Zhao Han, Ph.D.

Assistant Professor, *Department of Computer Science and Engineering, University of South Florida*
4202 E. Fowler Avenue, Tampa, FL 33620, USA zhaohan@usf.edu zhaohanphd.com 4/18/2024

Research Interests

Mission: Develop capable robotic systems and understandable robot interactions with humans

Areas: Human-robot interaction (HRI), augmented reality (AR), robotics, artificial intelligence (AI)

Expertise: Robot explanation/transparency, projector-based/head-worn AR, mobile manipulation, references, robot failures, assistive robotics, handovers, robot competition, behavior trees, robot ethics, workload, teleoperation,

Education

2016–2021	**Ph.D., Computer Science**, *University of Massachusetts Lowell, USA* Dissertation: Robot Explanations: Preferences, Generation, and Communication Committee: Holly Yanco (advisor, AAAI Fellow), Reza Ahmadzadeh, Aaron Steinfeld (CMU)
2014–2016	**M.S., Computer Science**, *University of Manitoba, Canada* Thesis: Delivering Scalable Frequent Pattern Mining for Non-Expert Data Miners Advisor: Carson Leung, Lab: Database and Data Mining Lab
2009–2013	**B.S., Computer Science (Honours, three co-op terms)**, *University of Manitoba, Canada* Area of specialization: HCI, Computer Graphics, Software Engineering, Databases and Data Mining

Employment

8/2023→	**Assistant Professor**, *Department of Computer Science and Engineering, University of South Florida* Lab: Reality, Autonomy, and Robot Experience (RARE) Lab

8/2021–7/2023	**Post-Doctoral Fellow**, *Department of Computer Science, Colorado School of Mines*
	Advisor: Tom Williams, Lab: Mines Interactive Robotics Research Lab (MIRRORLab)
	Projects:
	• Givenness Hierarchy Theoretic Natural Language Generation for Situated HRI
	  ◦ Collaborators: Neil T. Dantam, Hao Zhang
	• Augmented Reality and Physio-Enhanced Robotic Gesture (APERTURE)
	  ◦ Collaborators: Leanne Hirshfield (**Psychology**), Christopher D. Wickens (**Psychology**)

8/2022–12/2022	**Adjunct Faculty**†, *Department of Computer Science, Colorado School of Mines* • Course: Augmented Reality (**4.72/5.0** in course evaluation)
5/2018–4/2021	**Research Assistant**, *Department of Computer Science, University of Massachusetts Lowell* Advisor: Holly Yanco, Lab: Human-Robot Interaction Lab Projects: • Robotic Manipulation Assistance for Activities of Daily Living • FetchIt Mobile Manipulation Challenge at ICRA 2019 • Self-assessment & Understanding of Competence and Conditions to Ensure System Success ◦ Collaborators: Aaron Steinfeld (**CMU**), Henny Admoni (**CMU**), Jacob Crandall (**BYU**), Michael Goodrich (**BYU**), Matthias Scheutz (**Tufts**), Reid Simmons (**CMU**)
9/2016–4/2018	**Teaching Assistant**†, *Department of Computer Science, University of Massachusetts Lowell*
5/2015–4/2016	**Marker/Teaching Assistant**†, *Department of Computer Science, University of Manitoba, Canada*
5/2013–8/2013	**Software Developer**‡, *Payment Processing, iQmetrix (350+ employees), Winnipeg, Canada*
9/2012–12/2012	**App. Developer**‡, *Twitter & Facebook, Blackberry (3500+ employees), Ottawa, Canada*

1/2012–4/2012 **App. Developer (Web, Co-op)**[‡], *Wawanesa Insurance (3000+ employees), Winnipeg, Canada*

[†]Teaching Experience is described in its own section.

[‡]Non-academia employment is detailed in the Industry Experience section.

