

# Sina Bahrami

## CONTACT INFORMATION

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## WORK EXPERIENCE

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**Assistant Research Scientist** Feb. 2023 - Present  
*University of Michigan, Ann Arbor, United States*  
Department of Civil & Environmental Engineering

**Assistant Professor** Sep 2021 - Jan. 2023  
*Eindhoven University of Technology, Eindhoven, Netherlands*  
Department of Built Environment

**Postdoctoral Fellow** Jan. 2020 - Aug. 2021  
*University of Michigan, Ann Arbor, United States*  
Research: Vehicle-Infrastructure Cooperative Development for Automated Driving  
Supervisor: Professor Yafeng Yin

**Postdoctoral Fellow** Sep. 2019 - Dec. 2019  
*University of Toronto, Toronto, Canada*  
Research: Impacts of New Technologies on Urban Freight Movement  
Supervisor: Professor Matthew J. Roorda

## EDUCATION

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**Ph.D. in Civil-Transportation Engineering** 2015-2019  
*University of Toronto, Toronto, Canada*  
Thesis: Impacts of Autonomous Vehicles on Parking and Congestion  
Supervisor: Professor Matthew J. Roorda

**M.Sc. in Civil-Transportation Engineering** 2013-2015  
*Sharif University of Technology, Tehran, Iran*  
Thesis: Optimal Charging Facility Location for Electric Vehicles  
Supervisor: Professor Hedayat Z. Aashtiani

**B.Sc. in Civil Engineering** 2007-2012  
*Sharif University of Technology, Tehran, Iran*  
Thesis: Economic Analysis of Earthquake Disasters and the Role of Transportation  
Supervisor: Professor Hossain Poorzahedy

## PUBLICATIONS

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### Peer-reviewed Journal Articles:

13. Radvand, T., **Bahrami, S.**, Yin, Y., and Laberteaux, K. (2022) Curbing Cruising-as-Substitution-for-Parking in Automated Mobility. *Transportation Research Part C: Emerging Technologies.*, 143, 103853.
12. Vignon, D., Yin, Y., **Bahrami, S.**, and Laberteaux, K. (2022). Economic analysis of vehicle-infrastructure cooperative approach to automated driving. *Transportation Research Part C: Emerging Technologies*, 142, 103757.
11. Niroumand, R., **Bahrami, S.**, Aashtiani, H. Z., and Hajbabaie, A. (2022). Battery electric vehicles network equilibrium with flow-dependent energy consumption. *Transportation Research Record: Journal of the Transportation Research Board*, forthcoming.
10. **Bahrami, S.**, Nourinejad, M., Nesheli, M. M., and Yin, Y. (2022). Optimal composition of solo and pool services for on-demand ride-hailing. *Transportation Research Part E: Logistics and Transportation Review*, 161, 102680.
9. **Bahrami, S.**, and Roorda, M. J. (2022). Autonomous vehicle parking policies: A case study of the City of Toronto. *Transportation Research Part A: Policy and Practice.*, 155, 283-296.
8. **Bahrami, S.**, Vignon, D., Yin, Y., and Laberteaux, K. (2021). Parking management of automated vehicles in downtown areas. *Transportation Research Part C: Emerging Technologies*, 126, 103001.
7. **Bahrami, S.**, Nourinejad, M., Amirjamshidi, G., and Roorda, M. J. (2020). The hybrid electric vehicle routing problem: A power management model. *Transportation Research Part C: Emerging Technologies*, 111, 318-333.
6. **Bahrami, S.**, and Roorda, M. J. (2020). Optimal traffic management policies for mixed human and automated traffic flows. *Transportation Research Part A: Policy and Practice*, 135, 130-143.
5. **Bahrami, S.**, and Roorda, M. J. (2020). Autonomous vehicles relocation problem in a parking facility. *Transportmetrica A: Transport Science*, 16(3), 1604-1627.
4. Nourinejad, M., **Bahrami, S.**, and Roorda, M. J. (2018). Design of parking facilities for autonomous vehicles. *Transportation Research Part B: Methodological*, 109, 110-127.
3. **Bahrami, S.**, Aashtiani, H. Z., Nourinejad, M., and Roorda, M. J. (2017). A complementarity equilibrium model for electric vehicles with charging. *International Journal of Transportation Science and Technology*, 6(4), 255-271.
2. Jahangiriesmaili, M., **Bahrami, S.**, and Roorda, M. J. (2017). Solution of two-echelon facility location problems by approximation methods. *Transportation Research Record: Journal of the Transportation Research Board*, 2610, 1-9.
1. Nourinejad, M., Zhu, S., **Bahrami, S.**, and Roorda, M. J. (2015). Vehicle relocation and staff rebalancing in one-way carsharing systems. *Transportation Research Part E: Logistics and Transportation Review*, Vol. 81, No. 1, pp 98-113.

