

# Ke Han

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## EDUCATION

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Ph.D.	Mathematics	Pennsylvania State University	2008-2013
M.A.	Mathematics	Pennsylvania State University	2008-2012
B.S.	Applied Mathematics	University of Science and Technology of China	2004-2008

## APPOINTMENTS

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Chief Scientist	Cloud-Guizhou Big Data Science & Application Research Center	2017-
Visiting Professor	College of Civil Aviation Nanjing University of Aeronautics and Astronautics	2016-2019
Lecturer (Assistant Professor)	Department of Civil & Environmental Engineering Imperial College London	2013-
Research Assistant	Department of Industrial Engineering Pennsylvania State University	2011-2013
Teaching/Research Assistant	Department of Mathematics Pennsylvania State University	2008-2013

## RESEARCH AND TEACHING INTERESTS

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- **Traffic Network Modeling:** traffic flow theory; dynamic traffic assignment; air traffic network model.
- **Traffic Control & Management:** traffic signal optimization; real-time traffic operation; air traffic management.
- **Network and Mechanism Design:** bi-level optimization; congestion pricing; transportation infrastructure planning; network robustness and resilience.
- **Transport & Environment:** macro & microscopic modeling of vehicle emissions; temporo-spatial distribution of traffic-driven pollutants; sustainable traffic management; green transportation modes
- **Big-Data Analytics:** statistical/machine/deep learning with application to urban transport and smart city; data visualization; decision support and policy appraisal.

## HONORS AND AWARDS

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- Excellence Award, China Intelligent Transport & Big Data Application Innovation Contest, Guiyang, 2017
- Outstanding Area Editor Award, 17th COTA International Conference of Transportation Professionals, 2017
- Chan Wui & Yunyin Rising Star Fellow, Transportation Research Board, 2016
- Nomination, Imperial College Student Academic Choice Award, 2015
- Nomination, Best PhD Dissertation in Transportation Modeling, Network Modeling Committee (ADB30) of the Transportation Research Board, 2014
- Travel Award, Society for Industrial and Applied Mathematics (SIAM), 2013
- Travel Award, Mathematical Modeling in Industry Workshop, IMA, University of Minnesota, 2011
- Travel Award, US NSF Building Engineered Complex System (BECS) program, 2011 & 2013
- Outstanding Student Scholarship, University of Science and Technology of China, 2005 & 2007

## RESEARCH FUNDING AND CONTRACTS

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- Co-Investigator. Post Brexit impact analysis on M20/A20 motorway congestion, BBC, 2018 (GBP 6k)
- Principal Investigator. Intelligent mobile sensing network for measuring air quality in urban micro-environment. Deheng Information Ltd., 2017-2018 (GBP 34k)
- Principal Investigator. Guizhou Province Big Data Technology Research and Development: Block Data and Regional Management. Guizhou Department of Science and Technology, 2017-2020 (GBP 172k)
- Principal Investigator. Newton Fund Researcher Links Workshop, Newton Fund, 2017 (GBP 24k).
- Principal Investigator. College of Civil Aviation, Nanjing University of Aeronautics and Astronautics, start-up funds, 2016-2019 (RMB 150k).
- Principal Investigator. Mitigating urban traffic emissions based on big data in traffic and air quality. Imperial College – Zhejiang University Exchange Program, 2016-2018 (RMB 400k).
- Co-Investigator. Passenger growth forecasts for international passengers departing from St Pancras. HighSpeed 1, 2015 (GBP 60k).
- Principal Investigator. CARBOTRAF – A decision support system for reducing  $CO_2$  and Black Carbon emissions by adaptive traffic management. 7<sup>th</sup> EU Framework Program, 2011-2015 (EUR 450k).
- Named Researcher. Robust and dynamic prototyping of strategies for sustainable network congestion management. US National Science Foundation, 2013-2017 (USD 250k).
- Participant. A theory of complex transportation network design. US National Science Foundation, 2010-2013 (USD 310k).

## PUBLICATIONS

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### Books

2. Terry Friesz, Ke Han (2017). *Dynamic Network User Equilibrium*. Springer, forthcoming.
1. Mauro Garavello, Ke Han, Benedetto Piccoli (2016). *Models for Vehicular Traffic on Networks*. American Institute of Mathematical Sciences, 2016. ISBN-10: 1-60133-019-7; ISBN-13: 978-1-60133-019-2.

### Refereed Journal Papers (published, in press, accepted)

47. Wang, Y, Szeto, WY, Han, K, Friesz, TL, 2018. Dynamic traffic assignment: Methodological advances for environmentally sustainable road transportation applications, **Transportation Research Part B: Methodological**, accepted with minor revision.
46. Fu, Z, Yang, H, Jia, Q, Chen, J, Han, K, Luo, L, 2017. A fine discrete field cellular automaton for pedestrian dynamics integrating pedestrian heterogeneity, anisotropy, and time-dependent characteristics. **Transportation Research Part C: Emerging Technologies**, accepted.
45. Sidiropoulos, S, Majumdar, A, Han, K, 2018. A framework for the optimization of terminal airspace operations in Multi-Airport Systems, **Transportation Research Part B: Methodological**, 110, 160-187.
44. Han, K, Yao, T, Jiang, C, Friesz, TL, 2017. Lagrangian-based hydrodynamic model for traffic data fusion on freeways, **Networks and Spatial Economics**, 17(4), 1071-1094.
43. Han, K, Friesz, TL, 2017. Continuity of the effective delay operator for networks based on the link delay model, **Networks and Spatial Economics**, 17(4), 1095-1110.
42. Yang, L, Yin, S, Han, K, Haddad, J, Hu, M, 2017. Fundamental diagrams of airport surface traffic: Models and applications, **Transportation Research Part B: Methodological**, 106, 29-51.
41. Yang, L, Yin, S, Hu, M, Han, K, Zhang, H, 2017. Empirical exploration of air traffic and human dynamics in terminal airspaces, **Transportation Research Part C: Emerging Technologies**, 84, 219-244.
40. Song, W, Han, K, Wang, Y, Friesz, TL, del Castillo, E, 2017. Statistical metamodeling of dynamic network loading, **Transportation Research Part B: Methodological**, DOI: 10.1016/j.trb.2017.08.018.

