

Mobina Amrollahi

mobinaa@iastate.edu | [Google Scholar](#) | [GitHub](#) | [LinkedIn](#) | [Website](#)

Research Interest

My research focuses on integrating insights from psychology, sociology, & economics with statistical methods to embed heterogeneous representations of human behavior into autonomous agents' dynamics, enabling seamless interaction in social settings, particularly under data scarcity.

Education

Iowa State University, Ph.D. Computer Science & Industrial Engineering (GPA: 3.9/4.0) Aug. 2028 (Expected)
Iowa State University, M.Sc. Computer Science & Industrial Engineering Aug. 2026 (Expected)
Sharif University of Technology, B.S. in Industrial Engineering 2018 – 2023

Technical Skills

Programming: Python (PyTorch, TensorFlow, Keras), R, MATLAB, C++, C

Tools: Unity, Unreal Engine, Qualtrics, Prolific, MTurk, Git

Methods: Functional Data Analysis, Signal Processing, Mixed-Methods Analysis, Motion Planning (RRT, RRT*, A*, Dubins), Control Barrier Functions

Research Experience

Confidence-Guided Behavioral Adaptation for Socially Aware Robots Aug. 2025 – Present

- Developed a repeatable, dynamics-agnostic framework to discover heterogeneous human behavioral policies, enabling system dynamics to balance between personalized and conservative policies during adaptation.
- Developed an end-to-end virtual reality environment in Unity and conducted an in-person human-subject study with 30+ participants to evaluate the proposed method in a full-scale human-robot collaborative environment.
- Analyzed multi-modal, multi-source human-subject data and identified distinct patterns of personalized adaptation, with some participants oscillating between behavioral policies before convergence.

Characterizing Human Decisions in Shared Spaces with Autonomous Vehicles Aug. 2023 – Aug. 2025

- Designed a framework for longitudinal physiological and behavioral pattern discovery in human-AI interactions.
- Conducted a full-factorial human-subject study with 40+ participants to evaluate the proposed method.
- Conducted mixed-methods analyses of multi-modal human-subject data to investigate the alignment between objective and perceived behavioral measures such as trust.
- Revealed a gap in the alignment between multisource measures of human behavior, suggesting the cautious adaptation of socially aware systems when relying on such measures.

Selected Honors

Alphonse Chapanis Student Paper Award Runner-Up, Human Factors & Ergonomics Society 2025
NSF IISE Annual Conference Student Travel Award, NSF Award ID CMMI-2511912 (\$840) 2025
Harold and Shirley Reihman Graduate Scholarship, Iowa State University (\$3,000) 2023
UMN Provost Fellowship, University of Minnesota (\$3,300) 2023

Publications

- [1] **Amrollahi, M.**, Dorneich, M., Liu, J. *Measuring and Understanding Trust in Motion: Behavioral Archetypes in Human-Automated Guided Vehicle Interactions*. ACM Transactions on Human-Robot Interaction, Accepted.
- [2] Gomez-Hernandez, A. *, **Amrollahi, M. ***, Entezarizarch, E., Liu, J., Yang, J. *A Systematic Review of Human-Centered Adaptive Systems: Design, Implications, and Future Directions*. IEEE Transactions on Human-Machine Systems.
- [3] **Amrollahi, M.**, Wangira, R., Liu, J. *Analysis and Modeling of Worker Trust in Automated Guided Vehicles for Manufacturing Workplaces*. Proceedings of the 69th Human Factors and Ergonomics Society Annual Meeting.