Honors and Awards

5/2024 **Excellence in High Impact Practices (HIPs) Award** for commitment to HIPs and supporting undergraduate students
University of South Florida

8/2023 **Mines Diversity, Inclusion & Access (DI&A) Award** to Mines Asian Community Alliance, Outstanding Campus Engagement
Colorado School of Mines

3/2023 **Best Late Breaking Report (LBR) Nominee** (Top 5%, 7/139)
2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI)
- Paper: Towards Improved Replicability of Human Studies in Human-Robot Interaction: Recommendations for Formalized Reporting

8/2022 **Mines Diversity, Inclusion & Access (DI&A) Award**, Creating a Culture of Inclusion (Faculty)
Colorado School of Mines
- Founded Mines Asian Community Alliance to foster an inclusive environment and sense of belonging
- Centralized resources for the postdoc community as a founding officer of the postdoc program
- Hosted an interactive workshop to raise awareness of the history and harm of the Model Minority myth

7/2022 **Best Long-Paper Award**
2022 ACL 15th International Natural Language Generation Conference (INLG)
- Paper: Evaluating Referring Form Selection Models In Partially-Known Environments

4/2022 **Elected Councilor** (7/2022–6/2025), Mathematical, Computing, and Statistical Sciences Division (MCS)
The Council on Undergraduate Research (CUR)

3/2022 **Third Prize, Best Late Breaking Report (LBR) Award** (Top 3%, 3/103)
2022 ACM/IEEE International Conference on Human-Robot Interaction (HRI)
- Paper: A Task Design for Studying Referring Behaviors for Linguistic HRI

6/2020 **Finalist (Proposal Writer & Team Lead)**
Analog Devices Real-Time Sensor Fusion Challenge, Analog Devices (ADI), FedEx, Mitsubishi Electric, SICK, SolidWorks, and MassRobotics
- Awarded $2,500 in seed funding
- Led 2 members (1 undergraduate) to develop tabletop projection mapping for robot intention
- Competed with Brown University, Worcester Polytechnic Institute, and startups.
- Led to a workshop paper and became part of my dissertation

5/2020 **First Place (Proposal Writer & Team Lead)**
Panasonic Prototype 3D LiDAR Challenge, Panasonic, Harmonic Drive, SolidWorks, and MassRobotics
- Awarded $10,000 plus $2,500 seed funding
- Competed with Boston University, Northeastern University, Olin College, et al.
- Led 2 team members (1 engineer) to develop small object detection from sparse LiDAR data
- Secured collaboration with Panasonic for the lab

5/2019 **Second Place (Team Description Writer & Team Lead)**
FetchIt! Mobile Manipulation Challenge, IEEE International Conference on Robotics and Automation (ICRA), Fetch Robotics, EandM, SCHUNK, SICK, and The Construct
- Awarded $5,000 & LiDARs (led 2 team members vs. 12 in the first-placed team)
- Wrote team description paper and competed with Georgia Tech & Columbia University
- Developed autonomous manipulation and navigation on Fetch for gearbox assembly kitting
- Led to a top conference paper and formed the research platform for my dissertation

Honors and Awards to Students

4/2024	**Adrian Lozada**, *Accepted Participant, CRA-WP Distributed Research Experiences for Undergraduates (DREU)*
1/2024	**Hong Wang**, *2024 CRA-WP Grad Cohort for Women*
1/2024	**Uthman Tijani**, *2024 CRA-WP Grad Cohort for Inclusion, Diversity, Equity, Accessibility, and Leadership Skills (IDEALS)*

