

JUNDI LIU

3146 Therkildsen Industrial Engineering Building ◊ Ames, IA 50011

(515) · 294 · 2002 ◊ jundiliu@iastate.edu

EDUCATION

University of Washington	2022
Ph.D., Industrial and Systems Engineering	
Dissertation: Toward Trust-calibrated Customized Vehicle Automation	
University of Washington	2018
M.S., Industrial and Systems Engineering	
Shanghai Jiao Tong University	2016
B.S., Computer Science and Engineering	
Thesis: Rule Extraction for Credit Card Fraud Prevention using Machine Learning	

EMPLOYMENT HISTORY

Iowa State University, Ames, IA	
Assistant Professor, Department of Industrial and Manufacturing Systems Engineering	2023-present
Assistant Professor, Human Computer Interaction	2023-present
University of Michigan, Ann Arbor, MI	
Postdoc Research Fellow, Department of Industrial and Operations Engineering	2022-2023
Honda Research Institute USA, INC., San Jose, CA	
Research Intern	2020.09-2020.12

AWARDS AND HONORS

First Place Winner	IISE Doctoral Colloquium Dissertation Pitch Competition	2022
---------------------------	---	------

PUBLICATIONS

Refereed archival journal publications

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., Buzytzsky, 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.

Refereed archival journal publications: In progress

5. **Liu, J.**, Boyle, L. N., and Banerjee, A. G. (Under Review) TARS: Trust-Aware Reward Shaping for Vehicle Lane Change Automation. *IEEE Transactions on Intelligent Transportation Systems*.
6. Gomez-Hernandez, A.*, Amrollahi, M.*, **Liu, J.**, and Yang, J. (Under Review) A Systematic Review of Human-Centered Adaptive Systems: Design, Implications, and Future Directions. *IEEE Transactions on Human Machine Systems*.

Conference proceedings and other non-journal articles

1. Amrollahi, M., Wangira, R., and **Liu, J.** (2025). Analysis and Modeling of Worker Trust in Automated Guided Vehicles for Manufacturing Workplace. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. Sage CA: Los Angeles, CA: SAGE Publications. (In press)
2. Lenz, T., Brackey, R., and **Liu, J.** (2025). The Effects of Citations and Confirmation Bias on Trust in Chatbots. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting*. Sage CA: Los Angeles, CA: SAGE Publications.
3. Han, D. W., **Liu, J.**, Yang, X. J., Romo, A., Horrey, W., Tilbury, D., Zhou, F., Robert, L., and Molnar, L. (2024). Supporting Driver Attention Toward Potential Hazards During Takeover: A Preliminary Result. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (Vol. 68, No. 1, pp. 899-904). Sage CA: Los Angeles, CA: SAGE Publications.
4. Han, D. W., **Liu, J.**, Yang, X. J., Romo, A., Horrey, W., Tilbury, D., Zhou, F., Robert, L., and Molnar, L. (2024). Toward Integrated Takeover Performance Measurement: Validation of Fréchet Distance as a Takeover Performance Metric. In *Proceedings of the Human Factors and Ergonomics Society Annual Meeting* (p. 10711813241266831). Sage CA: Los Angeles, CA: SAGE Publications.
5. **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. (2024) Predicting Drivers' Takeover Performance Based on Fréchet Distance Using Machine Learning. *Transportation Review Board 103rd Annual Meeting*.
6. **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.
7. **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.
8. **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*.

Parts of books (chapters in edited books)

1. Li, M., and **Liu, J.** (Under Review) Measuring Team Performance through Machine Learning. *Team performance assessment and measurement: Theory, methods, and applications*.

Letters, patents, non-refereed papers, technical reports

1. Mohamed, A., **Liu, J.**, Boyle, L. N., and Claudel, C. (2023). FollowMe: Vehicle Behaviour Prediction in Autonomous Vehicle Settings. *arXiv preprint* arXiv:2304.06121.
2. Han, D., **Liu, J.**, Zhou, F., Tilbury, D., Robert, L., Molnar, L., and Yang, X. J. (2023). Measuring and Predicting Drivers' Takeover Readiness and Supporting Takeover Transitions in Automated Driving. *Emerging Technologies Technical Report for AAA Foundation for Traffic Safety*.
3. Akash, K., Misu, T., Wu, X., and **Liu, J.** (2022). Systems and methods for clustering human trust dynamics. *U.S. Patent Application No. 17/687,521*.

OTHER SCHOLARLY ACTIVITIES

Invited lectures, seminars, and workshops

1. Toward Human-centered and Trust-aware Autonomous Systems, *Department of Industrial and Systems Engineering, University of Iowa, April 2025*.
2. Toward Human-centered and Trust-aware Autonomous Systems, *Translational AI Center, Iowa State University, April 2025*.
3. Embrace AI as Your Teammate: Toward Trust-aware Autonomous Systems, *Guest lecture, Department of Industrial and Systems Engineering, University at Buffalo, April 2024*.
4. Embrace AI as Your Teammate: Toward Trust-Driven Autonomous Systems, *Department of Industrial and Manufacturing Systems Engineering, Iowa State University, Ames, IA, April 2023*.
5. Transportation Safety, CEE 327: Transportation Engineering Guest Lecture, *Department of Civil and Environmental Engineering, University of Washington, Seattle, WA, Spring 2022*.
6. 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*.
7. Transportation Safety, CEE 327: Transportation Engineering Guest Lecture, *Department of Civil and Environmental Engineering, University of Washington, Seattle, WA, Winter 2020*.