### Peer-reviewed Conference Proceedings:

4. **Bahrami, S.** (2022). Bundle Design for Mobility as a Service. In hEART 2022: 10th Symposium of the European Association for Research in Transportation.

3. Meredith-Karam, P., Jiang, J., **Bahrami, S.**, and Roorda, M. (2019). Express Package Delivery Optimization Using On-Foot Personnel, Cargo Tricycles and Delivery Trucks. In 8th International Urban Freight Conference (I-NUF).
2. **Bahrami, S.**, Mousavi, K., Shafiei Fard, M., and Roorda, M. (2018). Optimizing Delivery Location for Online Shopping. In Transportation Research Board 97th Annual Meeting.
1. **Bahrami, S.**, Shafiei Fard, M., and Roorda, M. (2017). Optimal Deployment of Fast Charging Stations. In 52nd Annual Conference Canadian Transportation Research Forum.

#### Under Review Journal Articles:

1. Nourinejad, M., **Bahrami, S.**, and Yin, Y. Optimal Investment in Driving Automation: Individual vs. Cooperative Sensing. *Submitted to Transportation Research Part B: Methodological*.
2. **Bahrami, S.**, Nourinejad, M., Yin, Y., and Wang, H. The three-sided market of on-demand delivery. *Submitted to Transportation Science*.
3. Liu, Y., **Bahrami, S.**, Feng, T., and Vries, J., Impact of crowdsourced speed check data on traffic speed: A case study of the Netherlands. *Submitted to Journal of Transportation Engineering, Part A: Systems*.

## **LEADERSHIP EXPERIENCE**

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<b>Project Manager</b>	2020
<i>Potential Impacts of Automated Vehicles on Transportation and Land Use</i>	
<i>Principle Investigator: Professor Yafeng Yin</i>	
<i>Sponsor: Toyota Motor Engineering and Manufacturing North America</i>	
<b>Project Manager</b>	2020
<i>Hybrid Optimization of Ride-Sharing Requests</i>	
<i>Principle Investigator: Professor Yafeng Yin</i>	
<i>Sponsor: Ford Motor Research and Advanced Engineering</i>	
<b>Project Manager</b>	2019
<i>Design and Analysis of City Logistics Systems in Toronto</i>	
<i>Principle Investigator: Professor Matthew J. Roorda</i>	
<i>Sponsor: NSERC CRD &amp; Purolator Express Delivery</i>	
<b>Project Manager</b>	2019
<i>Applications of Drones for Last Mile Logistics</i>	
<i>Principle Investigator: Professor Matthew J. Roorda</i>	
<i>Sponsor: Transport Canada</i>	

## **TEACHING EXPERIENCE**

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<b>Lecturer</b>	2021-2022
<i>Department of Built Environment, Eindhoven University of Technology</i>	
Courses: Mobility and Logistics, Smart Cities, and Big Data for Urban Analysis.	
<b>Lecturer</b>	2020-2021
<i>Department of Civil &amp; Environmental Engineering, University of Michigan</i>	
Co-teaching Transportation Network Modeling course with Dr. Yafeng Yin	
<b>Guest Lecturer</b>	2018-2020
<i>Department of Civil Engineering, University of Toronto</i>	
Courses: Freight Transportation and ITS Applications, and Transport I: Introduction to Urban Transportation Systems	

