

# MICHAEL F. HYLAND

Assistant Professor  
Civil and Environmental Engineering  
Samueli School of Engineering  
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## EDUCATION

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PhD	<b>Northwestern University</b> , Evanston IL <i>Civil and Environmental Engineering</i> Program: Transportation Systems Analysis and Planning Dissertation: Real-time Operation of Shared-Use AV Mobility Services: Modeling, Optimization, Simulation, and Analysis Committee: Hani Mahmassani (Advisor), Karen Smilowitz, Yu (Marco) Nie, Mike Hewitt	2018
M.Eng	<b>Cornell University</b> , Ithaca NY <i>Civil and Environmental Engineering</i> Program: Transportation Systems Engineering Advisors: Mark Turnquist and Huaizhu (Oliver) Gao	2013
B.S.	<b>Cornell University</b> , Ithaca NY <i>Civil and Environmental Engineering</i> Program: Transportation Systems Engineering <i>Magna Cum Laude</i>	2013

## RESEARCH INTERESTS

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*Modeling and Analysis for the Planning, Design, Management, and Operation of Transportation Systems*  
Smart City Transportation Systems  
Emerging Mobility Services: Bikesharing, Ridesharing, and Shared-use Autonomous Mobility Services  
Network Modeling and Design – Transit and Road Networks  
Real-time Operation of Automated Vehicle Fleets  
Travel Behavior: Stated Preference Surveys and Discrete Choice Modeling  
Integrating Transportation Network and Travel Demand Models

## PUBLICATIONS

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### Peer-Reviewed Journals, Published

\* = corresponding author

^ = advisee (PhD or M.S. student)

^^ = advisee (Post-doc)

- J19. Ahmed T<sup>^</sup>, **Hyland MF**<sup>\*</sup>, Sarma NJS<sup>^</sup>, Mitra S, Ghaffar A<sup>^</sup> (2020). Quantifying the Employment Accessibility Benefits of Shared Automated Vehicle Mobility Services: Consumer Welfare Approach Using Logsums. *Transportation Research Part A: Policy and Practice*.  
<https://doi.org/10.1016/j.tra.2020.09.002>
- J18. Ghaffar A<sup>^</sup>, Mitra S, **Hyland MF**<sup>\*</sup> (2020). Modeling determinants of ridesourcing usage: A census tract-level analysis of Chicago. *Transportation Research Part C: Emerging Technologies*.  
<https://doi.org/10.1016/j.trc.2020.102769>
- J17. **Hyland MF**, Mahmassani HS (2020). Operational Benefits and Challenges of Shared-Ride Automated Mobility-on-Demand Services. *Transportation Research Part A: Policy and Practice*.  
<https://doi.org/10.1016/j.tra.2020.02.017>

