guidance and processes travel time data., downloaded at <a href="http://translab.civil.northwestern.edu/nutrend_install/ctrsetup.msi">http://translab.civil.northwestern.edu/nutrend_install/ctrsetup.msi</a>
VisualTNM	Y. Nie	It integrates various traffic simulators (microscopic and mesoscopic) and dynamic transportation network analysis tools (dynamic traffic assignment solvers and dynamic O-D estimators)., downloaded at <a href="http://translab.civil.northwestern.edu/nutrend_install/VisuaTNMSetup.msi">http://translab.civil.northwestern.edu/nutrend_install/VisuaTNMSetup.msi</a>

## Teaching

### Courses taught

CIV.ENG 376	<i>Transportation Systems Operations</i> , required undergraduate course on introduction to transportation engineering	Winter 2007, 2008, 2011, every fall since 2008 except 2010
CIV.ENG 471-I	<i>Transportation Systems Analysis I</i> , required graduate course on static urban transportation network analysis	Spring 2007, Spring 2008, Fall 2008, Winter 2010, Spring 2011, every Winter since 2012.
CIV.ENG 471-II	<i>Transportation Systems Analysis II</i> , Ph.D. level elective on dynamic network analysis and transit systems	Every Spring since 2009 except 2011 and 2015

### Ph.D. students

Name	Year	Dissertation	Current position	Awards
Xing Wu	2006 - 2011	<i>Routing and Assignment in Stochastic Networks</i>	Associate Professor at Lamar University	Transportation Center Dissertation Year Fellowship
Yang Liu	2007 - 2013	<i>Enabling Congestion Pricing: Analysis and Design of Implementation Strategies</i>	Assistant Professor, Industrial and Systems Engineering Department, National University of Singapore since 2014	Transportation Center Dissertation Year Fellowship, Northwestern Terminal Year Fellowship
Mehrnaz Ghamami	2009 - 2015	<i>Planning Charging Infrastructure for Electric Vehicles</i>	Assistant Professor, Department of Civil and Environmental Engineering, Michigan State University since 2015	Transportation Center Dissertation Year Fellowship

Qianfei Li	2010 - 2015	<i>Optimal Routing Problems in Stochastic Transportation Networks Considering Sustainability</i>	Aibee, China	
Peng Chen	2011 - 2016	<i>Optimal routing and strategic design in transit system</i>	Data Scientist at Goldman Sachs, New York since 2016	Transportation Center Dissertation Year Fellowship and Northwestern Terminal Year Fellowship
John Miller	2015 - 2018	<i>Dynamic Trucking Equilibrium in a Freight Exchange Platform with Hyperpath Routing</i>	Assistant Professor, Air Force Academy, since 2020	Transportation Center Dissertation Year Fellowship and Northwestern Terminal Year Fellowship, Eisenhower Fellowship
Hongyu Chen	2012 - 2020	<i>Economic analysis of traditional taxi and ride-sharing services</i>	Manbang Group, China, since 2017	Transportation Center Dissertation Year Fellowship and Northwestern Terminal Year Fellowship
Sida Luo	2015 - 2020	<i>Integrated design and analysis of hybrid multi-modal mobility systems</i>	Professor at Beijing Jiaotong University since 2020	Transportation Center Dissertation Year Fellowship and Northwestern Terminal Year Fellowship
Kenan Zhang	2016 - 2021	<i>Understand pooling in ride-hail: Efficiency, Equilibrium and Management</i>	Assistant Professor, EPFL, Switzerland since 2022	Transportation Center Dissertation Year Fellowship, Northwestern Terminal Year Fellowship, 2020 CEE Rising Star, President's Scholarship by WTS Greater Chicago
Hongyuan Yang	2018 -	<i>To be determined</i>	Expected to complete in 2023	
Jiayang Li	2019 -	<i>To be determined</i>	Expected to complete in 2024	
Hongyu Zheng	2019 -	<i>To be determined</i>	Expected to complete in 2024	

### Postdoctoral fellows

1. Xing Wu, Postdoctoral fellow working on *Data Analysis for Plug-in Electric Vehicle Studies*, 010/2011 - 04/2012.
2. Yongjie Lin, Postdoctoral fellow working on *taxi GPS trajectory data process and analysis*, 04/2015 - 03/2016.
3. Jun Xie, Postdoctoral fellow working on *transportation network analysis*; funded by Chinese Overseas Scholarship Council, 09/2015 - 08/2017.