Grants

Research Grants

1/2024–7/2024	**NSF I-Corps Site Subgrant** Source: NSF's Innovation Corps (I-Corps) Site at the University of South Florida Investigator: Zhao Han (PI) Amount: $3,000
1/2024–5/2024	**Faculty Undergraduate Research Mentorship Grant** Source: University of South Florida Investigator: Zhao Han (PI) Amount: $2,200
2019–2020	**Human-Aware Projection Mapping for Robot Intention** *ADI Real-Time Sensor Fusion Challenge, MassRobotics* Source: Analog Devices (ADI), MassRobotics, FedEx, Mitsubishi Electric, SICK, and SolidWorks Investigators: **Zhao Han (PI)**, Holly Yanco (Faculty Advisor), Alexander Wilkinson, Jordan Allspaw Amount: $2,500
2019–2020	**Detecting and Removing Small Ground Object Hazards with 3D LiDAR on a Mobile Manipulator** *Panasonic Prototype 3D LiDAR Challenge, MassRobotics* Source: Panasonic, Harmonic Drive, SolidWorks, and MassRobotics Investigators: **Zhao Han (PI)**, Holly Yanco (Faculty Advisor), Jordan Allspaw, Brian Flynn Amount: $12,500
2018–2019	**Mobile Multi-Task Manipulation in a Confined and Integrated Environment with Irregular Objects** *FetchIt! Mobile Manipulation Challenge, 2019 IEEE Int'l Conference on Robotics and Automation (ICRA)* Source: Fetch Robotics, EandM, SCHUNK, SICK, and The Construct Investigators: **Zhao Han (PI)**, Holly Yanco (Faculty Advisor), Jordan Allspaw Amount: $5,000

Other Grants

1/2023	**DI&A Community Grant for MACA 2023 Lunar New Year Celebration** Source: Colorado School of Mines, Diversity, Inclusion and Access (DI&A) Awardee: Mines Asian Community Alliance (MACA) Amount: $1,000
2021–2022	**Open Access Pilot Mini-Grant** Source: Colorado School of Mines, Arthur Lakes Library Investigators: **Zhao Han (PI)**, Tom Williams (Faculty Advisor) Amount: $750

Publications

Refereed Journals

J5. **Zhao Han**, Holly A. Yanco. "Communicating Missing Causal Information to Explain a Robot's Past Behavior." *ACM Transactions on Human-Robot Interaction (THRI)*, *12*(1), 2023. **Top HRI journal.**

J4. **Landon Brown*, Jared Hamilton*, Zhao Han*, Albert Phan*, Thao Phung***, Eric Hansen, Nhan Tran, and Tom Williams. "Best of Both Worlds? Combining Different Forms of Mixed Reality Deictic Gestures." *ACM Transactions on Human-Robot Interaction (THRI)*, *12*(1), 2023. ***Equal contribution. Top HRI Journal.**

J3. **Zhao Han**, Elizabeth Phillips (**GMU, Psychology**), and Holly Yanco. "The Need for Verbal Robot Explanations and How People Would Like a Robot to Explain Itself." *ACM Transactions on Human-Robot Interaction (THRI), 10*(4), 2021. **Top HRI journal**.

J2. Alexander Wilkinson, Michael Gonzales, Patrick Hoey, David Kontak, Dian Wang, Noah Torname, Amelia Sinclaire, **Zhao Han**, Jordan Allspaw, Robert Platt, and Holly Yanco. "Design guidelines for human–robot interaction with assistive robot manipulation systems." *Paladyn, Journal of Behavioral Robotics, 12*(1), 2021. **Open access**.

J1. **Zhao Han**, Daniel Giger, Jordan Allspaw, Michael S. Lee (**CMU**), Henny Admoni (**CMU**), and Holly A. Yanco. "Building The Foundation of Robot Explanation Generation Using Behavior Trees." *ACM Transactions on Human-Robot Interaction (THRI), 10*(3), 2021. **Invited talk at Georgia Tech. Top HRI journal.**

Refereed Conference Proceedings

C18. Uthman Tijani, Hong Wang, and **Zhao Han**. "Towards Reproducible Language-Based HRI Experiments: Open-Sourcing a Generalized Experiment Project," *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2024. **Top HRI conference. 61.3% acceptance rate (short contribution).**

C17. Gregory LeMasurier, Alvika Gautam, **Zhao Han**, Jacob Crandall, and Holly Yanco. "Reactive or Proactive? How Robots Should Explain Failures," *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2024. **Top HRI conference. 24.9% acceptance rate.**

C16. Annie Huang*, Alyson Ranucci*, Adam Stogsdill*, Grace Clark, Keenan Schott, Mark Higger, **Zhao Han**, and Tom Williams. "(Gestures Vaguely): The Effects of Robots' Use of Abstract Pointing Gestures in Large-Scale Environments," *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2024. *Equal contribution. **Top HRI conference. 24.9% acceptance rate.**

C15. **Gabriel Del Castillo*, Grace Clark*, Zhao Han***, and Tom Williams. "Exploring the Naturalness of Cognitive Status-Informed Referring Form Selection Models," *The 16th International Conference on Natural Language Generation (INLG)*, 2023. *Equal contribution. **Top NLG conference**.