## SERVICE TO PROFESSION

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### Committee Member

TRB Freight Transportation Planning and Logistics (AT015)	2016-Present
TRB Regional Transportation Systems Management and Operations (AHB10)	2016-2019

### Organizing Committee

- 2021 International Symposium on Transportation Data and Modelling
- 25<sup>th</sup> International Symposium on Transportation and Traffic Theory (ISTTT25)

### Editorial Board

Sub-editor of freight routing, supply chain and logistics optimization in TRB Freight Transportation Planning and Logistics (AT015)

### Session chair

- 2021 INFORMS Annual Meeting session on Pricing in shared mobility markets
- TRB 102<sup>nd</sup> Annual Meeting session on Freight planning and health care logistics during COVID-19 pandemic
- 2021 International Symposium on Transportation Data and Modelling session on Behavior
- TRB 100<sup>th</sup> Annual Meeting session on Freight Operations and Logistics

### Journal Reviewer (Num. of reviews)

Transportation Science (2), Transportation Research Part A (11), Transportation Research Part B (12), Transportation Research Part C (23), Transportation Research Part D (6), Transportation Research Part E (15), Transportation Research Record (17), IEEE Transactions on Intelligent Transportation Systems (13), Transportation Letters (6), Journal of Advanced Transportation (2), Journal of Traffic and Transportation Engineering (2), Journal of the Operational Research Society (1), SN Applied Sciences (1), IET Intelligent Transport Systems (1), Operations Research Forum (1).

## SERVICE TO INSTITUTION

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### University of Michigan

2023 Towner prize judging committee

### Eindhoven University of Technology

Examination committee member at Department of Built Environment  
Assessment committee member at Department of Built Environment  
MT Research assessor at Department of Built Environment

## MENTORED AND SUPERVISED STUDENTS

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### Doctoral Student Advisees:

Yutian Liu (Ph.D. candidate at Eindhoven University of Technology)  
Elham Heydari-gharaei (Ph.D. candidate at York University)  
Tara Radvand (Ph.D. candidate at University of Michigan)

### Master Student Advisees:

Senna Baijens (Eindhoven University of Technology)  
Hamzeh Moghaddam (Eindhoven University of Technology)  
Dennis Andreoli (Eindhoven University of Technology)  
Mohammad amir Ahmadian (York University)  
Joshua Dhaness (York University)

### Independent Student Advisees:

Zahra Ashrafi  
Patrick Meredith Karam (Undergrad student at University of Toronto)  
Jeffrey Jiang (Undergrad student at University of Toronto)

Motahare Shafiei Fard (Undergrad student at Sharif University of Technology)  
Mobina Nankali (Undergrad student at Sharif University of Technology)  
Shaghayegh Nouhi (Undergrad student at Sharif University of Technology)

## **MEDIA COVERAGE**

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1. **Forbes**: How autonomous vehicles might reshape our cities.
2. **University of Toronto Engineering News**: How self-driving cars could shrink parking lots.
3. **Global News**: Parking lot karma: How driverless cars could change the urban landscape.
4. **Gizmag**: Parking lots: Why autonomous cars could save acres of space.
5. **Design Quarterly**: Self-driving cars may condense parking lots: study.
6. **TechXplore**: How self-driving cars could shrink parking lots.
7. **Science Daily**: How self-driving cars could shrink parking lots.
8. **New Atlas**: Parking lots: Why autonomous cars could save acres of space.
9. **IEEE Spectrum**: How Self-Driving Cars Might Transform City Parking.
10. **REMI Network**: Self-driving cars may condense parking lots: study.

