Jundi Liu

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Education

University of Washington, Seattle, WA *2018-2022*
Ph.D., Industrial and Systems Engineering
Advisors: Dr. Ashis Banerjee and Dr. Linda Boyle
Dissertation: Toward Trust-calibrated Customized Vehicle Automation

University of Washington, Seattle, WA *2016-2018*
M.S., Industrial and Systems Engineering

Shanghai Jiao Tong University, Shanghai, China *2012-2016*
B.S., Computer Science and Engineering
Advisor: Dr. Xiaotie Deng, ACM Fellow
Thesis: Rule Extraction for Credit Card Fraud Prevention using Machine Learning

Working Experience

Assistant Professor *2023-present*
Industrial and Manufacturing Systems Engineering Department, Iowa State University

Postdoc Research Fellow *2022.9-2023.8*
Industrial and Operations Engineering Department, University of Michigan

Research Intern *2020.09-12*
Honda Research Institute USA, Inc., San Jose, CA

Publications

Journal Articals

Published

1. **Liu, J.**, Boyle, L. N., and Banerjee, A. G. (2022) An Inverse Reinforcement Learning Approach for Customizing Automated Lane Change Systems. *IEEE Transactions on Vehicular Technology* 71(9) : 9261-9271.
2. **Liu, J.**, Hwang, S., Yund, W., Neidig, J. D., Hartford, S. M., Boyle, L. N., and Banerjee, A. G. (2020) A Predictive Analytics Tool to Provide Visibility into Completion of Work Orders in Supply Chain Systems. *Journal of Computing and Information Science in Engineering* 20(3): 031003.
3. **Liu, J.**, Boyle, L. N., and Banerjee, A. G. (2018) Predicting Interstate Motor Carrier Crash Rate Level using Classification Models. *Accident Analysis & Prevention* 120: 211-218.
4. Rahimi, N., **Liu, J.**, Shishkarev, A., Buzytsky, I., and Banerjee, A. G. (2018) Auction Bidding Methods for Multi-Agent Consensus Optimization in Supply-Demand Networks. *IEEE Robotics and Automation Letters* 3(4): 4415-4422.
5. Mohamed, A., **Liu, J.**, Boyle, L. N., and Claudel, C. (2023). FollowMe: Vehicle Behaviour Prediction in Autonomous Vehicle Settings. arXiv preprint arXiv:2304.06121.

In Progress

1. **Liu, J.**, Han, D.W., Dong, Y., Zhang, H., Zhou, F., Horrey, W., Romo, A., Monlar, L., Tilbury, D., Robert, L., and Yang, X. J. (Accepted for Presentation at TRB) Predicting Drivers' Takeover Performance Based on Fréchet Distance Using Machine Learning. Under Review for *Transportation Research Record*.
2. **Liu, J.**, Boyle, L. N., and Banerjee, A. G. (In preparation) Real-time Trust Calibration in Vehicle Automation Using Interactive Reinforcement Learning. Prepare for *IEEE Transactions on Intelligent Transportation Systems*.

Conference Proceedings

1. **Liu, J.**, and Boyle, L. N. (2022) Analysis of Driver Behavior in Mixed Autonomous and Non-autonomous Traffic Flows. *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*, 66(1), 1447–1451.
2. **Liu, J.**, Akash, K., Misu, T., and Wu, X. (2021) Clustering Human Trust Dynamics for Customized Real-time Prediction. *2021 IEEE International Intelligent Transportation Systems Conference (ITSC)*. pp. 1705-1712, doi: 10.1109/ITSC48978.2021.9565016.
3. **Liu, J.**, Hwang, S., Yund, W., Boyle, L. N., and Banerjee, A. G. (2018) Predicting Purchase Orders Delivery Times using Regression Models with Dimension Reduction. In *International Design Engineering Technical Conferences and Computers and Information in Engineering Conference* 1B: V01BT02A034.

Selected Awards

First Place Winner in Healthcare and Human Systems Track, Institute of Industrial and Systems Engineers (IISE) Doctoral Colloquium Dissertation Pitch Competition.

Conference Presentations & Invited Talk

- Embrace AI as Your Teammate: Toward Trust-Driven Autonomous Systems, *Industrial and Manufacturing Systems Engineering Department, Iowa State University, Ames, IA, April 2023.*
- Toward Trust-calibrated Customized Vehicle Automation, *the Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Seattle, WA, October 2022.*
- Embrace AI as Your Teammate: Toward Effective Human-system Integration in Vehicle Automation, *The School of Management, Xi'an JiaoTong University, Xi'an, China, June 2022.*
- Customized Automated Lane Change Systems to Driving Styles using Inverse Reinforcement Learning, *The Institute of Industrial & Systems Engineers (IISE) Annual Conference, Seattle, WA, May 2022.*
- Clustering Human Trust Dynamics for Customized Real-time Prediction, *24th IEEE International Conference on Intelligent Transportation, Indianapolis, IN, September 2021.*
- Identifying Human Driving Styles in Urban Environments Through Time Series Data Analytics, *INFORMS Annual Meeting, Seattle, WA, October 2019.*
- The Relationship between Driver Performance and Traffic Environments using Functional Data Analysis, *Joint Statistical Meeting, Denver, CO, July 2019.*
- Predicting Purchase Orders Delivery Times using Regression Models with Dimension Reduction, *International Design Engineering Technical Conferences & Computers and Information in Engineering Conference, Quebec City, Quebec, Canada, August 2018.*
- A Step Toward Predictive Modeling of Supply Chain Systems, *The IISE Annual Conference, Orlando, FL, May 2018.*

Teaching & Advising Experience

- **Instructor**: IE 487/587 Big Data Analytics and Optimization. *Fall 2023*
- **Pre-doctoral Instructor**: INDE 315 Probability and Statistics for Engineers. *Summer 2019*
- **Guest Lecturer**: CEE 327 Transportation Engineering. *Spring 2022*
- **Guest Lecturer**: CEE 327 Transportation Engineering. *Winter 2020*
- **Teaching Assistant**: INDE 410 Linear and Network Programming. *Fall 2018*

Service & Affiliation

Professional Society Service

- Reviewer, Accident Analysis & Prevention *2018*
- Reviewer, Journal of Intelligent Transportation Systems *2019*
- Student volunteer, INFORMS annual meeting *2019*
- Reviewer, HFES *2022*
- Reviewer, Frontiers in Robotics and AI *2022*
- Reviewer, Human Factors *2022*
- Reviewer, IEEE Transactions on Human-Machine Systems *2022*
- Reviewer, International Journal of Environmental Research and Public Health *2022*
- Reviewer, IISE Transactions *2022*

Professional Membership

- Member, American Statistical Association (ASA) *2019-present*
- Member, INFORMS *2019-present*
- Member, IISE *2017-present*
- Member, American Society of Mechanical Engineers (ASME) *2018-2020*
- Member, Institute of Electrical and Electronics Engineers (IEEE) *2020-2022*
- Member, UW-Human Factors and Ergonomics Society student chapter *2019-2022*
- Member, UW-INFORMS student chapter *2020-2022*