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EDUCATION

- Ph.D. Civil Engineering (Transportation)** Dec 2013
Rensselaer Polytechnic Institute, Troy, NY
Dissertation: *Modeling and Solving Dynamic Traffic Assignment Problems in Continuous-time* Advisor: Dr. Xuegang (Jeff) Ban
- B.S. Automation** Jul 2009
Tsinghua University, P. R. China
Thesis: *Traffic Engineering Analysis for Traffic Signal Control*
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RESEARCH INTERESTS

- Dynamic Transportation Network Modeling • Dynamic Ridesharing and New Mobility
 - Data Analytics and Control on Urban Traffic • Sustainable Transportation
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PROFESSIONAL EXPERIENCE

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| University of Alabama in Huntsville
Huntsville, AL | Assistant Professor
Aug 2019~ |
| University of California, Davis
Davis, CA | Lecturer
Summer 2016, Fall 2018 |
| Group628, Inc.
Online Courses | Guest Lecturer
2018 |
| University of California, Davis
Davis, CA | Postdoc Scholar
Mar 2014~Jul 2019 |
| Rensselaer Polytechnic Institute
Troy, NY | Postdoctoral Research Associate
2014 |
| Rensselaer Polytechnic Institute
Troy, NY | Graduate Research and Teaching Assistant
2009~2013 |
| Baosheng Group, China
Yangzhou, China | Control Designer-Intern
2008 |
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AWARDS

1. Outstanding reviewer (10%), Transportation Research Part B; Part C; Part D 2018
2. NSF BECS Workshop Student Travel Fund, NSF 2011 & 2013
3. University Transportation Research Center (UTRC) Travel Awards 2012
4. First Prize in Tsinghua University Information Science Competition 2006
5. The First-class Academic Scholarship of Tsinghua Undergraduate (top 1.5%) 2005
6. Rank 1st of Ningxia in Chinese National College Entrance Examination (1/50,000) 2005
7. First Prizes Chinese National Olympiad of Physics, Chemistry, Biology 2004

PUBLICATIONS

Refereed Journal Papers

1. Deng, Y., Wang, T., & **Ma, R.**, 2019. Acceptable Threshold of Parking Charges for Urban Electric Bicycles. *Promet-Traffic&Transportation*, 31(3), 257-269.
2. Li, Y., Nan, S., Gong, X., & **Ma, R.**, 2019. A geometric design method for intersections with pre-signal systems using a phase swap sorting strategy. *PloS one*, 14(5), e0217741.
3. Di, X., **Ma, R.**, Liu, H.X., Ban, X., 2018. A Link-Node Reformulation of Ridesharing User Equilibrium with Network Design. *Transportation Research Part B 112*, 230–255.
4. Yu, H., **Ma, R.**, Zhang, H.M., 2018. Optimal traffic signal control under dynamic user equilibrium and link constraints in a general network. *Transportation Research Part B 110*, 302-325.
5. Chai, H., **Ma, R.**, Zhang, H.M., 2018. Search for parking: a dynamic parking and route guidance system for efficient parking and traffic management. *Journal of Intelligent Transportation Systems*, Online first, doi:10.1080/15472450.2018.1488218.
6. Sun, Z., Tan, Y., **Ma, R.**, Yang, X., Zhang, J., 2018. Multiple Equilibrium Behaviors considering Human Exposure to Vehicular Emissions. *Journal of Advanced Transportation*. Online first, doi:10.1155/2018/9365120.
7. Yu, H., Liu, P., **Ma, R.**, Bai, L., 2018. Performance Evaluation of Integrated Strategy of Vehicle Route Guidance and Traffic Signal Control Using Traffic Simulation. *IET Intelligent Transport Systems*. Online first, doi:10.1049/iet-its.2017.0283.
8. **Ma, R.**, Zhang, H.M., 2017. The morning commute problem with ridesharing and dynamic parking charges. *Transportation Research Part B 106*, 345-374.
9. Yang, L., **Ma, R.**, Zhang, H.M., Guan, W., Jiang, S., 2017. Driving behavior recognition from EEG data obtained from simulated car following experiments. *Accident Analysis & Prevention* 116, 30-40.
10. **Ma, R.**, Chen, S., Zhang, H.M., 2017. The relation between parking garage occupancy and traffic speeds in cities – results from a data driven study. *Journal of the Transportation Research Board 2643*, 74–83.
11. **Ma, R.**, Ban, X., Pang, J., 2017. A link-based dynamic complementarity system formulation for continuous-time dynamic user equilibria with queue spillbacks. *Transportation Science* 52(3), 564–592.
12. **Ma, R.**, Ban, X., Szeto, W.Y., 2017. Emission modeling and pricing on single-destination dynamic traffic networks. *Transportation Research Part B 100*, 255–283.
13. Deng, Y., **Ma, R.**, Zhang, H.M., 2017. An optimization based highway network planning procedure with link growth probabilities. *Transportmetrica A: Transport Science* 13(8), 708-726.
14. Yang, X., Ban, X., **Ma, R.**, 2017. Mixed equilibria with common link constraints on transportation networks. *Networks and Spatial Economics* 17(2), 547–579.
15. Zhang, W., He, Z., Guan, W., **Ma, R.**, 2017. Selfish routing equilibrium in stochastic traffic network: A probability-dominant description. *PLoS ONE* 12(8): e0183135.
16. **Ma, R.**, Ban, X., Pang, J., Liu, H., 2015. Approximating time delays in solving continuous-time dynamic user equilibria. *Networks and Spatial Economics* 15, 443–463.
17. **Ma, R.**, Ban, X., Pang, J., Liu, H., 2015. Convergence of time discretization schemes for continuous-time dynamic network loading models. *Networks and Spatial Economics* 15, 419–441.