- J16. **Hyland MF**, Dandl F, Bogenberger K, Mahmassani HS (2019). Integrating Demand Forecasts into Operational Strategies for Shared Automated Mobility Services: Spatial Aggregation Impacts. *Transportation Letters*. <https://doi.org/10.1080/19427867.2019.1691297>
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- J15. Pinto H, **Hyland MF**, Mahmassani HS, Verbas IO (2019). Joint Design of Multimodal Transit Networks and Shared Autonomous Mobility Fleets. *Transportation Research Part C: Emerging Technologies*. 10.1016/j.trc.2019.06.010
- J14. **Hyland MF**, BouMjahed L, Mahmassani HS, Verbas IO, Xiang X, Smilowitz K, Johnson B (2019). Potential for a Logistics Island to Circumvent Container Port Congestion in a Constrained Environment. *Transport Policy*. 10.1016/j.tranpol.2019.06.011
- J13. Dandl F, **Hyland MF**, Bogenberger K, Mahmassani HS (2019). Evaluating the Impact of Spatio-Temporal Demand Forecast Aggregation on the Operational Performance of Shared Autonomous Mobility Fleets. *Transportation*. <https://doi.org/10.1007/s11116-019-10007-9>
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- J12. Chen Y, **Hyland MF**, Wilbur M, Mahmassani HS (2018). Characterization of Taxi Fleet Operational Networks and Vehicle Efficiency: Chicago Case Study. *Transportation Research Record*. <https://doi.org/10.1177/0361198118799165>
- J11. **Hyland MF**, Frei CA, Frei AR, Mahmassani HS (2018). Riders on the Storm: Exploring Weather and Seasonality Effects on Commute Mode Choice in Chicago. *Travel Behavior and Society*. <https://doi.org/10.1016/j.tbs.2018.05.001>
- J10. **Hyland MF**, Mahmassani HS (2018). Dynamic Autonomous Vehicle Fleet Operations: Optimization-based Strategies to Assign AVs to Immediate Traveler Demand Requests. *Transportation Research Part C: Emerging Technologies*. <https://doi.org/10.1016/j.trc.2018.05.003>
- J9. **Hyland MF**, Hong Z, Pinto H, Chen Y (2017). Hybrid Cluster-Regression Approach to Model Bikeshare Station Usage. *Transportation Research Part A: Policy and Practice*. <https://doi.org/10.1016/j.tra.2017.11.009>
- J8. **Hyland MF**, Mahmassani HS (2017). Taxonomy of Shared Autonomous Vehicle Fleet Management Problems to Inform Future Transportation Mobility. *Transportation Research Record*. 10.3141/2653-04
- J7. Frei CA, **Hyland MF**, Mahmassani HS (2017). Flexing Service Schedules: Assessing the Potential for Demand-Adaptive Hybrid Transit via a Stated Preference Approach. *Transportation Research Part C: Emerging Technologies*. <http://dx.doi.org/10.1016/j.trc.2016.12.017>
- J6. Xu X, Zockaie A, Mahmassani HS, Halat H, Verbas IO, **Hyland MF**, Vovsha P, Hicks J (2017). Schedule Consistency for Daily Activity Chains in Integrated Activity-Based Dynamic Multi-Modal Network Assignment. *Transportation Research Record*. 10.3141/2664-02
- J5. **Hyland MF**, Mahmassani HS, Bou Mjahed L (2016). Analytical Models of Rail Transportation Service in the Grain Supply Chain: Deconstructing the Operational and Economic Advantages of Shuttle Train Service. *Transportation Research Part E: Logistics and Transportation Review*. DOI: <http://dx.doi.org/10.1016/j.tre.2016.06.008>
- J4. Verbas IO, Mahmassani HS, **Hyland MF** (2016). A Gap-Based Transit Assignment Algorithm with Vehicle Capacity Constraints: Simulation-Based Implementation and Large-Scale Application. *Transportation Research Part B: Methodological*. <http://dx.doi.org/10.1016/j.trb.2016.07.002>
- J3. Verbas IO, Mahmassani HS, **Hyland MF**, Halat H (2016). Integrated Mode Choice and Dynamic Traveler Assignment in Multi-Modal Transit Networks: Mathematical Formulation, Solution Procedure and Large-Scale Application. *Transportation Research Record*. 10.3141/2564-09
- J2. **Hyland MF**, Mahmassani HS (2015). Analytical Five-Phase Bus Rapid Transit Traffic Flow Model. *Transportation Research Record*. 10.3141/2533-15
- J1. Verbas IO, Mahmassani HS, **Hyland MF** (2015). Dynamic Assignment-Simulation Methodology for Multi-Modal Urban Transit Networks. *Transportation Research Record*. 10.3141/2498-08

### Peer-Reviewed Journals, Accepted for Publication

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### Peer-Reviewed Journals, Under Review

- R1. Yang D<sup>^</sup>, Sarma NJS<sup>^</sup>, **Hyland MF\***, Jayakrishnan R. Dynamic Modeling and Real-time Management of a System of EV Fast-charging Stations. (Transportation Research Part C)

- R2. Yu JB, **Hyland MF**. A Generalized Diffusion Model for Preference and Response Time: Application to Ordering Mobility-on-Demand Services. (Transportation Research Part C)
- R3. Wang Z<sup>^</sup>, **Hyland MF\***. Incorporating Walking Trip Legs into Ridesharing Vehicle Routes. (Transportation Research Record).
- R4. Ahmed T<sup>^</sup>, **Hyland MF\***. Trip-Activity Chain Complexity, Technology Use, and Their Impacts on Ride-Hail Usage: A Structural Equation Model Approach. (Transportation Research Record).
- R5. Shariat N, Nam D<sup>^</sup>, Jayakrishnan R, **Hyland MF**. A Framework to Generate Realistic and Scalable Hypothetical Networks for Transportation Studies. (Transportation Research Record).
- R6. Dandl F, Engelhardt R, **Hyland MF**, Tilg G, Bogenberger K, Mahmassani HS. Regulating Mobility-on-Demand Services: Tri-level Model and Bayesian Optimization Solution Approach. (Transportation Research Part B/C)

### Peer-Reviewed Conference Papers

- C4. Sarma NJS<sup>^</sup>, Nam D<sup>^</sup>, **Hyland MF\***, de Souza F, Yang D<sup>^</sup>, Ghaffar A<sup>^</sup>, Verbas İÖ. Effective and Efficient Fleet Dispatching Strategies for Dynamically Matching AVs to Travelers in Large-scale Transportation Systems. *IEEE Intelligent Transportation Systems Society Conference*. 20-23 September 2020, Rhodes, Greece.