C14. **Zhao Han** and Tom Williams. "Evaluating Cognitive Status-Informed Referring Form Selection for Human-Robot Interactions," *2023 Annual Meeting of the Cognitive Science Society (CogSci)*, 2023. **Top Cognitive Science conference. 43.4% acceptance rate (380/875).**

C13. **Zhao Han*, Yifei Zhu***, Albert Phan, Fernando Sandoval Garza, Amia Castro, and Tom Williams. "Crossing Reality: Comparing Physical and Virtual Robot Deixis," *2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2023. *Equal contribution. **Top HRI conference. 25.2% acceptance rate.**

C12. Ruchen Wen, Alyssa Hanson, **Zhao Han**, and Tom Williams. "Fresh Start: Encouraging Politeness in Wakeword-Driven Human-Robot Interaction," *2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2023. **Top HRI conference. 25.2% acceptance rate.**

C11. **Kevin Spevak*, Zhao Han***, Tom Williams, and Neil T. Dantam. "Givenness Hierarchy Informed Optimal Document Planning for Situated Human-Robot Interaction," *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2022. ***Equal contribution. Top Robotics conference. 48% acceptance rate (1,740/3,579).**

C10. **Zhao Han**, Polina Rygina and Tom Williams. "Evaluating Referring Form Selection Models in Partially-Known Environments," *The 15th International Conference on Natural Language Generation (INLG)*, 2022. **Top NLG conference. Best Long-Paper Award.**

C9. **Zhao Han**, Jenna Parrillo, Alexander Wilkinson, Holly A. Yanco, and Tom Williams. "Projecting Robot Navigation Paths: Hardware and Software for Projected AR," *2022 ACM/IEEE International Conference on Human-Robot Interaction (HRI), Short Contributions (Open Science – Code Sharing)*, 2022. **Top HRI conference. 24% acceptance rate.**

C8. Ruchen Wen, **Zhao Han** and Tom Williams. "Teacher, Teammate, Subordinate, Friend: Generating Norm Violation Responses Grounded in Role-based Relational Norms," *2022 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2022. **Top HRI conference. 24% acceptance rate.**

C7. **Zhao Han**, Adam Norton, Eric McCann, Lisa Baraniecki, Will Ober, Dave Shane, Anna Skinner, and Holly A. Yanco. "Investigation of Multiple Resource Theory Design Principles on Robot Teleoperation and Workload Management." *2021 IEEE International Conference on Robotics and Automation (ICRA)*, 2021. **Top Robotics conference. 49% acceptance rate (1,946/4,005).**

C6. **Tyler Frasca* (Tufts), Zhao Han***, Jordan Allspaw, Holly Yanco, and Matthias Scheutz (**Tufts**). "Going Cognitive: A Demonstration of the Utility of Task-General Cognitive Architecture for Adaptive Robotic Task Performance." *2020 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*, 2020. ***Equal contribution. Top Robotics conference. 47% acceptance rate (1,409/2,996).**

C5. **Zhao Han**, Jordan Allspaw, Gregory LeMasurier, Jenna Parrillo, Daniel Giger, S. Reza Ahmadzadeh, and Holly A. Yanco. "Towards Mobile Multi-Task Manipulation in a Confined and Integrated Environment with Irregular Objects." *2020 IEEE International Conference on Robotics and Automation (ICRA)*, 2020. **Top Robotics conference. 42% acceptance rate (1,483/3,512).**

C4. **Zhao Han** and Holly Yanco. "The Effects of Proactive Release Behaviors During Human-Robot Handovers." *2019 14th ACM/IEEE International Conference on Human-Robot Interaction (HRI)*, 2019. **Top HRI conference**. **28% acceptance rate**.