18. **Ma, R.**, Ban, X., Pang, J., 2014. Continuous-time dynamic system optimum for single-destination traffic networks with queue spillbacks. *Transportation Research Part B* 68, 98-122.
19. Ban, X., Pang, J., Liu, H., **Ma, R.**, 2012. Modeling and solving continuous-time instantaneous dynamic user equilibria: A differential complementarity systems approach. *Transportation Research Part B* 46(3), 389–408.
20. Ban, X., Pang, J., Liu, H., **Ma, R.**, 2012. Continuous-time point-queue models in dynamic network loading. *Transportation Research Part B* 46(3), 360–380.
21. Wang, F., Li, L., Hu, J., Ji, Y., **Ma, R.**, Jiang, R., 2009. A Markov process inspired CA model of highway traffic. *International Journal of Modern Physics C* 20(1), 117-131.

Refereed Journal Papers under Review

22. **Ma, R.**, Zhang, H.M., 2017. The morning commute problem of dynamic ridesharing travelers with heterogeneous values of travel time. Submitted to *Transportation Science*. In revision. TS-2017-0118.
23. **Ma, R.**, Yang, X., Earle, B., Wetmore, S., Ban, X., 2018. Modeling for benchmark evacuations using dynamic system optimum principle: a case study. Submitted to *Journal of Optimization*.
24. **Ma, R.**, Chen, S., Zhang, H.M., 2017. Time series relations between parking garage occupancy and traffic speed in macroscopic downtown areas – a data driven study. Submitted to *Journal of Intelligent Transportation Systems*. In second round review.
25. Yang, X., **Ma, R.**, Ban, X., Ge, Y., 2017. Link travel time approximation in double queue traffic model. Accepted by CICPT2018 Proceedings.

Working Papers

1. **Ma, R.**, Zhang, H.M., 2018. Ridesharing on a many-to-one network with a common parking location. Extended abstract accepted by *the 23rd International Symposium on Transportation and Traffic Theory*. Paper prepared for submission.
2. Zhang, W., Jiang, S., **Ma, R.**, Zhu, N. 2019. The detourable vehicle routing and scheduling problem with 1 temporal accessibility restrictions.

