

# Zhenliang Ma

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KTH Royal Institute of Technology  
Drottning Kristinas Väg 34B  
L1402, 11428 Stockholm,  
Sweden

Phone: +46 769422114  
Email: zhema@kth.se  
Homepage: [www.kth.se/profile/zhema](http://www.kth.se/profile/zhema)  
Lab: <https://zhenliangma.com/>

## EDUCATION

**The University of Queensland**, Brisbane, Australia, Ph.D. in Transportation Engineering, *Dec 2015*.  
**Shandong University**, Jinan, China, M.Sc. of Information Science and Technology, *Jun 2012*.  
**Shandong University**, Jinan, China, B.Sc. of Electrical Engineering, *Jun 2009*.

## ACADEMIC APPOINTMENTS

**Assistant Professor**, Transport Planning Division, KTH Royal Institute of Technology, Sweden, *2021 –*  
**Associate Editor**, IEEE Transactions on Intelligent Transportation Systems (IF 9.55), *2022 -*  
**Faculty Member**, TRENoP and Digital Future (Swedish strategic research areas), *2022 -*  
**Research Advisory Council**, Integrated Transport Research Lab (Scania/Ericsson/KTH), *2022 -*  
**Committee Member**, US NASEM Transportation Research Board AP090/AEP060, *2021 –*  
**Honorary Adjunct**, Department of Data Science and AI, Monash University, Australia, *2021 –*  
**Research Affiliate**, Massachusetts Institute of Technology (MIT), United States, *2019–*  
**Assistant Professor**, Institute of Transport studies, Monash University, Australia *2019 – 2021*  
**Postdoc Research Associate**, MIT Transit Lab, United States, *2016– 2019*  
**Postdoc Researcher**, Centre of Transport Strategy, the University of Queensland, Australia, *2016*  
**Research Assistant**, School of Civil Engineering, the University of Queensland, Australia, *2012 – 2016*

## RESEARCH EXPERTISE

Artificial Intelligence, Intelligent Transportation Systems, Multimodal Transportation

## INDUSTRY EXPERIENCE

### Technical and Management Consulting

- **MTR, Hong Kong**, monitoring, prediction, crowd and incident management, *2016– 2019*.
- **TfL, London**, integrated public transport and on-demand services, *2018– 2020*.

## MAJOR RESEARCH PROJECTS

**GEMINI: DiGital twin for Emission MonItoring aNd predIction – Kista Case**, Senseable Stockholm Lab (City of Stockholm, MIT and KTH), SEK 3.0M, 2023-2024 (PI).

**DIRAC: DynamIc uRban roAd trafiC noise simulation model using passive and publicly available data**, Digital Future Demonstrator, SEK 2.0M, 2023-2025 (PI).

**cAIMBER: Causal Artificial Intelligence for Human Mobility Behavior Analysis Using Trajectory Data**, Digital Future Research Pairs, SEK 2.0M, 2023-2025 (PI).

**Förstudie kring forskningsprojekt för prognosmetodik långväga resor (Preliminary study on research project for long-distance travel forecasting methodology)**, Swedish Transport Administration (Trafikverket), SEK 500K, 2023 (Co-PI).

**Research Start Grant**, KTH ABE School, SEK 2.0M, 2023-2027 (PI).

**iEptSim: Integrated Electric Public Transport Simulation**, Region Stockholm, SEK 1.6M, 2023-2025 (PI).

**COMPASS: Choice Modeling for Policy Decision Support Towards Attractive, Reliable, and Efficient Public Transport Systems**, Swedish Transport Administration (Trafikverket), SEK 4.0M, 2023-2026 (Co-PI).

**REPORT: utvärdering ankomstPrOgnoser för Tåg (Evaluation of Train Arrival Forecasts)**, Swedish Transport Administration (Trafikverket), SEK 1.2M, 2022-2023 (KTH PI).

**DREMTS: Demand Responsive Electrified Multimodal Transit Systems**, DTU-KTH Alliance, SEK 2.0M, 2022-2025 (PhD Scholarship, Co-supervisor).

**Applied AI in Transportation**, KTH Digitalization Platform, 100K SEK, 2022-2023 (PI).

**TRENoP: Transport Research Environment with Novel Perspectives Strategic Research Funding**, Swedish Government, SEK 4.8M, 2021-2027 (PI).

**Data-Driven Analytic and Modeling Approaches for Mass Transport in Cities**, UCL Cities Partnerships Seed Program, SEK 50K, 2022 (KTH PI).

**Mobility Knowledge Graph and Applications in Transportation**, China Scholarship Council and Karl Engvers Foundation, SEK 1.2M, 2021-2025 (PhD Scholarship, main supervisor).

**Mobility Data-Driven Planning of Electric Vehicle Charging Infrastructure for Decarbonising Energy and Transport Systems**, Monash Data Future Institute (MDFI), AUD 300K, 2021-2024 (PhD Scholarship, co-supervisor).

**Simulation Based Dynamic Programming for Collaborative Travel in Cities**, Monash Central, AUD 300K, 2020-2023 (PhD Scholarship, main supervisor, transferred).