## **TECHNICAL PRESENTATIONS**

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### **Invited talks:**

1. The Three-sided Market of On-demand Food Delivery. University of Michigan, Ann Arbor, MI.
2. Parking management of automated vehicles in downtown areas. Traffic flow webinars organized by TRB committee on Traffic Flow Theory and characteristics (ACP50).
3. Impacts of Automated Vehicles on Parking. University of Arizona, Tucson, AZ.
4. Impacts of Automated Vehicles on Parking. University of Houston, Houston, TX.
5. Impacts of Autonomous Vehicles on Parking and Congestion. University of Michigan, Ann Arbor, MI.
6. Impacts of Autonomous Vehicles on Parking and Congestion. McMaster University, Hamilton, ON.
7. Autonomous Vehicle Parking Policies: A Case Study of the City of Toronto. iCity-CATTS Symposium, Toronto, ON.
8. Design of parking facilities for autonomous vehicles. 2018 TAC-ITS Canada Joint Conference & Exhibition, Niagara Falls, ON.

### **Selected Podium Presentations:**

1. **Bahrami, S.** Bundle design for mobility as a service. Presented at 10th symposium of the European Association for Research in Transportation (hEART) in Leuven.
2. **Bahrami, S.**, and Roorda, M. J., Optimal Operations of an Automated Vehicle Parking Lot. Presented at Canadian Transportation Research Forum 54th Annual Conference, Vancouver, BC.

3. **Bahrami, S.**, and Roorda, M. J., Optimal Traffic Management Policies for Mixed Human and Automated Traffic Flows. presented at 98th Annual Meetings of Transportation Research Board (TRB), Washington, D.C.
4. **Bahrami, S.**, Mousavi, K., Shafiee Fard, M., and Roorda, M. J., Optimizing Delivery Location for Online Shopping. Presented at 7th METRANS International Urban Freight Conference, Long Beach, CA.
5. **Bahrami, S.**, Shafiee Fard, M., and Roorda, M. J., Optimal Deployment of Fast Charging Stations. Presented at Canadian Transportation Research Forum 52nd Annual Conference, Winnipeg, MB.

#### **Selected Poster Presentations:**

1. **Bahrami, S.**, Vignon, D., Yin, Y., and Laberteaux, K. Parking Management of Automated Vehicles in Downtown Areas. Presented at 100th Annual Meetings of Transportation Research Board (TRB), Washington, D.C.
2. Vignon, D., **Bahrami, S.**, Yin, Y., and Laberteaux, K. Infrastructure Investment in the Age of Automated Vehicles. Presented at 100th Annual Meetings of Transportation Research Board (TRB), Washington, D.C.
3. Meredith-Karam, P., Jiang, J., **Bahrami, S.**, and Roorda, M. J., Express Package Delivery Optimization Using On-Foot Personnel, Cargo Tricycles and Delivery Trucks. Presented at 99th Annual Meetings of Transportation Research Board (TRB), Washington, D.C.
4. Niroumand, R., **Bahrami, S.**, Aashtiani, H. Z., and Roorda, M. J., Battery Electric Vehicles Network Equilibrium with Flow-Dependent Energy Consumption. Presented at 97th Annual Meetings of Transportation Research Board (TRB), Washington, D.C.
5. Jahangiriesmaili, M., **Bahrami, S.**, and Roorda, M. J., Two-Echelon Facility Location Problems Using Approximation Methods. Presented at 96th Annual Meetings of Transportation Research Board (TRB), Washington, D.C.
6. **Bahrami, S.**, Nourinejad, M., Amirjamshidi, G., Roorda, M. J., A plugin hybrid electric vehicle routing problem with recharging. Presented at 95th Annual Meeting of the Transportation Research Board (TRB), Washington, D.C.

## **HONORS AND AWARDS**

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<b>Runner-Up to Best Paper Award</b> <i>ITS Canada: \$1,000</i>	2019
<b>Runner-Up to Best Conference Paper Award</b> <i>54th Canadian Transportation Research Forum: \$800</i>	2019
<b>Richard Soberman Graduate Student Fellowships</b> <i>\$5,000</i>	2017
<b>University of Toronto Fellowship</b> <i>\$40,000/year</i>	2015-2019