Refereed Conference Papers

1. **Ma, R.**, Chen, S., Zhang, H.M., 2018. Time series relations between parking garage occupancy and traffic speed in macroscopic downtown areas – a data driven study. In Proceedings of *the 97th Annual Meeting of the Transportation Research Board*.
2. **Ma, R.**, Zhang, H.M., 2017. On the morning commute problem with heterogeneous dynamic ridesharing travelers. In Proceedings of *the 96th Annual Meeting of the Transportation Research Board*.
3. **Ma, R.**, Chen, S., Zhang, H.M., 2017. The relation between parking garage occupancy and traffic speeds in cities – results from a data driven study. In Proceedings of *the 96th Annual Meeting of the Transportation Research Board*.
4. Chai, H., **Ma, R.**, Zhang, H.M., 2017. Search for parking: a dynamic parking and route guidance system for efficient parking and traffic management. In Proceedings of *the 96th Annual Meeting of the Transportation Research Board*.
5. **Ma, R.**, Ban, X., Szeto, W.Y., 2015. Emission modeling and control framework for dynamic transportation networks. *Transportation Research Procedia* 9, 106-129. Proceedings of *the 21st International Symposium on Transportation and Traffic Theory*.

6. Deng, Y., Ru, X., **Ma, R.**, Zhang, H.M., 2016. Design of Routing Emergency Shuttle Bus for Small-Size Metro Railway Network. In Proceedings of *the 95th Annual Meeting of the Transportation Research Board*.
 7. Yang, X., Ban, X., **Ma, R.**, 2016. Link travel time approximation in double queue traffic model. In Proceedings of *the 95th Annual Meeting of the Transportation Research Board*.
 8. **Ma, R.**, Ban, X., 2015. Continuous-time instantaneous dynamic user equilibria on a real-world traffic network. In Proceedings of *the 94th Annual Meeting of the Transportation Research Board*.
 9. Yang, X., **Ma, R.**, Ban, X. 2015. Modeling mixed equilibria in transportation networks with link constraints. In Proceedings of *the 94th Annual Meeting of the Transportation Research Board*.
 10. Yu, H., **Ma, R.**, Liu, P., Zhang, H.M., 2015. Optimal traffic signal control considering DUE route choice and queue spillbacks. In Proceedings of *the 94th Annual Meeting of the Transportation Research Board*.
 11. **Ma, R.**, Earle, B., Wetmore, S., Ban, X., 2014. Evacuation modeling using dynamic system optimum principle: A case study. In Proceedings of *the 5th International Symposium on Dynamic Traffic Assignment*.
 12. **Ma, R.**, Ban, X., Pang, J., 2014. Continuous-time dynamic user equilibrium model with departure-time choice and capacitated queue. In Proceedings of *the 5th International Symposium on Dynamic Traffic Assignment*.
 13. **Ma, R.**, Ban, X., Pang, J., 2014. Continuous-time dynamic user equilibrium with departure-time choice and capacitated queue. In Proceedings of *the 93rd Annual Meeting of the Transportation Research Board (CD-ROM)*.
 14. **Ma, R.**, Ban, X., Pang, J., Liu, H., 2013. Approximating time delays in solving continuous-time dynamic user equilibria. In Proceedings of *the 92nd Annual Meeting of the Transportation Research Board (CD-ROM)*.
 15. **Ma, R.**, Ban, X., Pang, J., 2013. Continuous-time dynamic system optimal for single-destination traffic networks with queue spillbacks. In Proceedings of *the 92nd Annual Meeting of the Transportation Research Board (CD-ROM)*.
 16. **Ma, R.**, Ban, X., 2012. Realization probability of traffic user equilibria. In Proceedings of *the 17th International Conference of Hong Kong Society for Transportation Studies (HKSTS)*, Hong Kong.
 17. **Ma, R.**, Ban, X., Pang, J., Liu, H., 2012. Convergence of time discretization schemes for continuous-time dynamic network loading models. In Proceedings of *the 91st Annual Meeting of the Transportation Research Board (CD-ROM)*.
 18. Ban, X., Pang, J., Liu, H., **Ma, R.**, 2012. Continuous-time dynamic user equilibria I: point-queue models for dynamic network loading. In Proceedings of *the 91st Annual Meeting of the Transportation Research Board (CD-ROM)*.
 19. **Ma, R.**, Ban, X., 2011. Realization probability of user equilibrium solutions under nonunique equilibria. In Proceedings of *the 90th Annual Meeting of the Transportation Research Board (CD-ROM)*.
 20. Zhang, G., Hu, J., **Ma, R.**, He, Y., Zhang, Y., 2009. Research on urban traffic and dynamic revolution based on visualized model. In Proceedings of *WRI World Congress on Computer Science and Information Engineering*, pp. 70-75, doi:10.1109/CSIE.2009.219.
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RESEARCH EXPERIENCE