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- C3. Pinto H, **Hyland MF**, Mahmassani HS, Verbas IO (2019). Joint Design of Multimodal Transit Networks and Shared Autonomous Mobility Fleets. *The 23<sup>rd</sup> International Symposium on Transportation and Traffic Theory*. 24-26 July 2019, Lausanne, Switzerland. (This is the same paper as J15.)
- C2. Pinto HKRF, Hyland MF, Verbas İÖ, Mahmassani HS (2018). Integrated mode choice and dynamic traveler assignment-simulation framework to assess the impact of a suburban first-mile shared autonomous vehicle fleet service on transit demand. *Transportation Research Board 97<sup>th</sup> Annual Meeting*, 7-11 January 2018, Washington D.C.
- C1. **Hyland MF**, Mahmassani HS (2018). Sharing is Caring: Dynamic Autonomous Vehicle Fleet Operations under Demand Surges. *Transportation Research Board 97<sup>th</sup> Annual Meeting*, 7-11 January 2018, Washington D.C.

## PRESENTATIONS

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### Conference Presentations

- P31. Yang D, **Hyland MF**, Jayakrishnan R. A Dynamic Urban Freight Share-a-Trip Delivery Problem. *2020 INFORMS Annual Meeting*. Virtual. November 11, 2020. (Oral Presentation by Yang).
- P30. Sarma NJS, Nam D, **Hyland MF**, de Souza F, Yang D, Ghaffar A, Verbas İÖ. Effective and Efficient Fleet Dispatching Strategies for Dynamically Matching AVs to Travelers in Large-scale Transportation Systems. *IEEE Intelligent Transportation Systems Society Conference*. 20-23 September 2020, Rhodes, Greece. (Oral Presentation by Hyland).
- P29. Hyland MF. Quantifying the Potential Employment Accessibility Benefits of Shared Automated Vehicle Mobility Services (SAMS) using Logsums. *99<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 12-16, 2020. (Oral Presentation by Hyland).
- P28. Ale-Ahmad H, Mahmassani HS, **Hyland MF**. Simulation Framework for Autonomous On-Demand Urban Air Mobility. *99<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 12-16, 2020. (Oral Presentation by Mahmassani).
- P27. Yang D\*, Sarma NJS\*, **Hyland MF**, Jayakrishnan R. Management of EV Fast Charging Stations: Dynamic Pricing Scheme based on Station Queues with State-Dependent Arrivals. *99<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 12-16, 2020. (Poster Presentation).
- P26. Martinez I, **Hyland MF**, Jin WL. Improving Urban Multi-Modal Transport System through Congestion Pricing and Bus Fleet Sizing: Bi-Modal Network Fundamental Diagram Modeling Approach. (Poster Presentation).