C3. Patrick M. J. Dubois, **Zhao Han**, Fan Jiang, and Carson K. Leung. "An Interactive Circular Visual Analytic Tool for Visualization of Web Data." *IEEE/WIC/ACM International Conference on Web Intelligence (WI)*, 2016.

C2. **Zhao Han** and Carson K. Leung. "FIMaaS: Scalable Frequent Itemset Mining-as-a-Service on Cloud for Non-Expert Miners." *International Conference on Big Data Applications and Services (BigDAS)*, ACM, 2015.

C1. Alfredo Cuzzocrea, **Zhao Han**, Fan Jiang, Carson K. Leung, and Hao Zhang. "Edge-based Mining of Frequent Subgraphs from Graph Streams." *Procedia Computer Science 60, special issue of KES 2015*, 2015.

Refereed Workshop Papers and Extended Abstracts

W19. Xiangfei Kong and **Zhao Han**. "Do Results in Experiments with Virtual Robots in Augmented Reality Transfer To Physical Robots? An Experiment Design." *4th Workshop YOUR Study Design! Participatory critique and refinement of human-robot interaction user studies (WYSD '24)*, 2024.

W18. Hong Wang, Tam Do, and **Zhao Han**. "To Understand Indicators of Robots' Vision Capabilities." *2024 International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions at HRI 2024 (VAM-HRI)*, 2024.

W17. Uthman Tijani and **Zhao Han**. "Prototyping Mid-Air Display for Anywhere Robot Communication With Projected Spatial AR." *2024 International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions at HRI 2024 (VAM-HRI)*, 2024.

W16. Hong Wang, Tam Do, and **Zhao Han**. "Designing Indicators to Show a Robot's Physical Vision Capability." *The 31st IEEE Conference on Virtual Reality and 3D User Interfaces Abstracts and Workshops (IEEE VRW)*, 2024.

W15. Jiaee Cheong, Nikhil Churamani, Luke Guerdan, Tabitha Edith Lee, **Zhao Han**, and Hatice Gunes. "Causal-HRI: Causal Learning for Human-Robot Interaction." *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI), Workshop Abstract*, 2024.

W14. Raj Korpan*, Amy Eguchi, **Zhao Han**, Anastasia K. Ostrowski, Sindhu Ravindranath, and Ana Tanevska. "3rd Workshop on Inclusive HRI: Equity and Diversity in Design, Application, Methods, and Community." *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI), Workshop Abstract*, 2024.

W13. Rafael Sousa Silva, **Zhao Han**, and Tom Williams. "The Importance of Memory for Language-Capable Robots." *XRDS: Crossroads, The ACM Magazine for Students*, *30*(1), 2023.

W12. Mark Higger, Polina Rygina, Logan Daigler, Lara Ferreira Bezerra, **Zhao Han**, and Tom Williams. "Toward Open-World Human-Robot Interaction: What Types of Gestures Are Used in Task-Based Open-World Referential Communication?" *The 27th Workshop on the Semantics and Pragmatics of Dialogue (SEMDIAL)*, 2023.

W11. Ana Tanevska, Shruti Chandra, Giulia Barbareschi, Amy Eguchi, **Zhao Han**, Raj Korpan, Anastasia K. Ostrowski, Giulia Perugia, Sindhu Ravindranath, Katie Seaborn, and Katie Winkle. "Inclusive HRI II: Equity and Diversity in Design, Application, Methods, and Community." *2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI), Workshop Abstract*, 2023.

W10. Shelly Bagchi, Patrick Holthaus, Gloria Beraldo, Emmanuel Senft, Daniel Hernández García, **Zhao Han**, Suresh Kumaar Jayaraman, Alessandra Rossi, Connor Esterwood, Antonio Andriella, and Paul Pridham. "Towards Improved Replicability of Human Studies in Human-Robot Interaction: Recommendations for Formalized Reporting." *2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI), Late-Breaking Report (LBR)*, 2023. **Best Late Breaking Report (LBR) Nominee**.