Research Projects Involved

1. A Study of the Integrated Parking and Ridesharing Pricing/Incentives and their Social and Environmental Impacts in Metropolitan Areas

Funded by: *CTECH, USDOT*

- Major co-author of the proposal. Funded.
- Leading researcher on parking data, ridesharing pricing models and social impacts.
- understanding dynamic traffic pattern through crowd-source traffic data
- Data collection from mobile apps and smart parking data
- Data fusion and analysis

2. The Connected Traveler: A Framework to Reduce Energy Use in Transportation

Funded by: *The Advanced Research Projects Agency Energy (ARPA-E)*

- Major co-author of the concept paper and the proposal. Funded.
- Leading researcher on dynamic ridesharing system modeling.

3. Evaluation of Freeway Traffic Data Acquisition: Technology, Quality and Cost

Funded by: *DRISI, California Department of Transportation (Caltrans)*

- Major co-author of the proposal. Funded.
- Ongoing research on travel time data analysis and contact with traffic data vendors.

4. CPS Synergy: Collaborative Research: Matching Parking Supply to Travel Demand towards Sustainability: A Cyber Physical Social System for Sensing Driven Parking

Funded by: *Computer and Network Systems (CNS), NSF*

- Co-author of the proposal. Funded.
- Analyzing smart data from mobile sensing, real-time parking information, personalized smart devices among others.

5. Traffic Guidance under Mixed Equilibria with Considerations of Emission Exposures

Funded by: *National Science Foundation of China (NSFC)*

- Co-PI, major co-author of the proposal. Funded.

6. PFI: BIC - A Data-Driven Smart Bus Service System for Enhanced Mobility and Reduced Environmental Footprint

Evaluated by: *Partnerships for Innovation: Building Innovation Capacity - Smart Service Systems, NSF*

- Major co-author of the proposal. Proposal Submitted.

7. Multi-modal intersection modeling and control in a connected vehicle/people environment

Evaluated by: *Cyber-Physical Systems (CPS), NSF*

- Co-author of the proposal.

8. CRISP Type 2: Collaborative Research: Enhancing Resilience of Interdependent Communication, Highway and Transit Infrastructure through Socially Driven Integrative Design

Evaluated by: *Critical Resilient Interdependent Infrastructure Systems and Processes (CRISP), NSF*

- Co-author of the proposal.

9. Leverage Parking to Increase Transit Ridership and Reduce VMT

Evaluated by: *National Center for Sustainable Transportation (NCST)*

- Co-author of the proposal

10. Increasing transit ridership in a multi-modal corridor with shared mobility services and parking management

Evaluated by: *National Center for Sustainable Transportation (NCST)*

- Co-author of the proposal

11. BECS Collaborative Research: Modeling the Dynamics of Traffic User Equilibria Using Differential Variational Inequalities

Funded by: *National Science Foundation (NSF)*

- Differential variational inequality (DVI) and optimal control framework for the continuous-time dynamic traffic assignment problems
- Continuous-time double-queue link dynamic model for spillback phenomena
- Approximation of time-varying state-dependent delays using the pseudo-derivative
- Stability and convergence analysis of dynamic network loading models
- Applications of dynamic traffic assignment models: evacuation modeling and network-wide emission modeling

12. Adaptive Traffic Signal Control System (ACS Lite) on Wolf Road of Albany, NY

Funded by: *New York State Department of Transportation (NYSDOT), US Department of Transportation (USDOT)*

- Field data collection of the Wolf Road corridor
- Investigation of the corridor wide macroscopic fundamental diagram (MFD) under different signal control strategies using real world and simulation data
- Performance evaluation of adaptive traffic signal control systems

13. Development of a Decision-Making Tool for Corridor Based Transportation Management

Funded by: *New York State Energy Research and Development Authority (NYSERDA), New York State Department of Transportation (NYSDOT)*

- Field data collection of the Tarrytown Road corridor
- Performance evaluation using micro-simulation of the studies area