- P25. Ghaffar A\*, Mitra S, **Hyland MF**. Modeling Ridesourcing Trip Generation: Chicago Case Study. (Poster Presentation).
- P24. Dandl F, **Hyland MF**, Bogenberger K, Mahmassani HS. Dual-Horizon Forecasts and Repositioning Strategies for Operating Shared Autonomous Mobility Fleets. (Oral Presentation by Dandl).
- P23. Ahmed T\*, **Hyland MF**. Exploring the Role of Ride-Hailing in Trip Chains. (Poster Presentation).
- P22. **Hyland MF**. Anticipatory Network Path Assignment for Shared-ride Automated Vehicles Considering Proximity to Future Demands. *2019 INFORMS Annual Meeting*, Seattle, WA, October 20-23, 2019. (Oral Presentation by Hyland).
- P21. Yang D\*, **Hyland MF**, Jayakrishnan R, Qin C. An Urban Freight Share-a-Trip Delivery Problem. *2019 INFORMS Annual Meeting*, Seattle, WA, October 20-23, 2019. (Oral Presentation by Yang).
- P20. Sarma NJS\*, **Hyland MF**. Optimal Design of Mobility Service Networks Based on Travel Dispersion. *2019 INFORMS Annual Meeting*, Seattle, WA, October 20-23, 2019. (Oral Presentation by Hyland)
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- P19. Pinto H, **Hyland MF**, Mahmassani HS, Verbas IO. Joint Design of Multimodal Transit Networks and Shared Autonomous Mobility Fleets. *23<sup>rd</sup> International Symposium on Transportation and Traffic Theory (ISTTT)*, Lausanne, CH July 23-26, 2019.
- P18. **Hyland MF**. Shared-ride Mobility-on-Demand Services with AVs: Bi-criterion Path-finding and its Network Impacts. *Irvine Symposium on Emerging Research in Transportation*, Irvine, CA, January 18-19, 2019.
- P17. Dandl F, **Hyland MF**, Bogenberger K, Mahmassani HS (2019). Evaluating the Impact of Spatio-Temporal Demand Forecast Aggregation on the Operational Performance of Shared Autonomous Mobility Fleets. *98<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 13-17, 2019.
- P16. Pinto H, **Hyland MF**, Mahmassani HS, Verbas IO. Joint Design of Multimodal Transit Networks and Shared Autonomous Mobility Fleets. *98<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 13-17, 2019.
- P15. **Hyland MF**, Mahmassani HS. Dynamic Operation of Autonomous Vehicle Fleets for Urban Mobility Applications. *2018 INFORMS Annual Meeting*, Phoenix, AZ October 4-7, 2018.
- P14. **Hyland MF**. Real-Time Operation of AV-Enabled Mobility Services (AVEMS): Modeling, Optimization, Simulation, and Analysis. *97<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 7-11, 2018.
- P13. **Hyland MF**, Mahmassani HS. Sharing Is Caring: Dynamic Autonomous Vehicle Fleet Operations Under Demand Surges. *97<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 7-11, 2018.
- P12. **Hyland MF**, Mahmassani HS. Dynamic Autonomous Vehicle Fleet Operations: Optimization-Based Strategies to Assign AVs to Immediate Traveler Demand Requests. *97<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 7-11, 2018.
- P11. **Hyland MF**. Shared-use Autonomous Vehicle Mobility Services: Operational Control Algorithms, and Impact on Urban Transit Systems. *97<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 7-11, 2018.
- P10. **Hyland MF**, Mahmassani HS. Strategies for Operating a Fleet of Autonomous Vehicles to Provide Passenger Transportation Service. *2017 Transport Chicago Conference*, Chicago, IL, June 9, 2017.
- P9. **Hyland MF**, Hong Z, Pinto H, Chen Y. A Hybrid Cluster-Regression Approach to Forecast Ridership at Bikeshare Stations: Case Study of Chicago's Divvy System. *58th Annual Transportation Research Forum Meeting*, Chicago, IL, April 19-20, 2017. [Best Student Paper \(Runner Up\) Award](#).
- P8. **Hyland MF**, Mahmassani HS, Bou Mjahed L. Analytical Models of the Grain Supply Chain: Quantifying the Advantages of Shuttle Rail Service. *58<sup>th</sup> Annual Transportation Research Forum Meeting*, Chicago, IL, April 19-20, 2017.
- P7. **Hyland MF**, Bou Mjahed L, Mahmassani HS. Examining Drivers of Rail Transport Rates over Time: Econometric Analysis. *96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 8-12, 2017.
- P6. **Hyland MF**, Mahmassani HS. Taxonomy of Shared Autonomous Vehicle Fleet Management Problems to Inform Future Transportation Mobility. *96<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 8-12, 2017.

- P5. **Hyland MF**, Richard HA. Comprehensive Review of Transit Signal Priority Corridor Studies. *Midwest/Great Lakes ITE Conference*, Chicago, IL, June 26-28, 2016.
- P4. **Hyland MF**, Mahmassani HS, Bou Mjahed L. Analytical Models of Rail Transportation Service in the Grain Supply Chain: Deconstructing the Operational Advantages of Shuttle Train. *95<sup>th</sup> Annual Meeting of the Transportation Research Board*, Washington, D.C., January 10-14, 2016.
- P3. **Hyland MF**, BouMjahed L, Mahmassani HS, Verbas IO, Xiang X, Johnson B. Potential for a Logistics Island to Circumvent Container Port Congestion in a Constrained Environment. *6<sup>th</sup> Metrans International Urban Freight Conference*, Long Beach, CA, October 21-23, 2015.
- P2. **Hyland MF**, Frei CA, Frei AR, Mahmassani HS. The Impact of Seasonal Weather Changes on Mode Choice: A Case Study of Chicago. *14<sup>th</sup> International Conference on Travel Behaviour Research*, Windsor, UK, July 19-23, 2015.
- P1. **Hyland MF**, Mahmassani HS. Analytical Five-Phase Bus Rapid Transit Traffic Flow Model. *94<sup>th</sup> Annual Meeting of the Transportation Research Board*. Washington, D.C., January 11-15, 2015.