### Ph.D. committee

1. Chih-Yuan Chu, Civil and Environmental Engineering, 2007

2. Jeffrey Newman, Civil and Environmental Engineering, 2008
3. Wenjin Pu, Civil and Mechanical Engineering, University of Illinois at Chicago, 2008
4. Samer Hamdar, Civil and Environmental Engineering, 2008
5. Jing Dong, Civil and Environmental Engineering 2008
6. Yao Yao, Mechanical Engineering 2008
7. Kuiling Zhang, Civil and Environmental Engineering 2009
8. Hamed Alibabai, Civil and Environmental Engineering 2011
9. He Huang, Civil and Environmental Engineering, University of Massachusetts, Amherst, 2011
10. Yue Geng, Industrial Engineering and Management Science, 2013
11. Meead Saberi, Civil and Environmental Engineering, 2013
12. Jiwon Kim, Civil and Environmental Engineering, 2013
13. Tian Hou, Civil and Environmental Engineering, 2014
14. Lan Jiang, Civil and Environmental Engineering, 2014
15. Omer Verbas, Civil and Environmental Engineering, 2014
16. Alireza Tolebpour, Civil and Environmental Engineering, 2015
17. Ali Kheraie, Civil and Environmental Engineering, 2015
18. Ying Chen, Civil and Environmental Engineering, 2015
19. Wei Zhou, Civil and Mechanical Engineering, University of Illinois at Chicago, 2016
20. Hooram Halat, Civil and Environmental Engineering, 2016
21. Siyuan Gong, Civil and Environmental Engineering, Illinois Institute of Technology, 2016
22. Zihan Hong, Civil and Environmental Engineering, 2017
23. Michael Hyland, Civil and Environmental Engineering, 2018
24. Archak Mittal, Civil and Environmental Engineering, 2018
25. Alex Xu, Civil and Environmental Engineering, 2018
26. Aymeric Punel, Civil and Environmental Engineering, 2019
27. Maëlle Zimmerman, External examiner, Department of Computer Science and Operations Research (DIRO), University of Montreal, Canada, 2019
28. Hang Shu, Civil and Environmental Engineering, 2020
29. Monika Filipovska, Civil and Environmental Engineering, 2021
30. Eunhye Kim, Civil and Environmental Engineering, 2021
31. Moein Hossein, Civil and Environmental Engineering, 2022
32. Haleh Ale Ahmad, Civil and Environmental Engineering, 2022

### **M.S. committee**

1. Ramos-Lopez, Master of Project Management Program, 2007
2. Bouillerot, Master of Project Management Program, 2009
3. Amit Chiney, Master of Project Management Program, 2009
4. Fournier, Master of Project Management Program, 2010
5. Henry Lai, Master of Project Management Program, 2010
6. Seung-Cheol Oak, Master of Transportation Systems Analysis and Planning, 2010
7. Weizeng Zhang, Master of Transportation Systems Analysis and Planning, 2011

8. Manli E, Master of Transportation Systems Analysis and Planning, 2011
9. Ran Gao, Master of Transportation Systems Analysis and Planning, 2012
10. Shuyu Chen, Master of Transportation Systems Analysis and Planning, 2012
11. Yunling Zhang, Master of Transportation Systems Analysis and Planning, 2012
12. Jie Yang, Master of Transportation Systems Analysis and Planning, 2012
13. Lama Bou Mjahed, Master of Transportation Systems Analysis and Planning, 2013
14. Alexandre Vieira, Master of Transportation Systems Analysis and Planning, 2013
15. Wangqi Ge, Master of Transportation Systems Analysis and Planning, 2013
16. Dario C. Barros Vinas, Master of Project Management Program, 2014
17. Aibao Ma, Master of Project Management Program, 2014
18. Daixin Zhong, Master of Project Management Program, 2014
19. Xinning Hu, Master of Project Management Program, 2014
20. Matthew Pettit, Master of Transportation Systems Analysis and Planning, 2014
21. Kayla Spitzer, Master of Transportation Systems Analysis and Planning, 2015
22. Amr Elfar, Master of Transportation Systems Analysis and Planning, 2015
23. Andy Chang, Master of Project Management Program, 2015
24. Siyi Liu, Master of Transportation Systems Analysis and Planning, 2016
25. Hong Liang, Master of Transportation Systems Analysis and Planning, 2016
26. Wenjing Ma, Master of Project Management Program, 2017