39. Han, K, 2017. Framework for real-time traffic management with case studies. **Transportation Research Record: Journal of the Transportation Research Board**, No. 2658, 35-43.
38. Chen, D, Hu, M, Zhang, H, Yin, J, Han, K, 2017. A network based dynamic air traffic flow model for en route airspace system traffic flow optimization, **Transportation Research Part E: Logistics and Transportation Review**, 106, 1-19.
37. Qin, F, Sun, R, Ochieng, WY, Feng, S, Han, K, Wang Y, 2017. Integrated GNSS/DR/road segment information system for variable road user charging, **Transportation Research Part C: Emerging Technologies**, 82, 261-272.
36. Liu, J, Li, K, Yin, M, Zhu, X, Han, K, 2017. Optimizing key parameters of ground delay program with uncertain airport capacity. **Journal of Advanced Transportation**, 2017, no. 7494213, 9 pages.
35. Yu, C., Ma, W., Han, K., Yang, X., 2017. Optimization of vehicle and pedestrian signals at isolated intersections, **Transportation Research Part B: Methodological**, 98, 135-153.
34. Sidiropoulos, S, Han, K, Majumdar, A, Ochieng, WY, 2017. Robust identification of air traffic flow patterns in Metroplex terminal areas under demand uncertainty, **Transportation Research Part C: Emerging Technologies**, 75, 212-227.
33. Shang, W, Han, K, Ochieng, WY, Angeloudis, P, 2017. Agent-based day-to-day traffic network model with information percolation, **Transportmetrica A: Transport Science**, 13(1), 38-66.
32. Neto, P.A., Friesz, T.L., Han, K., 2016. Electric power network oligopoly as a dynamic Stackelberg game. **Networks and Spatial Economics**, 16(4), 1211-1241.
31. Chen, D, Hu, M, Han, K, Zhang, H, Yin, J, 2016. Short/medium-term prediction for the aviation emissions in the en route airspace considering the fluctuation in air traffic demand. **Transportation Research Part D: Transport and Environment**, 48, 46-62.
30. Han, K, Liu, H, Gayah, VV, Friesz, TL, Yao, T., 2016. A robust optimization approach for dynamic traffic signal control with emission considerations. **Transportation Research Part C: Emerging Technologies**, 70, 3-26.
29. Sun, R, Han, K, Hu, J, Wang, Y, Hu, M, Ochieng, WY, 2016. Integrated solution for anomalous driving detection based on BeiDou/GPS/IMU measurements. **Transportation Research Part C: Emerging Technologies**, 69, 193-207.
28. Jiang, Y, Szeto, WY, Long, J, Han, K, 2016. Multi-class dynamic traffic assignment with physical queues: Intersection-movement-based formulation and paradox. **Transportmetrica A: Transport Science**, 12 (10), 878-908.
27. Wang, Y, Bu, J, Han, K, Sun, R, Hu, M, Zhu, C, 2016. A novel network approach to study communication activities of air traffic controllers, **Transportation Research Part C: Emerging Technologies**, 68, 369-388.
26. Zhao, J, Ma, W, Liu, Y, Han, K, 2016. Optimal operation of freeway weaving segment with combination of lane assignment and on-ramp signal control. **Transportmetrica A: Transport Science**, 12 (5), 413-435.
25. Mascia, M, Hu, J, Han, K, Lees-Miller, JD, North, R, 2016. A holistic approach for performance assessment of personal rapid transit. **Research in Transportation Business & Management**, 18, 70-76,
24. Mascia, M, Hu, J, Han, K, North, R, Van Poppel, M, Theunis, J, Litzenberger, M, 2016. Impact of traffic management on black carbon emissions: A microsimulation study. **Networks and Spatial Economics**, 17(1), 269-291.
23. Han, K, Piccoli, B, Friesz, TL, 2016. Continuity of the path delay operator for dynamic network loading with spillback. **Transportation Research Part B: Methodological**, 92 (B), 211-233.
22. Han, K, Piccoli, B, Szeto, WY, 2016. Continuous-time link-based kinematic wave model: formulation, solution existence, and well-posedness. **Transportmetrica B: Transport Dynamics**, 4 (3), 187-222.
21. Pien, KC, Han, K, Shang, W, Majumdar, A, Ochieng, WY, 2015. Robustness analysis of the European air traffic network. **Transportmetrica A: Transport Science**, 11 (9), 772-792.
20. Wang, Y, Liu, H, Han, K, Friesz, TL, Yao, T, 2015. Day-to-day congestion pricing and network resilience. **Transportmetrica A: Transport Science**, 11 (9), 873-895.

19. Han, K, Friesz, TL, Szeto, WY, Liu, H, 2015. Elastic demand dynamic network user equilibrium: Formulation, existence and computation. **Transportation Research Part B: Methodological**, 81, 183-209.
18. Liu, H, Han, K, Gayah, VV, Friesz, TL, Yao, T, 2015. Data-driven linear decision rule approach for distributionally robust optimization of on-line signal control. **Transportation Research Part C: Emerging Technologies**, 59, 260-277.
17. Han, K, Szeto, WY, Friesz, TL, 2015. Formulation, existence, and computation of boundedly rational dynamic user equilibrium with fixed or endogenous user tolerance. **Transportation Research Part B: Methodological**, 79, 16-49.
16. Han, K, Gayah, VV, 2015. Continuum signalized junction model for dynamic traffic networks: Offset, spillback, and multiple signal phases. **Transportation Research Part B: Methodological**, 77, 213-239.
15. Han, K, Sun, Y, Liu, H, Friesz, TL, Yao, T, 2015. A bi-level model of dynamic traffic signal control with continuum approximation. **Transportation Research Part C: Emerging Technologies**, 55, 409-431.
14. Piccoli, B, Han, K, Friesz, TL, Yao, T, Tang, J, 2015. Second order models and traffic data from mobile sensors. **Transportation Research Part C: Emerging Technologies**, 52, 32-56.
13. Hu, J, Mascia, M, Litzenberger, M, North, R, Thiyagarajah, A, Han, K, 2014. Field investigation of vehicle acceleration at the stop line with a dynamic vision sensor. **Journal of Traffic and Transportation Engineering**, 2 (2), 116-124.
12. Han, K, Gayah, V, Piccoli, B, Friesz, TL, Yao, T, 2014. On the continuum approximation of the on-and-off signal control on dynamic traffic networks. **Transportation Research Part B: Methodological**, 61, 73-97.
11. Han, K, Friesz, TL, Yao, T, 2014. A variational approach for continuous supply chain networks. **SIAM Journal on Control and Optimization**, 52 (1), 663-686.
10. Friesz, TL, Han, K, Liu, H, Yao, T, 2013. Dynamic congestion and tolls with mobile source emission. **Procedia - Social and Behavioral Sciences** 80, 818-836.
9. Han, K, Friesz, TL, Yao, T, 2013. Existence of simultaneous route and departure choice dynamic user equilibrium. **Transportation Research Part B: Methodological**, 53, 17-30.
8. Han, K, Friesz, TL, Yao, T, 2013. A partial differential equation formulation of Vickrey's bottleneck model, part I: Methodology and theoretical analysis. **Transportation Research Part B: Methodological**, 49, 55-74.
7. Han, K, Friesz, TL, Yao, T, 2013. A partial differential equation formulation of Vickrey's bottleneck model, part II: Numerical analysis and computation. **Transportation Research Part B: Methodological**, 49, 75-93.
6. Friesz, TL, Han, K, Neto, PA, Meimand, A, Yao, T, 2013. Dynamic user equilibrium based on a hydrodynamic model. **Transportation Research Part B: Methodological**, 47, 102-126.
5. Bressan, A, Han, K, 2013. Existence of optima and equilibria for traffic flow on networks. **Networks and Heterogeneous Media**, 8 (3), 627-648.
4. Bressan, A, Han, K, Rampazzo, F, 2013. On the control of non holonomic systems by active constraints. **Discrete and Continuous Dynamical Systems - Series A**, 33 (8), 3329-3353.
3. Han, K, Hu, H, Ko, E, Ozer, A, Simon, C, Tan, C, 2012. A variational approach to modeling aircraft hoses and flexible conduits. **Mathematics-in-Industry Case Studies**, 4, 1-13.
2. Bressan, A, Han, K, 2012. Nash equilibria for a model of traffic flow with several groups of drivers. **ESAIM: Control, Optimization and Calculus of Variations**, 18 (4), 969-986.
1. Bressan, A, Han, K, 2011. Optima and equilibria for a model of traffic flow. **SIAM Journal on Mathematical Analysis**, 43 (5), 2384-2417.