14. Development of Expert Systems in ITS Decision

Funded by: *California Department of Transportation (Caltrans)*

- Development of an online expert system for the decisions of ITS applications including advanced travel information system, transit automatic vehicle location, congestion pricing, employer-based transit program, electronic toll collection, freeway service patrol, ramp metering installation assessment and weigh-in-motion
- Website interface design and deployment in Java
- Communication with IT technicians on transferring website contents

15. NCFRP 25: Freight Trip Generation and Land Use

Funded by: *The National Cooperative Freight Research Program (NCFRP)*

- Literature reviews on freight trip generation and freight generation in the US
- Project reports writing

TEACHING EXPERIENCE

- CE 420/520 Urban Transportation Planning, UAH** Fall 2019
- *Role:* Instructor
 - *Course description:* (Graduate and undergraduate level course) This course is designed to provide students with an in-depth understanding of the urban transportation planning process. The course is intended to provide a strong foundation in urban transportation planning covering demand and supply, data and survey, trip generation, trip distribution, mode split, traffic assignments, etc.
- ECI 256 Urban Traffic Management Control, UC Davis** Fall 2018
- *Role:* Instructor
 - *Course description:* (Graduate course) Basic concepts, models, and methods related to the branch of traffic science, control and management that deals with the movement of vehicles on a road network, including travel speed, travel time, congestion concepts, car-following and hydrodynamic traffic models.
 - *Responsibilities:* Individually deliver lectures, hold office hours, assign and grade homework and exams.
 - *Course evaluation:* 4.5 / 5.
- ECI 114 Probabilistic Systems Analysis for Civil Engineers, UC Davis** Summer 2016
- *Role:* Instructor
 - *Course description:* (Undergraduate course) Probabilistic concepts and models in engineering. Statistical analysis of engineering experimental and field data. Introduction to stochastic processes and models of engineering systems.
 - *Responsibilities:* Individually deliver lectures and hold office hours.
 - *Course evaluation:* 4.2 / 5.
- ECI 257 Flow in Transportation Networks, UC Davis** Winter 2016; Winter 2017
- *Role:* Co-instructor
 - *Course description:* (Graduate course) This course covers elements of graph theory, a survey of pertinent optimization techniques, extreme principles in network flow problems, deterministic equilibrium assignment, stochastic equilibrium assignment, extensions of equilibrium assignments and dynamic transportation network assignment.
 - *Responsibilities:* held three lectures on dynamic traffic assignment problems.
- CIVL 6260 Transportation Network Analysis, RPI** Spring 2013
- *Role:* Co-instructor
 - *Course description:* (Graduate course) This course introduces fundamentals of transportation network analysis, including graph representations of transportation networks, shortest path search algorithms, static traffic assignment and user equilibrium, and dynamic traffic assignment.
 - *Responsibilities:* held two lectures on dynamic user equilibrium and dynamic system optimum based on latest research work.
- ENGR 1100 Introduction to Engineering Analysis, RPI** Fall 2012
- *Role:* Teaching assistant
 - *Course description:* (Undergraduate course) This course provides an integrated treatment of Vector Mechanics (Statics) and Linear Algebra. It also emphasizes computer-based matrix methods for solving engineering problems.

- *Responsibilities:* Graded in-class assignments, homework and exams; led class discussion; held office hours to answer questions regarding course homework

ENGR 4760 Engineering Economics, RPI

Spring 2012

- *Role:* Teaching assistant
- *Course description:* (Graduate course) This course introduces cost factors that are inherent in all engineering decisions. The course includes value analysis, interest and money-time relationships, depreciation and valuation, capital financing and budgeting, economic studies of public projects and economic studies in public utilities.
- *Responsibilities:* Graded homework and exams; led class discussion; held office hours to answer questions regarding course homework