**Personalised Incentives: Behaviour Dynamics and Collaborative Travel**, Monash Seed Funding, AUD 60K, 2019-2022 (PI)

**Fare Integration and Revenue Allocation Models in Mobility as a Service**, Malaysia Government, AUD 210K, 2019-2023 (PhD Scholarship, main supervisor, transferred).

**Innovative Urban Railway Systems**, Hong Kong MTR Co. Ltd, USD 1.0M, 2016-2019 (Co-PI)

**Public Transport Reliability**, Ministry of Education of China, AUD 100k, 2012– 2016 (PhD Fellowship)

**SHARE: Engineering Research Center for Sharing Economy-Human, Automation and Resilience**, US National Science Foundation Planning Grant, USD 145k, 2018-2019 (Main contributor)

## TEACHING EXPERIENCE

### **KTH Royal Institute of Technology, Stockholm, Sweden**

**Examiner/Lecturer** AH2179: Applied Artificial Intelligence in Transportation, Graduate course

**Examiner/Lecturer** AH2178: Research Methods and Communication Skills, Graduate course

**Lecturer** AH2173: Public Transport, Graduate course

### **Monash University, Clayton VIC, Australia**

**Coordinator/Lecturer** ENG5001: Advanced Engineering Data Analysis, Graduate course

**Coordinator/Lecturer** ENG5005/ENG5006: Research Methods and Practice, Graduate course

**Coordinator/Lecturer** CIV5305/6305: Transport Demand Modeling, Graduate course

**Coordinator/Lecturer** CIV5319: Quantitative Methods for Transportation Modelling, Graduate course

**Coordinator/Lecturer** CIV5320: Case Studies in Transportation Systems, Graduate course

**Coordinator/Lecturer** CIV5322: Urban Public Transport Systems, Graduate course

**Coordinator/Lecturer** CIV5406: Modeling Transportation Systems, Graduate course,

## CURRENT RESEARCH SUPERVISION

### *Ph.D. Students*

#### **Main Supervisor**

Haoye Chen, Transportation Science, KTH Royal Institute of Technology, Sweden, 2022-  
Ph.D. Thesis: *Multimodal Electric Autonomous Mobility Systems* (TRENop Project)

Qi Zhang, Transportation Science, KTH Royal Institute of Technology, Sweden, 2021-  
Ph.D. Thesis: *Mobility Knowledge Graph and Applications in Transportation* (Fellowship)

#### **Associate Supervisor**

Kah Yong Tiong, Transport and Roads, Lund University, Sweden, advised since 2021-  
Ph.D. Thesis: *Train Delay Modeling and Prediction in Railway Systems* (Trafikverket)

Leizhen Wang, Data Science and AI, Monash University, Australia, 2022-  
Ph.D. Thesis: *Causal Reinforcement Learning for Connected Autonomous Vehicles* (Fellowship)

Xia Zhou, Data Science and AI, Monash University, Australia, 2021-  
Ph.D. Thesis: *Simulation Based Dynamic Programming for Collaborative Travel in Cities* (Fellowship)

Noradilah Sham, Transportation Engineering, Monash University, Australia, 2019-  
Ph.D. Thesis: *Fare Integration and Revenue Allocation Models in Mobility as a Service* (Fellowship)

### *MS and MEng Students*

Johan Bexhorn and Karl Kvarnefalk. Transportation Science, KTH Royal Institute of Technology 2023  
MS Thesis: *WiFi fingerprinting for crowding modeling* (SWECO)

Andrei-David Radu. Transportation Science, KTH Royal Institute of Technology 2023  
MS Thesis: *AV index in Sweden* (RISE)

Yu Gao. Transportation Science, KTH Royal Institute of Technology, 2023  
MS Thesis: *Digital Twin Model for Traffic Emissions* (RISE)

## PAST RESEARCH SUPERVISION

### *Past Ph.D. Students*

Baichuan Mo, Transportation, MIT Transit Lab, United States, 2018-2022, Assoc. supervisor  
Ph.D. Thesis: *Data-driven Network Performance Model in Urban Railway System* (MTR project)  
Current position: Research Scientist at Lyft, United States

Chunliang Wu, Transportation Engineering, Monash University, Australia, 2019-2022, Main supervisor  
Ph.D. Thesis: *Multi-Agent Reinforcement Learning for Traffic Signal Control* (Monash Fellowship)  
Current position: Postdoc at Kongju National University, South Korea

Wenhua Jiang, Transportation Engineering, Monash University, Australia, 2019-2022, Main supervisor  
Ph.D. Thesis: *Real-Time Mobility Prediction and Management in Urban Railway Systems* (RailCRC project)  
Current position: Postdoc at Edinburgh University, United Kingdoms

Syedmostafa Zahedi, Transportation, Northeastern Uni., United States, 2017-2022, Assoc. supervisor  
Ph.D. Thesis: *Integration of Public Transportation and Mobility-On-Demand Services* (TfL project)  
Current position: Senior Data Scientist at Foursquare ITE, United States

Tenyu Ryu, Transportation, Northeastern University, United States, 2016-2022, Assoc. supervisor  
Ph.D. Thesis: *Data-Driven Analytics to Mitigate Metro System Crowding and Disruption Impacts* (MTR)  
Current position: AI and Data Engineer at Microsoft, United States