### Visiting Ph.D. students

1. Jianfeng Zheng, Ph.D., School of Traffic and Transportation Engineering, Beijing Jiaotong University, China. Visited from 01/2010 to 06/2010, working on *complexity analysis of dynamic network behavior*.
2. Jun Xie, Ph.D., Department of Transportation Engineering, Tongji University, Shanghai, China. Visited from 09/2010 to 08/2012, working on *study on urban traffic network congestion and mitigation*.
3. Tingting Zhao, Ph.D., Department of Automation Engineering, Tsinghua University, Beijing, China, visited from 02/2011 - 08/2011, working on *modeling dynamic transportation systems*.
4. Lianning Fu, Ph.D., Department of Control Engineering, Shangdong University, Jinan, China, visited from 01/2014 - 12/2014, working on *transportation safety*.
5. Lei Wang, Ph.D., Department of Transportation Engineering, Chang'an University, Xi'an, China, visit from 08/2014 - 07/2016, working on *sustainable transportation*.
6. Amirali Zarrinmeh, Ph.D., Department of Civil Engineering, Tarbiat Modares University, Jalal Ale Ahmad Highway, Tehran, Iran. Visited from 01/2015 - 07/2015, working on *transit system modeling*.
7. He Ma, Ph.D., Department of Civil Engineering, Tsinghua University. Visited from 09/2015 - 08/2016, working on *PEV and taxis data analysis and modeling*.
8. Xinwei Li Ph.D., Department of Civil Engineering, Hong Kong University of Science and Technology. Visited from 01/2017 - 07/2017.
9. Zhouhao Wu Ph.D., School of Highway Engineering, ChangAn University. Visited from 11/2016 - 11/2017.
10. Lin Zhong Ph.D., School of Management Science, Sichuan University. Visited from 09/2017 - 08/2019.

11. Xueyan Wei Ph.D., School of Transportation Engineering, Southeast University. Visited from 12/2017 - 11/2018.

### Visiting scholars

1. Yucong Hu, Associate Professor, School of Traffic and Transportation Engineering, Southern China University of Technology, China. 02/2009 to 01/2010.
2. Huijun Sun, Professor, School of Traffic and Transportation Engineering, Beijing Jiaotong University, China. 07/2010 to 10/2010.
3. Minhua Shao, Associate Professor, School of Traffic and Transportation Engineering, Tongji University. 09/2011 to 10/2012.
4. Ping Xu, Instructor, Department of Transportation and Logistics School of Naval Architecture, Ocean and Civil Engineering, Shanghai Jiaotong University. 09/2012 to 08/2013
5. Jin Qin, Associate Professor, School of Traffic and Transportation Engineering, Central South University. 09/2012 - 08/2013.
6. Yisheng Lv, Assistant Professor, Institute of Automation, Chinese Academy of Sciences. 02/2014 - 01/2015.
7. Xiqiao Zhang, Assistant Professor, Department of Traffic Engineering, Harbin Institute of Technology. 09/2013 - 08/2014.
8. Yongjie Lin, Postdoctoral fellow, Shangdong University. 04/2015 - 03/2016.
9. Tian-liang Liu, Associate Professor, School of Economics and Management Beihang University. 09/2015 - 08/2016.