Online Courses

Lecturer on Kaggle Data Science Competition

2018

Lecturer on Data Mining and Web Crawling in Python

2018

PROFESSIONAL AND PUBLIC LECTURES

A. Invited Conference Podium Presentations

1. **Ma, R.** (speaker), Zhang, H.M., 2018. Ridesharing on a many-to-one network with multiple corridors and a common destination. *INFORMS Annual Meeting*, Nov 4-7, 2018, Phoenix, AZ.
2. **Ma, R.** (speaker), Chen, S., Zhang, H.M., 2017. A data driven study on the relation between parking garage occupancy and traffic speeds in urban areas. *INFORMS Annual Meeting*, Oct 22-25, 2017, Houston, TX.
3. **Ma, R.** (speaker), Zhang, H.M., 2017. Equilibrium and ridesharing payment policies for heterogeneous dynamic ridesharing travelers in morning commute. *INFORMS Annual Meeting*, Oct 22-25, 2017, Houston, TX.
4. **Ma, R.** (speaker), Zhang, H.M., 2017. The morning commute problem with ridesharing and dynamic parking charges. *INFORMS Annual Meeting*, Oct 22-25, 2017, Houston, TX.
5. **Ma, R.** (speaker), Zhang, H.M., 2017. On the morning commute problem with heterogeneous dynamic ridesharing travelers. *The 96th Annual Meeting of the Transportation Research Board*, Jan 8-12, 2017, Washington, D.C.
6. **Ma, R.** (speaker), Ban, X., 2015. Continuous-time instantaneous dynamic user equilibria on a real-world traffic network. *The 94th Annual Meeting of the Transportation Research Board*, Jan 11-15, 2015, Washington, D.C.
7. **Ma, R.** (speaker), Zhang, H.M., 2014. A dynamic user equilibrium formulation with dynamic parking pricing. *INFORMS Annual Meeting*, Nov 9-12, 2014, San Francisco, CA.
8. **Ma, R.** (speaker), Zhang, H.M., 2014. How urban traffic pattern evolves? A case study on fix50 project using crowd-sourced traffic data. *INFORMS Annual Meeting*, Nov 9-12, 2014, San Francisco, CA.
9. **Ma, R.** (speaker), Ban, X., Pang, J., 2014. Continuous-time dynamic user equilibrium with departure-time choice and capacitated queue. *The 93rd Transportation Research Board Annual Meeting*, Jan 12-16, 2014, Washington, D.C.
10. **Ma, R.** (speaker), 2014. Modeling and solving dynamic traffic assignment problems in continuous time. *The 93rd Transportation Research Board Annual Meeting*, Jan 12-16, 2014, Washington, D.C.
11. **Ma, R.** (speaker), Ban, X., 2013. Emission modeling and control in dynamic transportation networks. *INFORMS Annual Meeting*, Oct 6-9, 2013, Minneapolis, MN.