Prudence Blake, Transportation Engineering, Monash University, Australia, 2016-2020, Assoc. supervisor  
Ph.D. Thesis: *Exploring Public Transport Markets Using the Concept of 'Customer Fluctuation'* (Grip project)  
Current position: Senior Community Engagement Consultant at Max Hardy Consulting, Australia

Kerem Tuncel, Industrial Engineering, Northeastern Uni., United States, 2017-2021, Assoc. supervisor  
Ph.D. Thesis: *Data Driven Models for Congested Urban Mobility Network* (HK MTR and TfL project)  
Current position: Data Scientist at Udemy, Turkey

Pengfei Zhang, Transport, South China University of Technology, China, 2020-2021, Visiting supervisor  
Ph.D. Thesis: *Individual Mobility Prediction in Urban Rails* (Partly on MTR project)

Yangyang Zhao, Transport, Southwest Jiaotong University, China, 2019-2020, Visiting supervisor  
Ph.D. Thesis: *Unplanned Disruption Analysis in Urban Railway Systems* (Partly on MTR project)  
Current position: Lecturer at Chang'an University, China

### *Past Master and Bachelor Students*

Jiajun Liu, Transportation Engineering, Southeast University, China, advised since 2021-2023  
MS Thesis: *Public Transport Fare Reconciliation Based on Cellular and Smartcard Data* (Nanjing Metro)

Carl Vilhelm Boström, Transportation, KTH Royal Institute of Technology, 2022  
BS Thesis: *Walking into the Future: Exploring WiFi fingerprinting in pedestrian-oriented planning* (SWEKO)

Pietro Podesta, Transportation Science, KTH Royal Institute of Technology, 2022  
MS Thesis: *Decision-support tool for identifying locations of shared mobility hubs: A case study in Amsterdam* (AMS Institute)

Iqbal Surahman and Gustav Wegner, Transportation Science, KTH Royal Institute of Technology, 2022  
MS Thesis: *Integration of Open Data in Disaggregate Transport Modelling* (WSP Sverige)

Wei Zhou, Vehicle Engineering, KTH Royal Institute of Technology, 2022  
 MS Thesis: *A model predictive control algorithm providing smart-charging for electric vehicles in ride-sharing autonomous mobility-on-demand* (Volvo cars)

Alexander Adolfsson, Systems, Control and Robotics, KTH Royal Institute of Technology, 2022  
 MS Thesis: *Path Choice Estimation in Urban Rails Using Smartcard and Train Weight Data* (MTR Nordic)

Cheng Zhong, Transportation Science, KTH Royal Institute of Technology, 2022  
 MS Thesis: *Mobility Eigenface in Public Transport* (Storstockholms Lokaltrafik, SL)

Xin Chen, Transportation Engineering, Southeast University, China, 2020-2022  
 MS Thesis: *Data Driven Incident Pattern and Cause Analysis in Urban Railway Systems* (MTR project)

Leizhen Wang, Transportation Engineering, Southeast University, China, 2019-2021  
 MS Thesis: *Reinforcement Learning based Signal Control* (JITRI industry project)

Urban Air Mobility Student Team, Transportation Engineering, Monash University, Australia, 2019, Main supervisor  
 MEng Report: *Adoption and Usage Behavior Modeling of Urban Mobility Behavior*

Wilson Foo, Civil Engineering, Monash University, Australia, 2019-2020  
 MS Thesis: *Future Mobility in Australia: A Review of on the Governance and Policy Challenges* (WSP fund)

Abhishek Arunas Basu, Transportation, MIT, United States, 2016-2018  
 MS Thesis: *Customer Segmentation and Applications in Public Transport* (MTR Project)

## PUBLICATIONS

(Corresponding author\*. Google scholar citation 835, h-index 15, i10-index 23 since 2017)

### *Book Chapters*

1. H. N. Koutsopoulos\*, Z. Ma, and S. Zahedi (2023). *Increasing Shareability in Ride-Pooling Systems: Opportunities and Empirical Studies*. Book Title: *Re-engineering the Sharing Economy*, ISBN 9781108865630, Cambridge University Press UK (in press).
2. Z. Ma\*, H. N. Koutsopoulos, A. Halvorsen, J. Zhao (2021). *Demand Management in Urban Railway Systems: Strategy, Design, Evaluation, Monitoring, and Technology*. Book Title: *Handbook on Public Transport Research*, Edward Elgar Handbooks in Transport series. ISBN: 9781788978651, Edward Elgar publishing.
3. H. Koutsopoulos\*, Z. Ma, P. Noursalehi, Y. Zhu (2019). *Transit Data Analytics for Planning, Monitoring, Control and Information*. Book Title: *Mobility Patterns, Big Data and Transportation Analytics*, ISBN: 9780128129708, Elsevier.

### *Journal Articles*

1. P. Zhang, H. N. Koutsopoulos, Z. Ma (2023). *DeepTrip: A deep learning model for the individual next trip prediction with arbitrary prediction times*. *IEEE Transactions on Intelligent Transportation Systems* (accepted).
2. K.Y. Tiong, Z. Ma\* and C.W. Palmqvist. (2023). *A review of data-driven approaches to predict train delays*. *Transportation Research Part C: Emerging Technologies*, 148, p.104027.