### Invited Talks

- I12. UCLA Institute for Pure and Applied Mathematics (IPAM), Program on Mathematical Challenges and Opportunities for Autonomous Vehicles. Session on Large Scale Autonomy: Connectivity and Mobility Networks. Title: *Integrating State-of-the-Art Mobility-on-Demand Fleet Models into Transportation System Simulation Tools for Policy Analysis*. Virtual. November 16-20, 2020. Invited by Committee of: Paola Goatin (INRIA), Hani Mahmassani (Northwestern), Monica Menendez (NYU), Samitha Samaranyake (Cornell), and Maria Gracia Speranza (Università di Brescia).
- I11. 2020 INFORMS Annual Meeting. Session on Design & Operations in Advanced Mobility. Title: *Effective And Computationally Efficient Modeling Strategies For Operating Large Automated-mobility-on-demand Service Fleets*. Virtual, November 12, 2020. Invited by Hai Wang.
- I10. Delft University of Technology's Webinar on Planning and Operations of Mobility On-Demand. Title: *Integrating Mobility-on-demand Fleet Models into Transportation System Simulation Models: A balancing act between computational efficiency and fleet performance*. October 22, 2020. Invited by Oded Cats.
- I9. Sustain SoCal's Driving Mobility 7. Session on Connected Vehicles and Their Connected World. Title: *Driving Smart and Clean City Innovation at UCI through Mobility and Connectivity Research Initiatives*. October 2, 2020. Invited by Scott Kitcher.
- I8. 2020 International Symposium of Traffic Data and Modeling. Shared, Connected, and Automated Mobility Services and Systems Pre-Conference Session. *Unable to Attend*. Ann Arbor, Michigan. June 24, 2020. Invited by Sean Qian, Ziqi Song, Zhengtian Xu.
- I7. The 23rd IEEE International Conference on Intelligent Transportation Systems. Special Session on Network Impacts of Emerging Mobility Trends. Title: *Operating robo-taxi services: the state-of-the-art and future directions*. Rhodes, Greece. September 20 – 23, 2020. Invited by Florian Dandl and Klaus Bogenberger.
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- I6. Carnegie Mellon. Title: *Getting Mobility-on-Demand Services with Shared Rides to Work: Operational Challenges and Opportunities*. Pittsburgh, PA. September 16, 2019.
- I5. 30th European Conference on Operational Research, Autonomous Vehicles Session. Title: *Bi-criteria Network Path-finding for Shared-Ride Automated Vehicles: Considering Travel Time and Proximity to Demand*. Dublin, Ireland. June 25, 2019
- I4. Tom Maze Transportation Seminar Series. Title: *Operation, Design, and Transport System Impacts of Shared-use Automated Vehicle Mobility Services*. Remote to Midwest Transportation Center, Iowa State University, Ames, IA, March 15, 2019.
- I3. Society of Automotive Engineers- UCI Institute of Transportation Studies Joint Meeting. Title: *Autonomous Vehicle-enabled Mobility: Societal Implications and Research Challenges*. Irvine, CA, January 24, 2019.
- I2. CEE@UCI Affiliates Fall Quarterly Meeting. Topic: Preparing for a Driverless Future... Vehicles, Infrastructure and Safety. Title: *Smart City Transportation Systems: Driverless Vehicles and Shared-use Mobility Services*. Irvine, CA, November 9, 2018.

11. 2017 INFORMS Annual Meeting. *Optimization-based Strategies for Autonomous Vehicle Fleet Operations*. Houston, TX, October 22-25, 2017.

### Invited Panelist

- IP4. National Science Foundation (NSF)'s Civic Innovation Challenge (CIVIC). September 28-29, 2020.  
 IP3. California Air Resources Board (CARB)'s Clean Miles Standard Regulation Expert Panel Discussion. March 20, 2020
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- IP2. *California Transportation Plan 2050 Visioning Session, Southern California*. People-Oriented Mobility. Los Angeles, CA. October 30, 2018.  
 IP1. *IC Bus: Next Stop Innovation Summit*. Transportation Trends Panel. Chicago, IL. February 22, 2017.