### Refereed Journal Papers (submitted or in preparation)

13. Liu, J, Han, K, Chen, XM, 2017. Spatial-temporal patterns of vehicle emissions based on probe data, *submitted*.
12. Xue, D, Hu, M, Li, J, Han, K, Sun, R, Yin, S, 2017. Optimal flight altitude assigned for aircraft to minimize cost based on contrail, fuel and flight time, *submitted*.
11. Ma, L, Chen, Q, Han, K, 2017. Diagnosing urban rail transit in Beijing: A big-data approach, *submitted*.

10. Han, K, Liu, B, Hu, J, 2017. Global optimization framework for real-time route guidance via variable message signs, *submitted*.
9. Yin, J, Han, K, Ma, Y, Hu, M, 2017. Aircraft taxi situation awareness with a macroscopic distribution network analysis, *submitted*.
8. Hu, S, Wu, C, Han, K, Wang, C, Guo, Y, Vrancks, S, 2017. Visualization of real-time decision support for sustainable traffic management, *submitted*.
7. Chow, A, Chan, L, Han, K, Achuthan, K. Agent-based analysis of transport network vulnerability, *working paper*.
6. Chen, Y, Chi, K, Delle Monache, M, Goating, P, Han, K, Piccoli, B, Qiu, J. Big data and the fundamental diagram: The three phases of three-dimensional traffic, *working paper*.
5. Song, J, Hu, S, Han, K, Wang, C. Real-time adaptive traffic signal control: Trade-off between traffic and environmental objectives, *working paper*.
4. Pien, KC, Han, K, Majumdar, A, Yin, S. A linear programming approach for system-optimal dynamic traffic assignment in the European air traffic network, *working paper*.
3. Wong, N, Escribano-Macias, J, Han, K, Angeloudis, P. Rapid urban evacuation across constrained transport networks, *working paper*.
2. Song, J, Han, K, Li, Q, Fu, L. Real-time dynamic dispatching of service vehicles among urban logistics transit stations: A case study of Chengdu area, *working paper*.
1. Friesz, TL, Han, K, Szeto, WY. A survey in comparison of dynamic traffic assignment models. Invited survey paper for *Transportation Research Part B*, *working paper*.

## Refereed Conference Papers

51. Pu, J, Liu, C, Zhao, J, Han, K, Zhou, Y, 2018. Vulnerability assessment of metro systems based on dynamic network structure. 22<sup>nd</sup> Pacific-Asia Conference on Knowledge Discovery and Data Mining. Melbourne, 3-6 Jun 2018.
50. Yin, J, Hu, M, Ma, Y, Han, K, Chen, D, 2018. Spatial-temporal topology and performance analysis of airport taxi network. Transportation Research Board 97<sup>th</sup> Annual Meeting. Washington D.C., 7-11 Jan 2018.
49. Yang, L, Yin, S, Hu, M, Han, K, Xu, Y, 2018. Empirical study of air traffic dynamics using coupled network modeling and non-linear analysis. Transportation Research Board 97<sup>th</sup> Annual Meeting. Washington D.C., 7-11 Jan 2018.
48. Li, S, Xu, R, Han, K, Zhu, W, 2018. Optimizing train service plans to coordinate transport capacity for urban rail transit lines. Transportation Research Board 97<sup>th</sup> Annual Meeting. Washington D.C., 7-11 Jan 2018.
47. Ma L, Chen, Q, Han, K, Gao, Y, Li, D, 2018. A tale of two stations: Analyzing metro ridership with big data. Transportation Research Board 97<sup>th</sup> Annual Meeting. Washington D.C., 7-11 Jan 2018.
46. Song, W, Han, K, Wang, Y, Friesz, TL, Del Castillo, E, 2017. Statistical metamodeling of dynamic network loading. Transportation Research Procedia 23C, 263-282. 22nd International Symposium on Transportation and Traffic Theory. Chicago, 24-26 Jul 2017.
45. Han, K, 2017. Traffic operation facilitated by telecommunication: Some case studies. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
44. Song J, Jiang, C, Han, K, Quan, S, Fu, L, 2017. Research on visible sensing recognition linkage model & decision support system for PM2.5 distribution in road network: A case study of Chengdu area. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
43. Wong, N, Escribano-Macias, J, Han, K, Angeloudis, P, 2017. Rapid urban evacuation across constrained transport networks. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
42. Wu, F, Stern, R, Churchill, M, Delle Monache, ML, Han, K, Piccoli, B, Work, DB, 2017. Fuel consumption in oscillatory traffic: experimental results. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
41. Pien, KC, Han, K, Majumdar, A, Yin, S, 2017. A linear programming approach for system-optimal dynamic traffic assignment in the European Air Traffic Network. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.