3. C. Zhong, P. Wu, Q. Zhang and Z. Ma (2023). Online prediction of network-level public transport demand based on principle component analysis. *Communications in Transportation Research* 2023 Vol. 3 Pages 100093.
4. Z. Qin, Z. Ma\*, P. Zhang (2022). DeepAGS: Deep Learning with Activity, Geography and Sequential Information for Individual Trip Destination Prediction, *Transportation Research Procedia* (in press).
5. K. Tiong, Z. Ma\*, CW. Palmqvist (2022). Prediction of Real-time Train Arrival Times Along The Swedish Southern Mainline. *WIT Transactions on The Built Environment*, 213: 135 - 143.
6. Moosavi, S. M. H., Ma, Z., Armaghani, D. J., Aghaabbasi, M., Ganggayah, M. D., Wah, Y. C., and Ulrikh, D. V. (2022). Understanding and Predicting the Usage of Shared Electric Scooter Services on University Campuses. *Applied Sciences*, 12(18), 9392.
7. L.Wang, Z. Ma\*, C. Dong, H. Wang (2022). Human-centric multimodal deep (HMD)traffic signal control. *IET Intelligent Transport System*.1–10.<https://doi.org/10.1049/itr2.12300>
8. B. Mo, Z. Ma\*, H. N. Koutsopoulos, and J. Zhao (2022). Ex-Post Path Choice Estimation for Urban Rail Systems Using Smart Card Data: An Aggregated Time-Space Hypernetwork Approach. *Transportation Science*, <https://doi.org/10.1287/trsc.2022.1177>.
9. Z. Ma\*, P. Zhang (2022). Individual Mobility Prediction Review: Data, Problem, Method and Application. *Multimodal Transportation*, [doi.org/10.1016/j.multra.2022.100002](https://doi.org/10.1016/j.multra.2022.100002).
10. Y. Zhao, Z. Ma\* (2022). Naïve Bayes Combination Model for Short-term Metro Passenger Flow Prediction under Planned Events. *Transportation Research Record* (Accepted).
11. X. Chen, Z. Ma\*, Z. Li (2022). Unplanned Disruption Analysis in Urban Railway Systems: Evidence from Hong Kong. *Transportation Research Record* (Accepted).
12. T. Liu, Z. Ma\*, H. Koutsopoulos (2022). Impact Duration Model of Unplanned Disruptions in Urban Rail Systems. *Transportation Research Record* (Accepted).
13. Z. Ma\*, H. Koutsopoulos (2022). Near-on-Demand Mobility. The Benefits of User Flexibility for Ride-Pooling Services. *Transportation Research Part C: Emerging Technologies*. [doi.org/10.1016/j.trc.2021.103530](https://doi.org/10.1016/j.trc.2021.103530).
14. W. Jiang, Z. Ma\*, H. Koutsopoulos (2022). Deep Learning for Short-Term Origin-Destination Passenger Flow Prediction under Partial Observability in Urban Railway Systems. *Neural Computing and Applications*, 34, 4813–4830.
15. P. Zhang, Z. Ma\*, X. Weng (2021). Detecting Invalid Associations between Fare Machines and Metro Stations Using Smart Card Data. *Journal of Advanced Transportation*. <https://doi.org/10.1155/2021/5283283>
16. X Chen, Z Ma\*, G Ye, Z Li (2021). Usage Behavior and Satisfaction Analysis of Free-Floating Bicycle Sharing System Service: Evidence from a Chinese University Campus. *Research in Transportation Business Management*. [doi.org/10.1016/j.rtbm.2021.100703](https://doi.org/10.1016/j.rtbm.2021.100703)
17. P. Zhang, Z. Ma\*, X. Weng, H. Koutsopoulos (2021). Recovering the Association Between Unlinked Fare Machines and Stations Using Automated Fare Collection Data in Metro Systems. *Transportation Research Record* , [doi.org/10.1177/03611981211045370](https://doi.org/10.1177/03611981211045370).
18. Y. Zhao, Z. Ma\*, X. Jiang, H. Koutsopoulos (2021). Short-term Metro Passenger Flow Prediction Capturing the Impact of Unplanned Events. *Transportation Research Record*, [doi.org/10.1177/03611981211037553](https://doi.org/10.1177/03611981211037553).
19. T. Liu, Z. Ma\*, H. N. Koutsopoulos (2021). Unplanned Disruption Analysis in Urban Railway Systems Using Smart Card Data. *Urban Rail Transit*, 7, 177–190.
20. B. Mo, Z. Ma\*, H. N. Koutsopoulos, and J. Zhao (2021). Calibrating Path Choices and Train Capacities for Urban Rail Transit Simulation Models Using Smart Card Data. *Journal of Advanced Transportation*, [doi.org/10.1155/2021/5597130](https://doi.org/10.1155/2021/5597130).