### Other Presentations

1. **Hyland MF**. Managing a Fleet of Driverless Vehicles. *Presented by MF Hyland at the Seven Minutes of Science Symposium*. Evanston, IL. September 14, 2016.  
 Video: <https://youtu.be/RJ90ppGj6Gk>

## RESEARCH GRANTS AND PARTICIPATION IN RESEARCH PROJECTS

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| 13  | Agency<br>Project<br>Role<br>Years<br><b>Funding</b> | <b>California Environmental Protection Agency</b><br>Carbon Neutrality Study<br>Researcher<br>2020<br>~\$6,700 to me  |
| 12  | Agency<br>Project<br>Role<br>Years<br>Funding        | <b>ITS-Irvine Mobility Research Program (SB1)</b><br>What Drives Success in Public Bikeshare Programs?<br>Principal Investigator<br>2020-2021<br>\$ 79,857  |
| 11. | Agency<br>Project<br>Role<br>Years<br>Funding        | <b>National Science Foundation: Smart and Connected Communities (SCC)</b><br>SCC Planning Grant: Addressing Unprecedented Community-Centered Transportation Infrastructure Needs and Policies for the Mobility Revolution<br>Principal Investigator<br>2020-2021<br>\$150,000 |
| 10. | Agency<br>Project<br>Role<br>Years<br>Funding        | <b>ITS-Irvine Mobility Research Program (SB1)</b><br>Development of Modeling Framework to Assess Impacts of Congestion Pricing Policies on Transport Systems with New Mobility Options<br>Principal Investigator<br>2020<br>\$72,541  |
| 9.  | Agency<br>Project<br>Role<br>Years<br>Funding        | <b>Caltrans (through the Pacific Southwest Region University Transportation Center)</b><br>Non-myopic path-finding for shared-ride vehicles: A bi-criterion best-path approach considering travel time and proximity to demand<br>Principal Investigator<br>2020<br>\$53,924  |

8. Agency **Argonne National Laboratory**  
 Project Modeling the Supply and Demand Effects of Transportation Network Companies with an Autonomous Fleet  
 Role Principal Investigator  
 Years 2019  
 Funding \$100,000
7. Agency **ITS-Irvine Mobility Research Program (SB1)**  
 Project Evaluating Employment Accessibility in an Era of Shared Autonomous Vehicles: Case Study of Two Regions in California  
 Role Principal Investigator  
 Years 2018-2019  
 Funding \$50,000
6. Agency **ITS-Irvine Mobility Research Program (SB1)**  
 Project Autonomicity: Developing an Agent-based Model for an Urban Living Laboratory with Shared, Connected and Autonomous Transportation System Components  
 Role Faculty Co-Advisor  
 Years 2018-2019
5. Agency **U.S. Dept of Transportation: Federal Highway Administration**  
 Project Real-Time Operation of Shared-use Autonomous Vehicle Fleets: Modeling, Optimization, Simulation, and Analysis (Eisenhower Transportation Fellowship)  
 Role Principal Investigator  
 Years 2017-2018  
 Funding \$6,500
4. Agency **U.S. Dept of Transportation: Federal Highway Administration**  
 Project Real-Time Operation of Shared-use Autonomous Vehicle Fleets: Modeling, Optimization, Simulation, and Analysis (Eisenhower Transportation Fellowship)  
 Role Principal Investigator  
 Years 2016-2017  
 Funding \$11,500
3. Agency **The Boeing Company**  
 Project Air Cargo Opportunities for Vertical Take-Off and Landing (VTOL) Operations  
 Role Graduate Research Assistant  
 Years 2015
2. Agency **Burlington Northern Santa Fe Railway**  
 Project Grain Industry Dynamics and Rail Service  
 Role (Lead) Graduate Research Assistant  
 Years 2014-2016
1. Agency **Chicago Metropolitan Agency for Planning (CMAP)**  
 Project Network Microsimulation Extension to Activity-Based Travel Demand Model  
 Role Graduate Research Assistant  
 Years 2013-2015

## **HONORS AND AWARDS**

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2016-18 Eisenhower Transportation Fellowship (2x Recipient)

- 2017-18 Terminal Year Fellowship, Northwestern University McCormick School of Engineering
- 2017-18 Dissertation Year Fellowship, Northwestern University Transportation Center
  - 2017 Best Student Paper (Runner-Up), Transportation Research Forum Annual Meeting
  - 2017 Student Paper Competition Winner, Illinois Institute of Transportation Engineers
  - 2016 Top 20 Future Leaders in Transportation, Eno Transportation Center
- 2013-14 Walter P. Murphy Fellowship, Northwestern University McCormick School of Engineering
  - 2012 Tau Beta Pi, Engineering Honor's Society, Cornell Chapter (Top 1/8<sup>th</sup> of Engineering College)
  - 2012 Chi Epsilon, Civil Engineering Honor's Society, Cornell Chapter (Top 1/3<sup>rd</sup> of Civil Engineers)
  - 2010 Academic Excellence in Engineering, Penn State Greater Allegheny's Top Engineering Student
  - 2010 USCAA Academic All-American, Baseball and Basketball (Penn State Greater Allegheny)
  - 2010 John Egli Award, Penn State University Athletic Conference's Top Student Athlete