### Undergraduate students

1. Joseph Zissman (Civil Engineering Major'11, Northwestern University), Summer 2009.
2. Chanhon Lee (Civil Engineering Major'12, Northwestern University), Summer 2010.
3. Hong Song (Civil Engineering Major'12, Northwestern University), Summer 2010.
4. Huajun Chai (Civil Engineering Major'12, Tsinghua University, Beijing, China), Summer 2011.
5. Hongyu Chen (Construction management Major'12, Tsinghua University, Beijing, China), Summer 2011.
6. Zhengtian Xu (Civil Engineering Major'14, Tsinghua University, Beijing, China), Summer 2013.
7. Glenda Martins Carvalho (Federal University of Rio de Janeiro, Rio de Janeiro, RJ, Brazil, International Exchange Student at John Hopkins University), Summer 2015
8. Luke Samuel Gordon (Environmental Science, Major'19, Northwestern University), Recipient of URG-Kapnick Award for Summer Research, Summer 2018.
9. Garret Lee (Industrial Engineering and Management Science, Major'23, Northwestern University), Recipient of Undergraduate Summer Research Grant and TC Summer Internship Fellowship, Summer 2019.
10. Junyi Ji (Department of Transportation Engineering, Major'20, Southeast University), Summer 2019.

### Professional Services

## Editorial services

Associate Editor	Transportation Science	since 2015
Area Editor	Networks and Spatial Economics	since 2013
Associate Editor	Service Science	since 2019
Editorial Board Member	Transportation Research Part B	since 2009
Editorial Board Member	Transportation Research Part A	since 2019
Editorial Board Member	Transportmetrica B	since 2013
Reviewer	Transportation	
Reviewer	Proceedings of National Academy of Science (PNAS)	
Reviewer	Operations Research	
Reviewer	European Journal of Operational Research	
Reviewer	Transportation Research Part A, B, C, D and E	
Reviewer	Journal of Urban Economics	
Reviewer	Transportmetrica	
Reviewer	Computer and Mathematical Modeling	
Reviewer	Applied Mathematical Modeling	
Reviewer	Computer-Aided Civil and Infrastructure Engineering	
Reviewer	IEEE Transactions on Intelligent Transportation Systems	
Reviewer	Journal of Intelligent Transportation Systems	
Reviewer	Transportation Letters	
Reviewer	Transportation Research Record	
Reviewer	Applied Numerical Mathematics	

## Other services

Member	Transportation Network Modeling Committee, 2009 - 2018	
	Transportation Research Board	
Member	Traffic Flow and Characteristics Committee, Transportation Research Board	2010-2015
Co-chair	The 22nd International Symposium on Transportation and Traffic Theory	2015-2017
Session organizer	TSL Cluster at INFORMS Annual Meeting	2008
External reviewer	World Resource Institute, Beijing	2015
Grant reviewer	National Science Foundation	eight times since 2007
Grant reviewer	Israel Science Foundation	2009
Grant reviewer	Research Grant Council (RGC) of Hong Kong	six times since 2011
Grant reviewer	NEXTRANS Regional University Transportation Center	
Grant reviewer	Center for Multi-modal Solutions for Congestion Mitigation	
Grant reviewer	Oregon Transportation Research and Education Consortium	
Grant reviewer	Sustainable Transportation Center Dissertation Fellowship	
Grant reviewer	METRANS Transportation Center	
Grant reviewer	University of California Transportation Center	
Grant reviewer	New England University Transportation Center	

## Professional Society Membership

1. Transportation Research Board (TRB)
2. Institute for Operations Research and the Management Sciences (INFORMS)
3. Transportation Science and Logistics Society (TSL)



## University Service

### Department of Civil and Environmental Engineering

1. Departmental Undergraduate Advisor, 2016 - 2019.
2. Director of Transportation Program, 2015 - present.
3. Departmental Faculty Advisory Committee, 2012 - 2014, chair from 2013 - 2014.
4. Departmental Curriculum Committee, 2009 - present.
5. Departmental Faculty Search Committee, 2012.

### McCormick School of Engineering

1. Freshmen advisor, 2007 - 2014.
2. Coordinator for the Transportation Center Seminar Series, 2008 - 2015.
3. Co-organizer for Transportation Center's Symposium on Transportation Network Design and Economics, 2010
4. Co-organizer for Transportation Center 60th Anniversary Academic Symposium, 2015
5. Faculty Promotion and Tenure Committee, 2018 - 2020.

### Northwestern University

1. Committee member for Research Fairs, Faculty Senate, since 2018.
2. Faculty Senate, since 2018
3. UCIT Vision 2020 Faculty Focus Group, 2006 - 2007.