40. Yin, S, Han, K, Yang, L, Hu, M, 2017. Off-block flow optimization based on cell transmission model for mitigating departure traffic congestion at airport surface. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
39. Song, J, Hu, J, Han, K, 2017. Real-time adaptive traffic signal control: Trade-off between traffic and environmental objectives. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
38. Song, W, Han, K, Wang, Y, Friesz, TL, Del Castillo, E, 2017. Statistical metamodeling of dynamic network loading. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
37. Xu, Y, Yin, S, Dalmau, R, Prats, X, Han, K, 2017. Linear holding for reducing additional delays experienced by flights subject to ground holding at no extra fuel cost. Transportation Research Board 96<sup>th</sup> Annual Meeting. Washington D.C., 8-12 Jan 2017.
36. Sun, R, Han, K, Hu, J, Bai, H, Ochieng, WY, 2016. An integrated algorithm based on BeiDou/GPS/IMU and its application for anomalous driving detection. Proceedings of the 29th International Technical Meeting of The Satellite Division of the Institute of Navigation (ION GNSS+ 2016). Portland, Oregon, 12-16 Sep 2016, 1885-1890.
35. Chow, A, Chan, L, Han, K, Achuthan, K, 2016. Agent-based modelling of transport network vulnerability and resilience. 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, Australia, 28-30 Jun 2016.
34. Jiang, Y, Szeto, WY, Long, J, Han, K, 2016. Multi-class dynamic traffic assignment with physical queues: Intersection-movement-based formulation and paradox. 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, Australia, 28-30 Jun 2016.
33. Han, K, Friesz, TL, Wang, Y, Liu, H, 2016. Infrastructure maintenance with day-to-day traffic dynamics and transient congestion. 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, Australia, 28-30 Jun 2016.
32. Song, W, Han, K, Wang, Y, Friesz, TL, del Castillo, E, 2016. Statistical metamodeling of dynamic network loading. 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, Australia 28-30 Jun 2016.
31. Friesz, TL, Han, K, 2016. Computing dynamic user equilibria in continuous time. 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, 28-30 Jun 2016.
30. Sidiropoulos, S, Majumdar, A, Han, K, Ochieng, W, 2016. Identifying significant traffic flow patterns in Multi-Airport Systems Terminal Manoeuvring Areas under uncertainty. 16<sup>th</sup> AIAA Aviation Technology, Integration, and Operations Conference. Washington D.C., 13-17 Jun 2016. DOI: 10.2514/6.2016-3162
29. Wang, Y, Liu, H, Han, K, Shang, W, 2016. Day-to-day congestion pricing and network resilience. Transportation Research Board 95<sup>th</sup> Annual Meeting. Washington D.C., 10-14 Jan 2016.
28. Shang, W, Han, K, Ochieng, WY, 2016. An agent-based day-to-day traffic evolution model using percolation theory. Transportation Research Board 95<sup>th</sup> Annual Meeting. Washington D.C., 10-14 Jan 2016.
27. Liu, H, Han, K, Gayah, VV, Friesz, TL, Yao, T, 2015. Data-driven linear decision rule approach for distributionally robust optimization of on-line signal control, *Transportation Research Procedia*, 7, 536-555.
26. Sidiropoulos, S, Majumdar, A, Han, K, Schuster, W, Ochieng, WY, 2015. A framework for the classification and prioritization of arrival and departure routes in Multi-Airport Systems Terminal Manoeuvring Areas. 15<sup>th</sup> AIAA Aviation Technology, Integration, and Operations Conference. Dallas TX, 22-26 Jun 2015. DOI: 10.2514/6.2015-3031
25. Hu, J, Mascia, M, Han, K, Thiyagarajah, A, North, R, 2015. Assessment of different urban traffic control strategy impacts on vehicle emissions. UTSG 47<sup>th</sup> Annual Conference. London, 5-7 Jan 2015.
24. Liu, H, Han, K, Gayah, VV, Friesz, TL, Yao, T, 2015. Data-driven linear decision rule approach for distributionally robust optimization of on-line signal control. 21<sup>st</sup> International Symposium on Transportation and Traffic Theory. Kobe, Japan, 5-7 Aug 2015.
23. Shang, W, Pien, KC, Han, K, Ochieng, WY, Majumdar, A, 2015. Robustness and topology analysis of European air traffic network using complex network theory. Transportation Research Board 94<sup>th</sup> Annual Meeting. Washington D.C., 11-15 Jan 2015.