## ADVISING

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### PhD Students -- AAdvisor

- Dingtong Yang
  - Thesis: Planning and Operation of Urban Freight Logistics System under Sharing Economy
  - Qualified: December 2018
  - Expected Graduation: 2021
- Tanjeeb Ahmed
  - Topic: Trip Chaining Behavior in the Context of Shared Autonomous Mobility Services
  - Qualified: July 2020
  - Expected Graduation: 2021/2022
- Navjyoth Sarma J.S.
  - Topic: Designing Shared Mobility Systems Based on the Sharing Potential of a Transportation Network
  - Qualified: September 2020
  - Expected Graduation: 2022
- Arash Ghaffar
  - Topic: Undecided
  - Expected Graduation: 2022/2023

### PhD Students – Committee Member

- Mariana Teixeira Sebastiani (2020)
  - Thesis: Impacts of electric highways for heavy duty trucks
- Chenying Qin
  - Thesis: Transportation Regional Modeling consistency and Interregional Trip Gap
- Sunghi An
  - Thesis: Modeling for a Continuous-mode Shared Transportation System: Mobility as a Service with Portfolios (MaaS-P)
- Helen Karla Ramalho De Farias Pinto
  - Thesis: Integrated Transit System Design with Autonomous Vehicle Fleet Services: Mathematical Formulation, Solution Approach and Large-Scale Application
  - Northwestern University
- Irene Martinez Josemaria
  - Thesis: Modeling and Mitigation of Traffic Congestion in the Era of Autonomous, Connected, and Shared Mobility
- Haleh Ale-Ahmad
  - Thesis: On-demand Urban Air Mobility
  - Northwestern University
- Marjan Mosslemi

- Thesis: Potential Implications of Shared Autonomous Vehicles (SAVs) Performing Transportable Activities for Travelers and Transportation Networks
- Lu Xu
  - Thesis: E-shopping meets Self-driving: Impacts on Household Travel and Logistics
- Eduardo Marino
  - Thesis: Modeling the Interactions of New Price-Cost-Ownership Paradigms with Traveler Usage Patterns and System Performance in New Shared Autonomous Mobility Systems
- De'Von Jennings
  - Thesis: Developing Demand Models for Commuter Rail
- Jishnu Narayan
  - Thesis: Design and Analysis of On-demand Mobility Systems
  - Delft University
- Koti Reddy Allu
  - Thesis: Out of State truck activity measurement using hybrid sensor framework

### **M.S. Students – Advisor**

- Zifan Wang
  - Topic: Incorporating Walking Trip Legs into Ridesharing Vehicle Routes
  - Expected Graduation: 2021
- Arash Ghaffar
  - Non-thesis MS
  - Graduation: 2020

### **M.S. Students – Committee Member**

- Kotaro Yamada (2019)
  - Thesis: A Framework for Evaluating the Economic Viability of Autonomous Vehicles
- Jens Frische (2019)
  - Topic: Analysis of Ridesourcing Trips
- Deep Shah (2020)
  - Topic: Spatial Models of Bikeshare Station Demand
- Emily Dailey (2020)
  - Topic: A Temporal and Spatial Evolution of the California Renewable Hydrogen Production Network Based on Least-Cost Planning Framework
- Negin Shariot
  - Topic: Generation of realistic hypothetical urban network configurations for simulated studies of future mobility options
- Pengyuan Sun
  - Topic: Eco-driving Strategies based on the Kinematic Wave Model at Various Traffic Situations

### **External PhD Qualifying Exam Committee Member**

- Chen Sun (Sunny). Research Report: Investigation of Iron Ammonia Complexes within C3-Symmetrical Phosphonic Amide Tripodal Ligand
- Dokyung Song. Topic: Dynamic analysis techniques to find software vulnerabilities in C/C++ programs

## **SERVICE – UNIVERSITY OF CALIFORNIA, IRVINE**

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### **Academic Seminar Coordination and Planning**

- Co-Organizer of UCI Smart Cities Transportation Seminar Series (2018-2019)

### **CEE Emeriti Scholarship Award Committee**

- One of three committee members tasked with awarding five scholarships, totaling \$7,000, to UCI undergraduate students majoring in civil and environmental engineering

### **CEE Undergraduate Affairs Committee**

- UAC Secretary

## **SERVICE – INTERNATIONAL**

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### **Reviewer for Academic Journals and Conferences (number of reviews)**