21. A. Halvorsen, H. N. Koutsopoulos, Z. Ma\*, J. Zhao (2020). Demand Management in Congested Public Transportation Systems: A Framework and Application, *Transportation*, 47, 2337–2365 (translated into Chinese by CITIC publishing group, [http://bijiao.caixin.com/2020/cs\\_110/](http://bijiao.caixin.com/2020/cs_110/)).
22. Z. Ma\*, H. Koutsopoulos, T. Liu, A. Basu (2020). Behavioral Response to Promotion-based Public Transport Demand Management: Longitudinal Analysis and Implications for Optimal Promotion Design. *Transportation Research Part A: Policy and Practice*, 141, 356–372.
23. Y. Zhao, Z. Ma\*, Y. Yang, W. Jiang and X. Jiang (2020). Short-Term Passenger Flow Prediction with Decomposition in Urban Railway Systems. *IEEE Access*, doi:10.1109/ACCESS.2020.3000242.
24. Y. Zhao, L. Ren, Z. Ma\*, and X. Jiang (2020). A Novel Three-Stage Framework for Prioritizing and Selecting Feature Variables for Short-Term Metro Passenger Flow Prediction. *Transportation Research Record*, 2674 (8), 192–205
25. B. Mo, Z. Ma\*, H. N. Koutsopoulos, and J. Zhao (2020). Capacity-Constrained Network Performance Model for Urban Rail Systems. *Transportation Research Record*, 2674(5), 59–69.
26. W Jiang, Z Ma\*, I Kim, S Lee. Revealing Mobility Regularities in Urban Rail Systems (2020). *Procedia Computer Science*, 170, 219–226
27. Z. Ma\*, H. N. Koutsopoulos. (2019). Optimal Design of Promotion Based Demand Management Strategies in Urban Rail Systems. *Transportation Research Part C: Emerging Technologies* 109, 155–173.
28. Z. Ma\*, H. N. Koutsopoulos, Y. Chen, N. H. M. Wilson (2019). Estimation of Denied Boarding in Urban Rail Systems: Alternative Formulations and Comparative Analysis, *Transportation Research Record*, 2673(11), 771–778.
29. N. Nassir\*, M. Hickman, Z. Ma (2019). A Strategy-Based Recursive Path Choice Model For Public Transit Smart Card Data, *Transportation Research Part B: Methodological*, 126, 528–548.
30. J. Zhou\*, Neil Sipe, Z. Ma, D. Babiano, S. Darchen. (2019). Monitoring Transit-Served Areas With Smartcard Data: A Brisbane Case Study, *Journal of Transport Geography*, 76, 265–275.
31. Z. Ma\*, H. Koutsopoulos, L. Ferreira (2017). Quantile Regression Analysis of Transit Travel Time Reliability Using Automatic Vehicle Location and Fare Card Data, *Transportation Research Record*, 2652, 19–29.
32. N. Nassir\*, M. Hickman, Z. Ma (2017). Statistical Inference of Transit Passenger Boarding Strategies from Farecard Data, *Transportation Research Record*, 2652, 8–18.
33. Z. Ma\*, H. Koutsopoulos, L. Ferreira, M. Mesbah (2017). Estimation of Trip Travel Time Distribution Using a Generalized Markov Chain Approach, *Transportation Research Part C: Emerging Technologies*, 74, 1–21.
34. Z. Ma\*, L. Ferreira, M. Mesbah, S. Zhu (2016). Modelling Distributions of Travel Time Reliability For Bus Operations, *Journal of Advanced Transportation*, 50(1), 6–24.
35. Z. Ma\*, L. Ferreira, M. Mesbah, A. Hojati (2015). Modelling Bus Travel Time Reliability Using Supply and Demand Data From AVL and Smart Card Systems, *Transportation Research Record*, 2533, 17–27.
36. N. Nassir\*, M. Hickman, Z. Ma (2015). Activity Detection and Transfer Identification for Public Transit Fare Card Data, *Transportation*, 42, 683–705.
37. Z. Ma\*, J. Xing, M. Mesbah, L. Ferreira (2014). Predicting Short-Term Bus Passenger Demand Using a Pattern Hybrid Approach, *Transportation Research Part C: Emerging Technologies*, 39, 148–163.
38. Z. Ma\*, L. Ferreira, M. Mesbah (2014). Measuring Service Reliability Using Automatic Vehicle Location Data, *Mathematical Problems in Engineering*, <http://dx.doi.org/10.1155/2014/468563>.

39. Z. Ma\*, J. Xing, J. Sha, L. Gao, and S. Ai (2012). Distributed Multi-source Information Fusion Algorithm for Vehicle Tracking with Priori Uncertainty, *Journal of Information and Computation Science*, 9, 853–862.
40. Z. Ma\*, J. Xing, Q. Li, L. Gao, J. Sha, and Y. Zhu (2011). Aviation Flight Altitude Tracking Method Based on H-inf Filtering, *Journal of Convergence Information Technology*, 6, 251–259.