22. Mascia, M, Hu, J, Han, K, North, R, Vranckx, S, Van Poppel, M, Theunis, J, Litzenberger, M, 2015. Reducing environmental impact by adaptive traffic control and management for urban road networks. Transportation Research Board 94<sup>th</sup> Annual Meeting. Washington D.C., 11-15 Jan 2015.
21. Han, K, Mascia, M, Hu, J, North, R, Eve, G, 2015. Day-to-day dynamic traffic assignment model with variable message signs and endogenous user compliance. Transportation Research Board 94<sup>th</sup> Annual Meeting. Washington D.C., 11-15 Jan 2015.
20. Mascia, M, Hu, J, Han, K, North, R, Thiyagarajah, A, Van Poppel, M, Beckx, C, Kolbl, R, Litzenberger, M, 2014. Environmental impact of combined ITS traffic management strategies. 20<sup>th</sup> International Transport and Air Pollution Conference. Graz, Austria, 18-19 Sep 2014.
19. Han, K, Friesz, TL, Yao, T, Szeto, WY, 2014. Formulation, existence, and computation of simultaneous route-and-departure choice boundedly rational dynamic user equilibrium with fixed or endogenous user tolerance. 5<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Salerno, Italy, 17-19 Jun 2014.
18. Han, K, Friesz, TL, Yao, T, 2014. Vehicle spillback on dynamic traffic networks and what it means for dynamic traffic assignment models. 5<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Salerno, Italy, 17-19 Jun 2014.
17. Han, K, Sun, Y, Liu, H, Friesz, TL, Yao, T., 2014. A bi-level model of dynamic traffic signal control with continuum approximation. 5<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Salerno, Italy, 17-19 Jun 2014.
16. Pien, K, Majumdar, A, Han, K, Ochieng, WY, 2014. A linear programming approach to maximum flow estimation on the European air traffic network. 6<sup>th</sup> International Conference on Research in Air Transportation. Istanbul Technical University, Turkey, 26-30 May 2014.
15. Jin, PJ, Han, K, Ran, B, 2014. Some theoretical and practical perspectives of the travel time kinematic wave model: Generalized solution, applications, and limitations. Transportation Research Board 93<sup>rd</sup> Annual Meeting. Washington D.C., 12-16 Jan 2014.
14. Piccoli, B, Han, K, Friesz, TL, Yao, T, 2014. Second-order models and traffic data from mobile sensors. Transportation Research Board 93<sup>rd</sup> Annual Meeting. Washington D.C., 12-16 Jan 2014.
13. Han, K, Piccoli, B, Gayah, VV, Friesz, TL, Yao, T, 2014. On the continuum approximation of the on-and-off signal control for dynamic networks. Transportation Research Board 93<sup>rd</sup> Annual Meeting. Washington D.C., 12-16 Jan 2014.
12. Piccoli, B, Han, K, Friesz, TL, Yao, T, 2013. Estimating fuel consumption and emission via traffic data from mobile sensors. 51<sup>st</sup> Annual Allerton Conference on Communication, Control, and Computing. Allerton IL, 2-4 Oct 2013.
11. Friesz, TL, Han, K, Liu, H, Yao, T, 2013. Dynamic congestion and tolls with mobile source emission. 20<sup>th</sup> International Symposium on Transportation and Traffic Theory (ISTTT2013). The Netherlands, 17-19 Jul 2013.
10. Piccoli, B, Han, K, Friesz, TL, Yao, T, 2013. Second order models and traffic data from mobile sensors. 8<sup>th</sup> Triennial Symposium on Transportation Analysis (TRISTAN VIII). San Pedro de Atacama, Chile, 9-14 Jun 2013.
9. Han, K, Friesz, TL, Yao, T, 2013. Network user equilibrium with elastic demand: Formulation, qualitative analysis and computation. 8<sup>th</sup> Triennial Symposium on Transportation Analysis (TRISTAN VIII). San Pedro de Atacama, Chile, 9-14 Jun 2013.
8. Han, K, Liu, H, Friesz, TL, Yao, T, 2013. A robust optimization approach to dynamic traffic signal control with emission constraints. 8<sup>th</sup> Triennial Symposium on Transportation Analysis (TRISTAN VIII). San Pedro de Atacama, Chile, 9-14 Jun 2013.
7. Han, K, Friesz, TL, Yao, T, 2012. A link-based mixed integer LP approach for adaptive traffic signal control. Transportation Research Board 92<sup>nd</sup> Annual Meeting. Washington D.C., 13-17 Jan 2013.
6. Han, K, Friesz, TL, Yao, T, 2012. Lagrangian-based hydrodynamic model: Freeway traffic estimation. Transportation Research Board 92<sup>nd</sup> Annual Meeting. Washington D.C., 13-17 Jan 2013.
5. Han, K, Friesz, TL, Yao, T, 2012. Existence and properties of state operators in DUE models. 4<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.

4. Friesz, TL, Han, K, Meimand, A, Neto, PA, Yao, T, 2012. Dynamic user equilibrium based on the hydrodynamic model. 4<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.
3. Han, K, Yao, T, Friesz, TL, 2012. Lagrangian-based hydrodynamic model: Freeway traffic estimation. 4<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.
2. Han, K, Friesz, TL, Yao, T, 2012. Explicit solution to Vickrey's model in continuous-time with application to DTA. 4<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.
1. Friesz, TL, Han, K, Meimand, A, Neto, PA, Yao, T, 2012. Dynamic user equilibrium based on a hydrodynamic model. Transportation Research Board 91<sup>st</sup> Annual Meeting. Washington D.C., 22-26 Jan 2012.

## Book Chapters and Other Publications

1. Mascia, M, Han, K, de Luca, S, 2017. Adaptive behavior in mode choice. Intelligent Transport Systems Review. URL: <http://www.its-ukreview.org/adaptive-behaviour-in-mode-choice/>
2. Szeto, WY, Wang, Y, Han, K, 2015. Bounded Rationality in Dynamic Traffic Assignment, Bounded Rational Choice Behavior, Application in Transport, Editors: Rasouli, Timmermans, Publisher: Emerald Group Publishing, ISBN: 9781784410711.

## Selected Presentations

57. "Reducing pollutant concentration through adaptive traffic management: Practice and lessons learned". SWJTU International Forum for Young Scholars on the Development of Chinese High-speed Rail, Chengdu, China, 17-18 July 2017.
56. "Reducing pollutant concentration through adaptive traffic management: Practice and lessons learned". 2017 China-UK Researcher Links Workshop on Design and Optimization of Transport Systems in the Context of Urbanization, Shanghai, China, 10-12 July 2017.
55. "Statistical metamodeling of dynamic network loading". The 17th COTA International Conference of Transportation Professionals, Shanghai, China, 7-9 July 2017.
54. "Reducing air pollution with smart transportation". Smart City in the Big Data Era Summit, Guiyang, China, 26 May 2017.
53. "Fundamental diagrams of airport surface traffic: models and applications". Nanjing University of Aeronautics and Astronautics, China, 21 Apr 2017.
52. "A framework for the optimization of terminal airspace operations in Multi-Airport Systems". The 20th COTA Winter Symposium, Washington D.C., 8 Jan 2017.
51. "Real-time traffic management: challenges and solutions". NORTHMOST Meeting, Institute for Transport Studies, University of Leeds, 12 Dec 2016.
50. "Some aspects of real-time traffic control & management". Zhejiang University, China, 14 Sep 2016.
49. "Optimization of operations in multi-airport systems". Dalian Maritime University, China, 12 Sep 2016.
48. "How to publish your research in scientific journals". Nanjing University of Aeronautics and Astronautics, China, 6 Sep 2016.
47. "Traffic operation facilitated by telecommunication: Some case studies". Chan Wui & Yunyin Rising Star Workshop, Transportation Research Board. 6-13 Jul 2016.
46. "Statistical metamodeling of dynamic network loading and application to dynamic traffic assignment". University of New South Wales, Australia, 1 Jul 2016.
45. "Infrastructure maintenance with day-to-day traffic dynamics and transient congestion". 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, Australia, 28-30 Jun 2016.
44. "Statistical metamodeling of dynamic network loading". 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, Australia 28-30 Jun 2016.
43. "Computing dynamic user equilibria in continuous time. 6<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Sydney, Australia 28-30 Jun 2016.
42. "Dynamic user equilibrium: A differential game perspective" (Tutorial). University of Sydney, Australia, 27 Jun 2016.