Conference Presentations

1. Trust-aware Human-Robot Interaction in Manufacturing Plant, *INFORMS, Seattle, WA, October 2024*.
2. Predict and Model Worker Trust for Automated Vehicles in Manufacturing Plants, *ASPIRE, Phoenix, AZ, September 2024*.
3. Predicting Drivers' Takeover Performance Based on Fréchet Distance Using Machine Learning, *Transportation Research Board, Washington D.C., January 2024*.
4. Toward Trust-calibrated Customized Vehicle Automation, *the Institute for Operations Research and the Management Sciences (INFORMS) Annual Meeting, Seattle, WA, October 2022*.
5. 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*.
6. Clustering Human Trust Dynamics for Customized Real-time Prediction, *24th IEEE International Conference on Intelligent Transportation, Indianapolis, IN, September 2021*.

7. Identifying Human Driving Styles in Urban Environments Through Time Series Data Analytics, *INFORMS Annual Meeting, Seattle, WA, October 2019*.
8. The Relationship between Driver Performance and Traffic Environments using Functional Data Analysis, *Joint Statistical Meeting, Denver, CO, July 2019*.
9. 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*.
10. A Step Toward Predictive Modeling of Supply Chain Systems, *The IISE Annual Conference, Orlando, FL, May 2018*.

Advised Abstracts, Posters and Presentations

Note: presenter in underline.

1. N. Ilangovan, B. Weng, and J. Liu. (2025) Developing a Virtual Reality Platform for Full-Body Human-Robot Interaction. *IISE Annual Conference & Expo 2025*.
2. M. Amrollahi, R. Wangira, and J. Liu. (2025) Predict and Model Worker Trust for Automated Vehicles in Manufacturing Plants. *IISE Annual Conference & Expo 2025*.
3. R. Brackey, and J. Liu. (2025) Exploring Trust Calibration with Modified AI Chatbots. **Second Place Winner** in *The 13th Annual IMSE Student Research Symposium*.
4. M. Amrollahi, R. Wangira, and J. Liu. (2025) Should I Stay or Should I Go: Characterizing Human Crossing Decisions in Shared Spaces with Autonomous Guided Vehicles. **Third Place Winner** in *The 13th Annual IMSE Student Research Symposium*.
5. G. Galvin, T. Lenz, N. Ilangovan, and J. Liu. (2025) How's My Driving? Measuring Trust in Personalized Automated Vehicle Behavior in a Driving Simulator. *The 13th Annual IMSE Student Research Symposium*.
6. T. Lenz, R. Brackey, and J. Liu. (2025) Effects of Citations and Confirmation Bias on Trust in Chatbots. *The 13th Annual IMSE Student Research Symposium*.
7. R. Wangira, N. Ilangovan, and J. Liu. (2025) Designing a Virtual Reality Training Platform to Promote Trust in Human Robot Interaction. *The 13th Annual IMSE Student Research Symposium*.
8. Gomez-Hernandez, A.*, Amrollahi, M.*, Liu, J., and Yang, J. From Automation to Adaptation: A Systematic Review of Adaptive Human-Machine Systems. Accepted for presentation at *ASPIRE — the 69th HFES International Annual Meeting*.
9. M. Amrollahi, A. Bolt, B. Reiss, R. Wangira, and J. Liu. (2024) Predict and Model Human Trust for Automated Vehicles in Manufacturing Plants. **First Place Winner** in *The 12th Annual IMSE Student Research Symposium*.
10. N. K. Ilangovan, and J. Liu. (2024) The future of mobility: Bridging all road users in a multiplayer VR testbed. **Second Place Winner** of best overall quality of research in *ISU HCT's 20th Anniversary Poster Presentation*.
11. A. Bolt, and B. Rreiss (2024) Predicting and Optimizing Workers' Trust Toward Autonomous Vehicles in Manufacturing Plants. Accepted for presentation at *the National Conference on Undergraduate Research (NCUR)*.