### Conference Paper

1. Q. Zhang, Z. Ma\*, P. Zhang, E. Jenelius (2023). Mobility Knowledge Graph: Review and its Application in Public Transport, *Transportation Research Board 102th Annual Meeting, Washington D.C., United States*.
2. J. Liu, Z. Ma, L. Wen, N. Zhang, Z. Qian (2023). Urban Rail Transit Fare Reconciliation Method Using Multi-source Data, *Transportation Research Board 102th Annual Meeting, Washington D.C., United States*.
3. L. Wang, Z. Ma\*, P. Zhang, X. Chen, B. Mo, P. Duan (2023). Individual Longitudinal Adoption Pattern Analysis under Fare Incentives Using Smart Card Data, *Transportation Research Board 102th Annual Meeting, Washington D.C., United States*.
4. Y. Zhao, Z. Ma\*, H. Peng (2023). Irregular Passenger Demand Identification under Disruptions: A Robust Principal Component Analysis Approach, *Transportation Research Board 102th Annual Meeting, Washington D.C., United States*.
5. W. Sun, X. Chen, Z. Ma (2023). Statistical and Machine Learning Models for Incident Delay Prediction in Urban Railway Systems: A Methodology Review, *Transportation Research Board 102th Annual Meeting, Washington D.C., United States*.
6. K Tuncel, HN Koutsopoulos, Z Ma\*. An Integrated Ride-Matching Model for Shared Mobility on Demand Services, MFTS conference in TU Dresden, Germany, 2022
7. Tiong, K., Ma, Z.\* and Palmqvist, C.W., 2022, October. Real-time Train Arrival Time Prediction at Multiple Stations and Arbitrary Times. In 2022 IEEE 25th International Conference on Intelligent Transportation Systems (ITSC) (pp. 793-798). IEEE.
8. Z. Ma\*, B. Mo, A. Adolfsson (2022). Data-driven Route Choice Estimation In Urban Rails. *Informs Annual Meeting, Indianapolis, United States*.
9. L. Wang, Z. Ma\*, C. Dong, H. Wang (2022). Human-Centric Multimodal Deep (HMD) Traffic Signal Control. *Transportation Research Board 101th Annual Meeting, Washington D.C., United States*.
10. Y. Zhao, Z. Ma\* (2022). Naïve Bayes Combination Model for Short-term Metro Passenger Flow Prediction under Planned Events. *Transportation Research Board 101th Annual Meeting, Washington D.C., United States*.
11. X. Chen, Z. Ma\*, Z. Li (2022). Unplanned Disruption Analysis in Urban Railway Systems: Evidence from Hong Kong. *Transportation Research Board 101th Annual Meeting, Washington D.C., United States*.
12. T. Liu, Z. Ma\*, H. Koutsopoulos (2022). Impact Duration Model of Unplanned Disruptions in Urban Rail Systems. *Transportation Research Board 101th Annual Meeting, Washington D.C., United States*.
13. Q. Zhang, P. Zhang, E. Jenelius, Z. Ma\* (2022). Understand Travel Activities: Mobility Knowledge Graph Construction from Smart Card Data. *Swedish Transport Forum 2022, Linköping, Sweden*.
14. C. Wu, Z. Ma\* and I. Kim. (2021) Traffic Signal Control Using Multi-Agent Reinforcement Learning with Knowledge, *12rd Computational Transportation Science (CTS) Conference, Harbin, China*
15. X. Chen, Z. Ma\* and Z. Li (2021). User Attitudes Toward Incentive Strategies for Transportation Network Company Services: Share Trips, Extra Walk and Request Rides in Advance *The 20th and 21st joint COTA International Conference of Transportation Professionals, Xi'an, China*