41. "Dynamic traffic flow on networks" (Tutorial). University of Sydney, Australia, 27 Jun 2016.
40. "Data-driven decision rule approach for real-time traffic management". Nanjing University of Aeronautics and Astronautics, China, 16 Jun 2016.
39. "Optimization of operations in multi-airport systems". Nanjing University of Aeronautics and Astronautics, China, 1 Jun 2016.
38. "The mathematical foundation of dynamic user equilibria", Workshop on ANalysis and COntrol on NETwork (ANCONET), University of Padova, Italy, 9-11 Mar 2016.
37. "Data-driven decision rule approach for real-time traffic management", TRB Traffic Flow Theory and Characteristics Committee ISTTT21 Webinar Series, 26 Feb 2016.
36. "Data-driven linear decision rule approach for distributionally robust optimization of on-line signal control", the 18<sup>th</sup> IEEE International Conference on Intelligent Transportation Systems (IEEE ITSC 2016). Gran Canaria, 15-18 September 2015.
35. "Data-driven linear decision rule approach for distributionally robust optimization of on-line signal control", the 21<sup>st</sup> International Symposium on Transportation and Traffic Theory, Kobe, Japan, 5-7 Aug 2015.
34. "On some theoretical and practical aspects of traffic signal control". Southwest Jiaotong University, China, 7 Apr 2015.
33. "Reducing environmental impact by adaptive traffic control and management for urban road networks". Transportation Research Board 94<sup>th</sup> Annual Meeting. D.C., 11-15 January 2015.
32. "Day-to-day dynamic traffic assignment model with variable message signs and endogenous user compliance". Transportation Research Board 94<sup>th</sup> Annual Meeting. D.C., 11-15 January 2015.
31. "Vehicle spillback on dynamic traffic networks and what it means to analytical dynamic traffic assignment". 5<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Salerno, Italy, 17-19 June 2014.
30. "Simultaneous route-and-departure dynamic user equilibrium with bounded rationality: Formulation, qualitative analysis and computation". 5<sup>th</sup> International Symposium on Dynamic Traffic Assignment. Salerno, Italy, 17-19 June 2014.
29. "On the continuum approximation of the on-and-off signal control on dynamic traffic networks". Third Meeting of the ANR HJnet. Paris, 28-29 January 2014.
28. "An analytical approach to sustainable transportation network design". TRB Doctoral Dissertation Workshop on Transportation Modeling. Washington DC, 16 Jan 2014.
27. "Second order models and traffic data from mobile sensors". Transportation Research Board 93<sup>rd</sup> Annual Meeting. D.C., 12-16 January 2014.
26. "Continuum approximation of the on-and-off signal on traffic networks". Transportation Research Board 93<sup>rd</sup> Annual Meeting. D.C., 12-16 January 2014.
25. "Dynamic congestion and tolls with mobile source emission". SIAM Annual Meeting, San Diego, CA, 8-12 July, 2013.
24. "Second order models and traffic data from mobile sensors". Eighth Triennial Symposium on Transportation Analysis (TRISTAN VIII), San Pedro de Atacama, Chile, 9-14 Jun 2013.
23. "Network user equilibrium with elastic demand: Formulation, qualitative analysis and computation". Eighth Triennial Symposium on Transportation Analysis (TRISTAN VIII), San Pedro de Atacama, Chile, 9-14 Jun 2013.
22. "A robust optimization approach to dynamic traffic signal control with emission constraints". Eighth Triennial Symposium on Transportation Analysis (TRISTAN VIII), San Pedro de Atacama, Chile, 9-14 Jun 2013.
21. "Stability of traffic network models based on conservation laws". First International Conference on Dynamics of Differential Equations. Georgia Institute of Technology, Atlanta, GA, 16-20 March, 2013.
20. "A theory of complex transportation network design". NSF Building Engineered Complex System (BECS) Workshop. National Science Foundation Headquarters, Arlington, VA, 24-25 Jan 2013.
19. "Vehicular network design and management: A dynamic Stackelberg game approach". NSF Building Engineered Complex System (BECS) Workshop. National Science Foundation Headquarters, Arlington, VA, 24-25 Jan 2013.

18. "A robust optimization approach to signal control problem with emission constraints". Transportation Research Board 92<sup>nd</sup> Annual Meeting. D.C., 13-17 January, 2013.
17. "Highway traffic estimation in Lagrangian coordinates". Transportation Research Board 92<sup>nd</sup> Annual Meeting. D.C., 13-17 January, 2013.
16. "Selected topics in transportation network design". Penn State SIAM Student Chapter Seminar, Department of Mathematics, Penn State University, November, 2012.
15. "A congestion pricing problem with embedded mobile source emission models". INFORMS 2012 Annual Meeting. Phoenix, AZ, 14-17 October, 2012.
14. "Generalized Vickrey's model and application to dynamic traffic assignment". INFORMS 2012 Annual Meeting. Phoenix, AZ, 14-17 October, 2012.
13. "Existence of simultaneous route-and-departure-choice dynamic user equilibrium". INFORMS 2012 Annual Meeting. Phoenix, AZ, 14-17 October, 2012.
12. "Existence and computation of dynamic user equilibrium". AMS Sectional Meeting. Rochester, NY, 22-23 September, 2012.
11. "Existence and properties of state operators in DUE models". 4th International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.
10. "Dynamic user equilibrium based on a hydrodynamic model". 4th International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.
9. "Explicit solution to Vickrey's model in continuous-time with application to DTA". 4th International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.
8. "Lagrangian-based hydrodynamic model: Freeway traffic estimation". 4th International Symposium on Dynamic Traffic Assignment. Martha's Vineyard, MA, 4-6 Jun 2012.
7. "Dynamic user equilibrium based on a hydrodynamic model". Transportation Research Board 91<sup>st</sup> Annual Meeting. D.C., 22-26 January, 2012.
6. "A hydrodynamic model for Dynamic User Equilibrium". Institute for Pure and Applied Mathematics (IPAM) Workshop on Mathematics of Traffic Flow Modeling, Estimation and Control. UCLA, CA, 7-9 December, 2011.
5. "Highway traffic estimation with Lagrangian coordinates". Institute for Pure and Applied Mathematics (IPAM) Workshop on Mathematics of Traffic Flow Modeling, Estimation and Control. UCLA, CA, 7-9 December, 2011.
4. "Computing Dynamic User Equilibrium in continuous time". INFORMS 2011 Annual Meeting. Charlotte, NC, 13-16 November, 2011.
3. "Dynamic traffic assignment and user equilibrium in continuous time". IE Colloquium. Department of Industrial and Manufacturing Engineering, Penn State University, November, 2011.
2. "Dynamic traffic assignment and user equilibrium in continuous time". Center for Computational Mathematics and Applications (CCMA) Luncheon Seminar, Department of Mathematics, Penn State University, October, 2011.
1. "Fixed point methods for computing within-day Dynamic User Equilibrium". 14<sup>th</sup> International IEEE Conference on Intelligent Transportation Systems. Washington DC, 5-7 Oct 2011.