Professional society memberships Faculty Advisor, HFES Student Chapter at Iowa State University
2024-present

Member, Institute of Industrial & Systems Engineers (IISE)	2017-present
Member, Human Factors and Ergonomics Society (HFES)	2017-present
Member, Institute of Electrical and Electronics Engineers (IEEE)	2017-present
Member, American Statistical Association (ASA)	2019-2022
Member, Institute for Operations Research and the Management Sciences (INFORMS)	2019-present
Member, American Society of Mechanical Engineers (ASME)	2018-2020
Member, UW-Human Factors and Ergonomics Society student chapter	2019-2022
Member, UW-INFORMS student chapter student chapter	2019-2022

Referee/Reviewer

Source	Total
Peer-reviewed journal articles	
Accident Analysis and Prevention	1
Human Factors	2
IEEE Transactions on Intelligent Transportation Systems	1
Frontiers in Robotics and AI	1
J. of Intelligent Transportation System	1
IEEE Transactions on Human-Machine Systems	4
IEEE Transactions on Neural Networks and Learning Systems	1
International Journal of Environmental Research and Public Health	1
IISE Transactions	1
Production and Operations Management	1
Transportation Research Part C	1
Interaction Studies	1
Conference proceedings/abstracts	
Human Factors & Ergonomics Society Conference	14
Automotive User Interfaces and Interactive Vehicular Applications	3
Human-Robot Interaction Conference	1
Learning for Dynamics and Control	1
International Conference on Automation Science and Engineering	1

STUDENT ADVISORY

Current Doctoral Students

1. Thomas Lenz, Chair, IMSE, began Fall 2024.
2. Mobina Amrollahi, Chair, IMSE, began Fall 2023.
3. Aparna Joshi, co-Chair (with Anuj Sharma), began Fall 2022.

Current Master Students

1. Rayanne Brackey, Chair, IMSE, began Spring 2025.

Chaired Master Students

1. Nandha Kumar Ilangovan, Creative component, HCI, Spring 2025.

Other significant student supervision

1. Membership on PhD degree committees
 - Jiwon Kim, IMSE, advisor: Michael Dorneich, current.
 - Yvonne Farah, IMSE, advisor: Michael Dorneich, current.
 - Mohammad Al-Daraghme, IMSE, advisor: Richard Stone.
2. Membership on MS degree committees
 - Nicholas Matthews, HCI and CE, advisor: Eliot Winer.
3. Undergraduate Research Supervision
 - 2025: Rindirisia Wangira (IMSE), Garrett Galvin (IMSE)
 - 2024: Abigail Bolt (IMSE), Brian Reiss (CSE), Rindirisia Wangira (IMSE), Garrett Galvin (IMSE)
 - 2023: Abigail Bolt (IMSE), Brian Reiss (CSE)

RESEARCH ACTIVITIES

Designing Value-driven Explainable AI for Responsible Robots in Manufacturing Plant 2024
Sole PI: Jundi Liu; Supported by ISU IMSE Exploratory Research Program (\$10,157)
Artful Human-Robot Engagements: Social-Emotional Learning Through Story-Based Virtual Reality Quests in Informal Learning Spaces 2025
Co-PI: Jundi Liu; Supported by ISU Presidential Interdisciplinary Research Seed Grants (\$50,000)

DOCUMENTATION OF TEACHING EFFECTIVENESS

Iowa State University

All students were asked to rate the courses on a scale of 0-5 [0 = strongly disagree/poor, 5 = strongly agree/excellent]. The survey assessed various dimensions of the course and instructor, including feedback quality, assistance provided, learning environment, organization, and overall teaching effectiveness.

Course	Title	Quarter	Role	Credits	Response	Mean	Median
IE 487/587	Big Data Analyt. & Opt.	2024F	Instructor	3	7/18 (39%)	4.85	5
IE 148	Information Engr.	2024S	Co-Instructor	3	13/25 (52%)	4.59	5
IE 487/587	Big Data Analyt. & Opt.	2023F	Instructor	3	7/11 (64%)	4.67	5

University of Washington

All students were asked to rate the courses on a scale of 0-5 [0 = very poor, 1 = poor, 2 = fair, 3 = good, 4 = very good, 5 = excellent]. The survey assessed various dimensions of the course and instructor, including the overall quality of the course, the course content, the instructor's contribution, and the instructor's effectiveness in teaching the subject matter. The overall summative rating represents the combined responses of students to the four global summative items.

Course	Title	Quarter	Role	Credits	Response	Mean	Median
IND E 315	Prob. & Stat. for Engrs.	2019S	Instructor	3	13/41 (32%)	NA	4.2
IND E 410	Linear & Network Prog.	2018F	TA	3	14/66 (21%)	NA	4.4

SERVICE

Professional Service

Session Chair, IISE Annual Conference,	2025
Panelist, HFES 2nd Doctoral Colloquium Junior Faculty Panel,	2024
HFES 2024 Alphonse Chapanis Award Committee,	2024
Session Chair, HFES Annual Conference,	2024
Panelist, ISU HCI 20th Anniversary Young Faculty Panel,	2024
Program Committee Member, MultiTTrust workshop at Human-Agent Interaction Conference	2023

Departmental Service

Faculty Advisor, ISU HFES student chapter	2024-present
ISU IMSE Qualifying Exam Committee	Spring 24, Fall 24
ISU IMSE Space, Facilities and Safety Committee	2023-present

Outreach

Junior Science & Humanities Symposia	2025
ISU IMSE Junior Science & Humanities Symposia	2024
ISU IMSE Prospective Student visits	2024-present
ISU IMSE IE Career Exploration Day	2024
UM IOE Women in Science and Engineering (WISE) Camp	2023