16. G. Ye, Z. Ma\*, X. Chen and Z. Li (2021). Usage Frequency and Service Type Preference of Ride-hailing Service in University Community: A Case Study in Suzhou, China. *The 20th and 21st joint COTA International Conference of Transportation Professionals, Xi'an, China*
17. T. Liu, Z. Ma\*, H. Koutsopoulos (2021). Unplanned Disruption Analysis in Urban Railway Systems Using Smart Card Data. *Transportation Research Board 100th Annual Meeting, Washington D.C., United States.*
18. P. Zhang, Z. Ma\*, X. Weng, H. Koutsopoulos (2021). Recovering the Association Between Unlinked Fare Machines and Stations Using Automated Fare Collection Data in Metro Systems. *Transportation Research Board 100th Annual Meeting, Washington D.C., United States.*
19. Y. Zhao, Z. Ma\*, H. Koutsopoulos (2021). Short-term Metro Passenger Flow Prediction Capturing the Impact of Unplanned Events. *Transportation Research Board 100th Annual Meeting, Washington D.C., United States.*
20. C. Wu, Z. Ma\* and I. Kim. (2020) Multi-Agent Reinforcement Learning for Traffic Signal Control: Algorithms and Robustness Analysis, *23rd IEEE Conference on Intelligent Transportation Systems 2020, Rhodes, Greece*
21. J. Zhou, Z. Ma\*, S. Hirschmann, F. Lao (2020). Transportation Network Company Service Usage in the University Community: Service Adoption, Usage Frequency and Service Type Choice. *Transportation Research Board 99th Annual Meeting, Washington D.C., United States.*
22. B. Mo, Z. Ma\*, H. Koutsopoulos, J. Zhao (2020). Calibrating Route Choice for Urban Rail System: A Comparative Analysis Using Simulation-based Optimization Methods. *Transportation Research Board 99th Annual Meeting, Washington D.C., United States.*
23. B. Mo, Z. Ma\*, H. Koutsopoulos, J. Zhao (2020). Network Performance Model (NPM) for Urban Rail Systems. *Transportation Research Board 99th Annual Meeting, Washington D.C., United States.*
24. Z. Chen, Z. Ma\*, H. Koutsopoulos, B. Wang (2020). Multi-Source Information Based Short-Term Taxi Demand Prediction Using Deep-Learning Approach. *Transportation Research Board 99th Annual Meeting, Washington D.C., United States.*
25. K. Tuncel\*, H. Koutsopoulos, Z. Ma (2020), Data Driven Real-Time Platform Crowding Prediction Using Automated Fare Collection and Vehicle Location Data in Urban Railway Systems, *Transportation Research Board 99th Annual Meeting, Washington D.C., United States.*
26. S. Zahedi\*, H. Koutsopoulos, Z. Ma (2020), Dynamic Interlining in Bus Operations, *Transportation Research Board 99th Annual Meeting, Washington D.C., United States.*
27. M. Eltvéd\*, H. Koutsopoulos, N. H. M. Wilson, K. Tuncel, Z. Ma (2020), Understanding Reverse Routing Path Choice Behavior in Congested Metro Systems, *Transportation Research Board 99th Annual Meeting.*
28. Y. Zhao, L. Ren\*, Z. Ma (2020), A Novel Three-Stage Framework for Prioritizing And Selecting Feature Variables For Short-Term Metro Passenger Flow Prediction, *Transportation Research Board 99th Annual Meeting, Washington D.C., United States.*
29. Z. Ma\*, B. Mo, Y. Zhu, H. Koutsopoulos (2019). Route Choice Estimation Using Smartcard Data in Urban Railways, *Conferences on Advanced Systems in Public Transport and TransitData, Paris, France.*
30. Z. Ma\*, H. N. Koutsopoulos, Y. Zheng (2019). Evaluation of the On-Demand Ridesplitting Services. *Transportation Research Board 98th Annual Meeting, Washington D.C., United States*
31. Z. Ma\*, H. N. Koutsopoulos, Y. Chen, N. H. M. Wilson (2019). Estimation of Denied Boarding in Urban Rail Systems: Alternative Formulations and Comparative Analysis, *Transportation Research Board 98th Annual Meeting, Washington D.C., United States.*

32. Z. Ma\*, A. A. Basu, T. Liu, H. N. Koutsopoulos (2019). Behavioral Response to Transit Demand Management Promotions: Sustainability and Implications for Optimal Promotion Design, *Transportation Research Board 98th Annual Meeting, Washington D.C., United States*.
33. Z. Ma\*, H. Koutsopoulos, Y. Chen, N. H. M. Wilson (2018). Estimation of Denied Boarding in Urban Rail Systems: Alternative Formulations and Comparative Analysis, *Conferences on Advanced Systems in Public Transport and TransitData, Brisbane, Australia*.
34. Z. Ma\*, H. Koutsopoulos, Y. Chen (2018). Optimal Design of Transit Demand Management Strategies: Case Study in Hong Kong, *Transportation Research Board 97th Annual Meeting, Washington D.C., United States*.
35. Z. Ma\*, H. Koutsopoulos, L. Ferreira (2017). Quantile Regression Analysis of Transit Travel Time Reliability Using Automatic Vehicle Location and Fare Card Data, *Transportation Research Board 96th Annual Meeting, Washington D.C., United States*.
36. N. Nassir\*, M. Hickman, Z. Ma (2017). Statistical Inference of Transit Passenger Boarding Strategies from Farecard Data, *Transportation Research Board 96th Annual Meeting, Washington D.C., United States*.
37. Z. Ma\*, H. Koutsopoulos, L. Ferreira, M. Mesbah (2016). Estimation of Traffic State Transition Probabilities and its Application to Travel Time Prediction, *Transportation Research Board 95th Annual Meeting 2016, Washington D.C., United States*.
38. S. Pyrohova\*, M. Hickman, Z. Ma (2016). Bus Rapid Transit and Features of Land Distribution: A Case Study of Brisbane, *38th Australian Transportation Research Forum, Melbourne, Australia*.
39. Z. Ma\*, L. Ferreira, M. Mesbah, A. Hojati (2015). Modeling Bus Travel Time Reliability Using Supply and Demand Data from Automatic Vehicle Location and Smart Card Systems, *Transportation Research Board 94th Annual Meeting, Washington D.C., United States*.
40. N. Nassir\*, M. Hickman, Z. Ma (2015). Behavioural Findings of Observed Transit Route Choice Strategies from the Fare Card Data in Brisbane, *35th Australian Transport. Research Forum, Sydney, Australia*.
41. N. Nassir\*, M. Hickman, Z. Ma (2015). Mining Transit Passenger Boarding Strategies from Fare Card Data, *13th Conferences on Advanced Systems in Public Transport, Rotterdam, Netherlands*.
42. Z. Ma\*, L. Ferreira, M. Mesbah (2013) A Framework for the Development of Bus Service Reliability Measures, *34th Australian Transportation Research Forum, Brisbane, Australia*.