## TEACHING ACTIVITIES

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Name of Course	Teaching Type	Contact Hours/Class Size	Teaching Evaluation
CI3-372/CI4-472 Traffic Engineering (Fall 2017)	Coordination, Lecture Tutorial	32 hours / 37 students	UG SOLE: 4.5/5
C01 Mathematics (Spring 2017)	Lecture, Tutorial	10 hours / 98 students	UG SOLE: 4.2/5

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Name of Course	Teaching Type	Contact Hours/Class Size	Teaching Evaluation
CI9-T20 Freight Transport (Spring 2017)	Coordination, Lecture, Tutorial	26 hours / 41 students	PG SOLE: 4.4/5
CI3-372/CI4-472 Traffic Engineering (Fall 2016)	Coordination, Lecture Tutorial	32 hours / 33 students	UG SOLE: 4.6/5
CI9-T1 Transport and Its Context (Fall 2016)	Lecture	2 hours / 74 students	PG SOLE: 4.6/5
C01 Mathematics (Spring 2016)	Lecture, Tutorial	10 hours / 105 students	UG SOLE: 3.9/5
CI9-T20 Freight Transport (Spring 2016)	Coordination, Lecture, Tutorial	26 hours / 40 students	PG SOLE: 4.7/5
CI3-372/CI4-472 Traffic Engineering (Fall 2015)	Coordination, Lecture Tutorial	32 hours / 66 students	UG SOLE: 4.4/5
CI9-T1 Transport and Its Context (Fall 2015)	Lecture	2 hours / 67 students	PG SOLE: 4.6/5
CI9-T20 Freight Transport (Spring 2016)	Coordination, Lecture, Tutorial	26 hours / 27 students	PG SOLE: 4.8/5
CI3-372/CI4-472 Traffic Engineering (Fall 2015)	Coordination, Lecture Tutorial	32 hours / 53 students	UG SOLE: 4.5/5
CI9-T1 Transport and Its Context (Fall 2015)	Lecture	2 hours / 70 students	N/A
CI9-T20 Freight Transport (Spring 2016)	Coordination, Lecture, Tutorial	26 hours / 15 students	PG SOLE: 4.3/5
CI9-T1 Transport and Its Context (Fall 2015)	Lecture	2 hours / 70 students	N/A

## PROFESSIONAL ACTIVITIES

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### Editorial Positions

- Associate Editor, Networks and Spatial Economics (2017 - present)
- Associate Editor, the 2017 IEEE International Symposium on System Integration (SII 2017)

- Area Editor, the 17th COTA International Conference of Transportation Professionals (CICTP2017), 7-9 Jul 2017.
- Associate Editor, the 19th IEEE Intelligent Transportation Systems Conference (IEEE ITSC 2017), 16-19 Oct 2017.
- Editorial Board Member, Transportation Research Part C: Emerging Technologies (2017 - present)
- Guest Editor, Transportation Research Part C, Special Issue on *Advances in Modeling, Simulation and Optimization of Dynamic Network Traffic* (2016).
- Associate Editor, 18<sup>th</sup> IEEE Intelligent Transportation Systems Conference (IEEE ITSC 2015)
- Editorial Board Member, Transportation Research Part B: Methodological (2015 - present)
- Editorial Board Member, International Journal of Transportation (2014 - present)

### Referee (journal)

IEEE Transactions on Intelligent Transportation Systems; International Journal of Sustainable Transportation; Journal of Advanced Transportation; Journal of Intelligent Transportation Systems; Journal of Transport, Economics and Policy; Networks and Spatial Economics; Networks and Heterogenous Media; Operations Research; Transport; Transportation Letters; Transportation Research Part B: Methodological; Transportation Research Part C: Emerging Technologies; Transportation Research Part D: Transport and Environment; Transportation Research Record; Transportation Science; Transportmetrica A: Transport Science; Transportmetrica B: Transport Dynamics.

### Referee (conference)

International Conference on Operations Research and Enterprise Systems (ICORES); IEEE Conference on Intelligent Transportation Systems (IEEE ITSC); International Symposium on Transportation and Traffic Theory (ISTTT); Transportation Research Board (TRB); Triennial Symposium on Transportation Analysis (TRISTAN); World Transportation Convention (WTC).

### Advisory Boards of Scientific Bodies and Scholarly Meetings

- DSI Academic Fellow, Data Science Institute, Imperial College London (2018 - present)
- Organizer, 2017 China-UK Researcher Links Workshop on Design and Optimization of Transport Systems in the Context of Urbanization, 10-12 July 2017.
- Member, Standing Committee on Airfield and Airspace Capacity and Delay (AV060), Transportation Research Board (2017 - 2019)
- Scientific Advisor, Beijing Tsinghua Tongheng Urban Planning & Design Institute (2017 - present)
- Member, Technical Program Committee, IEEE International Conference on Intelligent Transportation Systems (ITSC 2017), 16-19 Oct 2017.
- Member, Technical Committee, 2017 International Conference on SmartRail, Traffic and Transportation Engineering (ICSTTE 2017), 15-18 Dec 2017.
- President, Chinese Overseas Transportation Association, European Chapter (COTA-Europe) (2016 - present)
- Member, International Program Committee, 6th International Conference on Operations Research and Enterprise Systems (ICORES 2017), 23-25 Feb 2017.
- Member, Scientific Committee, EURO Working Group on Transportation Meeting (EWGT 2016), 5-7 Sep 2016.
- Member, Scientific Review Committee, Triennial Symposium on Transportation Analysis (TRISTAN 2016), 13-17 Jun 2016.
- Organizer, Workshop on *Data-Enabled Advancements in Transportation Theory and Application*. IEEE 18th International Conference on Intelligent Transport Systems. Canary Islands, Spain, Sep 2015.
- Member, International Technical Committee, IEEE International Conference on Intelligent Transportation Systems (ITSC 2015), 15-18 Sep 2015.
- Committee Communication Coordinator, TRB Network Modeling (ADB30) Committee (2014 - present)
- Chair, SIAM Annual Meeting, Session on Optimization, San Diego, CA, 8-12 Jul 2013.
- Chair, Eighth Triennial Symposium on Transportation Analysis (TRISTAN VIII), Session: *Traffic I*. San Pedro de Atacama, Chile, 9-14 Jun 2013.
- Chair, INFORMS Annual Meeting, Session: *Dynamic Traffic Assignment II – System Optimal Modeling*. Phoenix, AZ, 14-17 Oct 2012.