- European Journal of Transport and Infrastructure Research (4)
- European Journal of Transportation and Logistics (1)
- IEEE Access (2)
- IEEE ITSC (5)
- IEEE ITSM (2)
- IEEE Transactions on Intelligent Transportation Systems (9)
- Information (2)
- International Symposium on Transportation and Traffic Theory (4)
- Journal of Intelligent Transportation Systems: Technology, Planning, and Operations (1)
- Journal of the Operational Research Society (1)
- Journal of Advanced Transportation (1)
- Mathematical and Computer Modeling of Transportation Systems (3)
- Networks and Spatial Economics (1)
- Research in Transportation Business and Management (1)
- Sustainability (3)
- Transport Geography (2)
- Transportation (2)
- Transportation Letters (4)
- Transportation Research Board 2017, 2018, 2019, 2020 (15, 15, 18, 5, 5)
- Transportation Research Part A: Policy and Practice (5)
- Transportation Research Part B: Methodological (3)
- Transportation Research Part C: Methodological (14)
- Transportation Research Part E: Logistics and Transportation Review (5)
- Transportation Research Record (5)
- Transportation Science (4)
- Transportation Science and Logistics Conference (5 Extended Abstracts)
- Transportmetrica A: Transport Science (2)
- Transportmetrica B: Transport Dynamics (1)
- Travel Behavior and Society (1)
- TRISTAN (1)

### **Reviewer for Research Grants (number of reviews)**

- *Center for Transportation Equity, Decisions and Dollars*, a USDOT University Transportation Center (1)
- *Center for Excellence in Applied Computational Science & Engineering (CEACSE)*. University of Tennessee at Chattanooga (UTC) (1)
- *Institute of Transportation Studies-Irvine (ITS-Irvine) Mobility Research Program (SB1)*. University of California Irvine (2)

### **Scientific Committee Member**

- Shared Logistics and Transportation Systems Committee of World Transport Convention 2019-Present
- INFORMS Transportation Science and Logistics Second Triennial Conference 2019-Present

### **Conference Session Chair**

- (Invited) IFORS 2020 Triennial Conference, ‘Innovative & Shared Mobility’ stream

### **Conference Session Organizing Committee**

- Automated Vehicle Symposium 2020, Network Modeling of Automated Mobility Systems

### **Conference Peer Review Committee**

- 2020 Conference on Sustainability and Emerging Transportation Technology (SETT): Shaping the Future of Mobility. Reviewed 12 abstracts.

### **Professional Affiliations**

- Member: Transportation Research Forum 2017-2018
- Member: Institute for Operations Research and the Management Sciences (INFORMS) 2016-Present
- Member: Transportation Research Board (TRB) 2014-Present
- Member: Institute of Transportation Engineers 2014-2017
- Member: Tau Beta Pi 2012-Present
- Member: Chi Epsilon 2012-Present

## **TEACHING EXPERIENCE**

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### **Instructor**

*EngrCEE 111: Engineering Methods IV: Systems Analysis & Design*  
Instructor: Michael F. Hyland  
Winter 2020

*EngrCEE 298: Smart City Transportation Systems*  
Designed new graduate student course  
Instructor: Michael F. Hyland  
Winter 2019, Spring 2020

*EngrCEE 110: Engineering Methods III: Modeling, Economics, Management*  
Instructor: Michael F. Hyland  
Spring 2019, Spring 2020

### **Co-Instructor**

*CEE 304: Civil and Environmental Engineering Systems Analysis*  
Taught one of 4 course modules  
Instructor: Pablo Durango-Cohen  
Spring 2017

### **Teaching Assistant**

*Gen Eng. 205-3: EA-3 Systems Dynamics*  
Instructor: Seth Lichter  
Spring 2014

*CEE 3610: Introduction to Transportation Engineering*  
Instructor: Francis Vanek

Production Assistant for Textbook: *Sustainable Transportation Systems Engineering* (Vanek et al.)  
Spring 2013

*CEE 4630: Future Transportation Technologies and Systems*  
Instructor: Francis Vanek  
Fall 2012

### **Teaching Certificate Program**

Northwestern University Searle Center for Advancing Learning and Teaching  
2016-2017

UC Irvine New Faculty Teaching Academy  
September 2018

### **Teaching-As-Research**

Northwestern University Searle Center for Advancing Learning and Teaching  
Study: *Exploratory Analysis of Correlations between Pre-Course Student Relationships, Group Work, and Student Performance*  
Course Context: CEE 304: Civil and Environmental Engineering Systems Analysis  
Winter-Spring 2017