12. **Ma, R.** (speaker), Ban, X., 2013. Dynamic system optimum model and applications on evacuation modeling. *INFORMS Annual Meeting*, Oct 6-9, 2013, Minneapolis, MN.
13. **Ma, R.** (speaker), Ban, X., 2013. Instantaneous dynamic user equilibrium: A real world case study. *INFORMS Annual Meeting*, Oct 6-9, 2013, Minneapolis, MN.
14. **Ma, R.** (speaker), Ban, X., 2013. Evolutionary game and realization probability of traffic user equilibrium. *INFORMS Annual Meeting*, Oct 6-9, 2013, Minneapolis, MN.
15. **Ma, R.** (speaker), Ban, X., Pang, J., Liu, H., 2013. Approximating time delays in solving continuous-time dynamic user equilibria. *The 92nd Transportation Research Board Annual Meeting*, Jan 13-17, 2013, Washington, D.C.
16. **Ma, R.** (speaker), Ban, X., Pang, J., 2013. Continuous-time dynamic system optimal for single-destination traffic networks with queue spillbacks. *The 92nd Transportation Research Board Annual Meeting*, Jan 13-17, 2013, Washington, D.C.
17. **Ma, R.** (speaker), Ban, X., Pang, J., Liu, H., 2012. Convergence of time discretization schemes for continuous-time dynamic network loading models. *The 4th International Symposium on Dynamic Traffic Assignment*. Jun 4-6, Martha's Vineyard, MA.
18. **Ma, R.** (speaker), Ban, X., Pang, J., Liu, H., 2012. Approximating time delays in solving continuous-time dynamic user equilibria. *The 4th International Symposium on Dynamic Traffic Assignment*. Jun 4-6, Martha's Vineyard, MA.
19. **Ma, R.** (speaker), Ban, X., Pang, J., Liu, H., 2012. Convergence of time discretization schemes for continuous-time dynamic network loading models. *The 91st Transportation Research Board Annual Meeting*, Jan 22-26, 2012, Washington, D.C.
20. Ban, X., Pang, J., Liu, H., **Ma, R.** (speaker), 2012. Continuous-time dynamic user equilibria I: point-queue models for dynamic network loading. *The 91st Transportation Research Board Annual Meeting*, Jan 22-26, 2012, Washington, D.C.
21. **Ma, R.** (speaker), Ban, X., Pang, J., 2012. Approximating time delays in solving continuous-time dynamic user equilibrium. *INFORMS Annual Meeting*, Oct 14-17, 2012, Phoenix, AZ.
22. **Ma, R.** (speaker), Ban, X., Pang, J., 2012. Continuous-time dynamic user equilibrium models with capacitated point queues. *INFORMS Annual Meeting*, Oct 14-17, 2012, Phoenix, AZ.
23. **Ma, R.** (speaker), Ban, X., Pang, J., 2012. Modeling of dynamic system optimal in continuous-time. *INFORMS Annual Meeting*, Oct 14-17, 2012, Phoenix, AZ.
24. **Ma, R.** (speaker), Ban, X., Liu, H., Pang, J., 2011. Consistency between continuous-time and discrete-time dynamic network loading models. *INFORMS Annual Meeting*, Nov 13-16, 2011, Charlotte, NC.
25. Ban, X., Liu, H., **Ma, R.** (speaker), Pang, J., 2011. Modeling and solution of continuous-time instantaneous dynamic user equilibria. *INFORMS Annual Meeting*, Nov 13-16, 2011, Charlotte, NC.
26. **Ma, R.** (speaker), Ban, X., 2011. Realization probability of user equilibrium solutions under nonunique equilibria. *The 90th Transportation Research Board Annual Meeting*, Jan 23-27, 2011, Washington, D.C.

B. Invited Poster Presentation

27. **Ma, R.** (presenter), Chen, S., Zhang, H.M., 2018. Time series relations between parking garage occupancy and traffic speed in macroscopic downtown areas – a data driven study. The 97th Annual Meeting of the Transportation Research Board, Jan 7-11, 2018, Washington, D.C.
28. Hao, P., **Ma, R.** (presenter), Shan, X., Wu, G., Boriboonsomsin, K., Barth., M., 2017. Evaluating Configurations of Managed Lane Access Control Using Multi-Commodity Link-

Node Cell Transmission Model. The 96th Annual Meeting of the Transportation Research Board, Jan 8-12, 2017, Washington, D.C.

29. **Ma, R.** (presenter), Chen, S., Zhang, H.M., 2017. The relation between parking garage occupancy and traffic speeds in cities – results from a data driven study. The 96th Annual Meeting of the Transportation Research Board, Jan 8-12, 2017, Washington, D.C.
30. Chai, H., **Ma, R.** (presenter), Zhang, H.M., 2017. Search for parking: a dynamic parking and route guidance system for efficient parking and traffic management. The 96th Annual Meeting of the Transportation Research Board, Jan 8-12, 2017, Washington, D.C.
31. Deng, Y., Ru, X., **Ma, R.**, (presenter), Zhang, H.M., 2016. Design of Routing Emergency Shuttle Bus for Small-Size Metro Railway Network. The 95th Annual Meeting of the Transportation Research Board, Jan 10-14, 2016, Washington, D.C.
32. **Ma, R.** (presenter), Ban, X., Szeto, W.Y., 2015. Emission modeling and control framework for dynamic transportation networks. The 21st International Symposium on Transportation and Traffic Theory, August 2015. Kobe, Japan.
33. Yang, X., **Ma, R.** (presenter), Ban, X., 2015. Modeling mixed equilibria in transportation networks with link constraints. *The 94th Annual Meeting of the Transportation Research Board*, Jan 11-15, 2015, Washington, D.C.
34. **Ma, R.**, Earle, B., Wetmore, S., Ban, X., 2014. Evacuation modeling using dynamic system optimum principle: A case study. *The 5th International Symposium on Dynamic Traffic Assignment*. Jun 17-19, 2014, Salerno, Italy.
35. **Ma, R.**, Ban, X., 2014. Continuous-time instantaneous dynamic user equilibria on a real-world traffic network. *The 5th International Symposium on Dynamic Traffic Assignment*. Jun 17-19, 2014, Salerno, Italy.