## UNIVERSITY SERVICES

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- CivSoc Liaison Officer, Department of Civil and Environmental Engineering, Imperial College London (2016 - present)
- E-learning Coordinator, Department of Civil and Environmental Engineering, Imperial College London (2014 - present)
- Msc Admission Officer, Center for Transport Studies, Imperial College London (2014 - present)
- PhD thesis committee
  - Ying Li – University College London (2015)

## SUPERVISORY ROLES

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### Postdoctoral Researchers (5)

- Shahram Heydari (2017-2019), Center for Transport Studies, Imperial College London
- Zhijian Fu (2017-2018), Center for Transport Studies, Imperial College London
- Jianan Yin (2017-2019), Center for Transport Studies, Imperial College London
- Margherita Mascia (2014-2015), Center for Transport Studies, Imperial College London
- Simon Hu (2014-2015), Center for Transport Studies, Imperial College London

### PhD Students (12)

- Suwan Yin (2021, expected), *4-D trajectory based optimization of airport surface operation*
- Liang Ma (2021, expected), *Block data and urban data fusion for integrated transport planning and management*
- Yaoyuan Zhang (2021, expected), *Real-time traffic nowcasting based on deep learning*
- Peeranut Jeammaneepon (2021, expected), *Managing and optimizing mobility as a service*
- Jun Song (2021, expected), *Environmental impact analysis of emerging urban mobility patterns*
- Shiming Xu (2020, expected), *Surrogate model for real-time traffic control: Theories and applications*
- Yang Yu (2020, expected), *Infrastructure maintenance with day-to-day traffic dynamics and transient congestion*
- Junwoo Song (2020, expected), *Application of deep learning to real-time traffic management in large-scale urban traffic networks*
- Aditya Thirunavvkkarasu (2019, expected), *Resilience of air traffic networks*
- Stavros Sidiropoulos (2016), *A framework for the optimization of airspace configuration in Multi-Airport Systems*
- Wenlong Shang (2016), *Robustness and resilience analysis of urban road networks*
- Kuang-Chang Pien (2015), *A linear programming approach for network capacity estimation and robustness analysis of the European air traffic network*

### Msc Students (19)

- Fernando Munoz Mendez (2017), *Exploring shared cycling patterns in London using machine learning algorithms.*
- Waleed Hijazi (2017), *Structural and operational analysis of Japanese air traffic network*
- Qiyao Bao (2017), *Predicting terminal airspace capacity drop in adverse weather conditions using machine learning techniques*
- Kaixi Zhang (2017), *Microscopic simulation of pedestrian flow for international train departure*
- Abdulfatah Abu (2017), *Macroscopic simulation of the UK national rail network using VISUM*
- Hao Xiong (2017), *Simulating Shanghai metro system using big data approach*
- Ludovic Laignelet (2016), *Multi-objective study of adaptive signal control*
- Mathieu Auguste (2016), *Topological analysis of the Japanese air traffic network*
- Kai Wu (2016), *Integrated pricing and routing game in oligopolistic urban freight market*
- Xueyang Fang (2016), *Relating aircraft activities to pollutant concentration near Heathrow airport using neural networks*

- Philip Howes (2016), *Implementation of a linear decision rule approach for on-line signal control using VISSIM*
- Matthias Triendl (2015), *A novel approach to freight routing problems with background traffic*
- Peeranut Jeammaneepon (2015), *Implementation of a new responsive traffic signal control strategy in microsimulation environment*
- Jing Chen (2015), *Kriging and its application to transport planning*
- Theocharis Ballis (2015), *Variable message signs and user compliance to proposed routes as an endogenous factor in dynamic traffic assignment*
- Min Xue (2014), *Bus pricing strategy towards optimizing a mixed traffic-transit equilibrium*
- Junqing Tang (2014), *Simulation and emission estimation of traffic using hydrodynamic models and GPS data*
- Liang Ma (2014), *Urban freight routing based on static user equilibrium*
- Shining Ding (2014), *The calibration and validation of queuing models for predicting air traffic delay*

## MEng Students (6)

- Annabel Drauschke (2017) *Microsimulation analysis of metro station opening in Ramenki District, Moscow*
- Zizhe Yuan (2017), *Prediction of shared bike usage in London based on Long-Short Term Memory*
- Yaoyuan Zhang (2017), *Convolutional LSTM network for large-scale urban traffic prediction using GPS trajectory data*
- Shiming Xu (2016), *Assessment of traffic network resilience and robustness with adaptive signal control*
- Eduard Kim (2015), *Implementation and comparative study of different on-line traffic signal control strategies*
- Gabriel Eve (2014), *Implementation of large-scale dynamic traffic assignment algorithms*

## Visiting Students and Special Projects

- Group Design Project (2017), *Improving the connectivity of South Kensington campus*. Project website: <https://omarz95.wixsite.com/imperialconnect>
- Qian Ge, Tokyo Institute of Technology (2017), *A queuing theoretical approach to modeling rail transit dynamics*
- Sijie Li, Tongji University (2017), *Modeling and optimization of demand-oriented train service synchronization and simulation for urban rail transit network*
- Chaojie Wang, Tsinghua University (2016), *Application of big data analytics to intelligent transport systems*
- Bai Liu, Tsinghua University (2016), *Real-time operation of variable message signs for congestion mitigation*
- Group Design Project (2015), *Moving the future closer – Imperial College cable car*. Project website: <http://icimpetus.wix.com/skyhopper>
- Jian Chan (2015), *Robustness analysis of urban road networks*. Undergraduate Research Opportunity Program.

## MEDIA MENTIONS & OUTREACH

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- Opening Ceremony of Cloud-Guizhou Big Data Science & Application Research Center [URL]
- President of Chinese Overseas Transportation Association (COTA) – European Chapter [URL]
- Chinese Overseas Transportation Association (COTA) Faculty Highlight [URL]
- Visiting Professorship at Nanjing University of Aeronautics and Astronautics [URL]
- Keynote on green transport in Big Data Expo [URL]
- Transportation Research Board Rising Star Fellow [URL]
- Interview by Chinaqw.com during President Xi's visit to Imperial [URL]
- Interview during the Gloud-Guizhou Global Partner Summit [URL]

## TECHNICAL SKILLS

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- Operating System: Linux, Unix, Windows
- Scientific Application: Matlab, Mathematica, CPLEX, Gurobi, Minitab, Latex, Xfig, Microsoft Office
- Programming Language: C/C++, Java, HTML
- Simulation Software: Vissim, Viswalk, Paramics, Simio, Arena

## PROFESSIONAL MEMBERSHIP

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- Society for Industrial and Applied Mathematics (SIAM)
- Institute for Operations Research and the Management Sciences (INFORMS)
- Transportation Research Board (TRB)
- Chinese Overseas Transportation Association (COTA)