## GRANTED PATENTS

1. CN102074124B, *A dynamic method for bus arrival time prediction based on SVM and H-infinite filter*, China Invention Patent, 2013
2. CN102226700B, *An electronic map matching method for overpass road network*, China Invention Patent, 2013
3. CN102243314B, *Real-time differential measurement device for shipborne reference station with regular movement and its working method*, China Invention Patent, 2013
4. CN102508270B, *VRS information receiving terminal based on regional grid dividing mechanism and its working method*, China Invention Patent, 2013
5. CN102164406B, *Non-line-of-sight path identification device for wireless sensor node positioning and its working method*, China Invention Patent, 2011

## ORGANIZATION AND TALKS

1. Invited Talk, Workshop on Machine Learning in Railways, Norwegian Railway Directorate, February 2023
2. Invited Talk, Webinar on AI Applications for Future Transportation, Monash University, January 2023
3. Workshop Organizer, Applied AI in Transportation, Stockholm, Sweden, December 2022 (Participants from DTU, Chalmers, LiU, KTH, Trafikverket, SL, VTI, WSP, SWECO, SCANIA)
4. Invited Talk, Population Synthesis and Activity based Modeling Workshop, Gothenburg, Sweden, December 2022
5. Session Chair and Lectern Presentation, 4th Symposium on Management of Future Motorway and Urban Traffic Systems 2022, Dresden, Germany, November 2022
6. Lectern Presentation, Transportation Research Arena Conference, Lisbon, Portugal, October 2022
7. Invited Talk, Persontrafik 2022 Conference, Stockholm, Sweden, October 2022
8. Invited Talk, 40th Anniversary International Conference of the Korean Society of Transportation, South Korea, September 2022
9. Workshop Organizer, Cities Partnership Workshop on Rail Data, Stockholm/London, May/July 2022 (Participants from KTH, UCL, and Lund)
10. Invited Seminar, KTH, Integrate Transport Research Lab (Ericsson and Scania), Stockholm, Sweden Oct, 2021
11. Invited Seminar, Tongji University, College of Traffic and Transportation Engineering, Shanghai, China, May 2021
12. Research Transit Podcast, Apple Podcast, Australia, September 2020
13. Session Chair, Tri-University Workshop (Australia and China), Monash University, Clayton, Australia, Jan 2020
14. Invited Seminar, School of Transportation, Southeast University, China, September 2019
15. Invited Seminar, Smart Public Transport Lab, Delft University, Netherland, July 2019
16. Invited Talk, Sustainable Civil Engineering Workshop, China 2019 (Liverpool Uni, Monash Uni, Tongji Uni, Nanjing Uni. Southeast Uni. Xian Jiaotong Uni.)
17. Lectern Presentation, Transit Data Conference, Paris, France 2019
18. Lectern Presentation, Transportation Research Board Annual Meeting, United States, 2015-2022
19. Invited Seminar, Massachusetts Institute of Technology, Cambridge MA, United States, Jul 2018
20. Invited Talk, Mass Transit Railway Co. Ltd., Hong Kong, February 2018
21. Lectern Presentation, Transit Data Conference, Australia, 2018
22. Lectern Presentation, IEEE conference on Intelligent Transportation Systems, Japan, 2017

## ACADEMIC SERVICE AND AFFILIATIONS

### *Journal Editorial Service*

1. Associate Editor, IEEE Transactions on Intelligent Transportation Systems (IF 9.55), 2022-
2. Editorial Board Member, SAGE Transactions In Urban Data, Science, and Technology, 2022-

3. Guest Editor, Transport policy evaluation based on empirical data, Transportation Research Part A: Policy and Practice, 2021

#### *Committee Member*

1. AP090: Transit Data, NASEM Transportation Research Board (TRB), United States, 2021-
2. AEP60: Transportation Demand Management, NASEM TRB, United States, 2021-
3. ASCE Committee on Mobility on Demand and as a Service (MODaaS), United States, 2021-

#### *Funding Reviewer*

- Chile FONDECYT (National Fund for Scientific and Technological Development), 2020  
Fonds National de la Recherche Luxembourg (FNR, Luxembourg National Research Fund), 2022

#### *Paper Reviewer*

1. Nature: Scientific Data
2. Transportation Research Part B: Methodological
3. Transportation Research Part C: Emerging Technologies
4. Transportation Research Part E: Logistics and Transportation Review
5. Transportation
6. Transportmetrica A: Transportation Science
7. Transportation Research Record
8. ASCE Transportation Engineering
9. Journal of Advanced Transportation
10. IEEE Transactions on Intelligent Transportation Systems
11. IEEE Open Journal of Intelligent Transportation Systems
12. IET Intelligent Transport Systems
13. IEEE Transactions on Knowledge and Data Engineering
14. Neural Computing and Applications
15. Expert Systems with Applications
16. ACM Transactions on Intelligent Systems and Technology
17. Transportation Research Boarding (TRB) Annual Meeting
18. IEEE International Conference on Intelligent Transportation Systems
19. Australia Transport Research Forum