C. Invited Talks

36. Feb 2019. Job talk at the University of Alabama in Huntsville, Huntsville, AL.
37. March 2019. Job talk at Old Dominion University, Norfolk, VA.
38. Dynamic user equilibrium in continuous-time and pricing strategies for system optimum. May 2015. Presented at the Transportation System Optimization Workshop for California transportation researchers. University of Southern California, Los Angeles, CA.
39. A continuous-time dynamic user equilibrium model in differential complementarity systems. December 2014. Presented at the seminar in Department of Automation, Tsinghua University.
40. A differential complementarity system based continuous-time dynamic user equilibrium model. December 2014. Presented at the seminar in School of Highways, Chang'an University, Xi'an, China.
41. Modeling and solving dynamic user equilibrium problems in continuous time. Presented at the seminar series for international visiting scholars, Spring 2014. University of California, Davis, CA.
42. Evolutionary game and realization probability of traffic user equilibria. Presented at the seminar series for international visiting scholars, Spring 2014. University of California, Davis, CA.
43. Continuous-time dynamic system optimum (DSO) for single-destination traffic networks with queue spillbacks. Presented at the seminar series on "Systems, Dynamics, and Control". Rensselaer Polytechnic Institute, Troy, NY.
44. Dynamic user equilibrium with double queue model. Lectures in Transportation Network Analysis (CIVL 6260), Spring 2013, Rensselaer Polytechnic Institute, Troy, NY.

45. **Ma, R.**, 2013. Continuous-time dynamic system optimum for single-destination traffic networks with queue spillbacks. Lecture in Transportation Network Analysis (CIVL 6260), Spring 2013, Rensselaer Polytechnic Institute, Troy, NY.

REVIEWS OF MANUSCRIPTS

A. Reviewer for National and International Journals and Conferences:

1. Transportation Research Part B (since 2015)
2. Transportation Science (since 2015)
3. Transportation Research Part D (since 2015)
4. Transportmetrica A: Transport Science (since 2014)
5. Networks and Spatial Economics (2015)
6. IEEE Transactions on Intelligent Transportation Systems (2015)
7. Transportation Research Board Annual Meetings (since 2014)
8. Journal of ITS: Technology, Planning, and Operations (since 2014)
9. International Journal of Modern Physics B (since 2016)
10. International Journal of Modern Physics C (since 2015)
11. Journal of Transportation Safety & Security (since 2015)
12. Journal of Traffic and Transportation Engineering (since 2016)
13. International Symposium on Transportation and Traffic Theory (since 2016)
14. IEEE International Conference on Intelligent Transportation Systems (since 2013)
15. The COTA International Conference of Transportation Professionals (CICTP) (since 2015)

B. Proposal reviewer for National Institutions:

16. Transportation Research Center for Livable Communities (TRCLC) (2016, 2015)

SERVICE

A. Membership in Professional Societies

1. Transportation Research Board (TRB)
2. Institute for Operations Research and the Management Sciences (INFORMS)

B. Conference Organizations

1. Session Chair, Modeling Dynamic Transportation Networks in the Era of Connectivity, Automation, and Sharing, the INFORMS Annual Meeting, Phoenix, AZ, USA (2018)
2. Session Chair, Traffic and Pedestrian Modeling, the INFORMS Annual Meeting, Houston, TX, USA (2017)
3. Session Chair, Mitigating Network Disruptions and Special Events, the INFORMS Annual Meeting, San Francisco, CA, USA (2014)
4. Session Chair, Dynamic Traffic Assignment II - Applications, the INFORMS Annual Meeting, Minneapolis, MN, USA (2013)
5. Abstract Reviewer, UC Davis Postdoctoral Research Symposium, Davis, CA, USA (2015)

COMPUTER SKILLS

Programming Languages: MATLAB, C/C++, Java, Python, JavaScript

Mathematics and Statistics: GAMS, AMPL, SAS, STATA

Transportation Engineering: MATSim, VISSIM, Synchro, TransCAD, Paramics