W9. **Zhao Han**, Tom Williams, and Holly A. Yanco. "Mixed-Reality Robot Behavior Replay: A System Implementation." *2022 AAAI Fall Symposium on The Artificial Intelligence for Human-Robot Interaction (AI-HRI)*, 2022.

W8. **Zhao Han** and Tom Williams. "Towards Formalizing HRI Data Collection Processes." *The 4th Annual Workshop on Novel and Emerging Test Methods & Metrics for Effective HRI at HRI 2022*, 2022.

W7. **Zhao Han*, Albert Phan*, Amia Castro*, Fernando Sandoval Garza***, and Tom Williams. "Towards an Understanding of Physical vs Virtual Robot Appendage Design." *2022 International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions at HRI 2022 (VAM-HRI)*, 2022. *** Equal contribution**

W6. Gregory LeMasurier, Alvika Gautam (**BYU**), **Zhao Han**, Jacob W. Crandall (**BYU**), and Holly A. Yanco. ""Why Didn't I Do It?" A Study Design to Evaluate Robot Explanations." *HRI 2022 Workshop YOUR study design! Participatory critique and refinement of participants' studies*, 2022.

W5. **Zhao Han**, Boyoung Kim (**GMU, Psychology**), Holly A. Yanco, and Tom Williams. "Causal Robot Communication Inspired by Observational Learning Insights." *2022 AAAI Spring Symposium on Closing the Assessment Loop: Communicating Proficiency and Intent in Human-Robot Teaming*, 2022.

W4. **Zhao Han** and Tom Williams. "A Task Design for Studying Referring Behaviors for Linguistic HRI." *2022 ACM/IEEE International Conference on Human-Robot Interaction (HRI), Late-Breaking Report (LBR)*, 2022. **Third Prize, Best Late Breaking Report (LBR) Award (3/103)**.

W3. **Zhao Han**, Alexander Wilkinson, Jenna Parrillo, Jordan Allspaw, and Holly A. Yanco. "Projection Mapping Implementation: Enabling Direct Externalization of Perception Results and Action Intent to Improve Robot Explainability." *2020 AAAI Symposium on Artificial Intelligence for Human-Robot Interaction (AI-HRI)*, 2020. **Full-length talk. Open science – code.**

W2. **Zhao Han** and Holly A. Yanco. "Reasons People Want Explanations After Unrecoverable Pre-Handover Failures." *2020 IEEE ICRA Workshop on Human-Robot Handovers*, 2020. **Handover community engagement.**

W1. **Zhao Han**, Jordan Allspaw, Adam Norton, and Holly Yanco. "Towards A Robot Explanation System: A Survey and Our Approach to State Summarization, Storage and Querying, and Human Interface." *2019 AAAI Symposium on Artificial Intelligence for Human-Robot Interaction (AI-HRI)*, 2019. **Full paper, 8 pages.**

Theses

T2. **Zhao Han**. "Robot Explanations: Preferences, Generation, and Communication". *Ph.D. Dissertation, University of Massachusetts Lowell*, Lowell, MA. 2021.

T1. **Zhao Han**. "Delivering Scalable Frequent Pattern Mining for Non-Expert Data Miners". *M.S. Thesis, University of Manitoba*, Winnipeg, MB, Canada. 2016.

Other Publications

O4. **Zhao Han**, Emmanuel Senft, Muneeb I. Ahmad, Shelly Bagchi, Amir Yazdani, Jason R. Wilson, Boyoung Kim, Ruchen Wen, Justin W. Hart, Daniel Hernández García, Matteo Leonetti, Ross Mead, Reuth Mirsky, Ahalya Prabhakar, Megan L. Zimmerman. "Proceedings of the AI-HRI Symposium at AAAI-FSS 2022." 2022.

O3. Reuth Mirsky, Megan Zimmerman, Muneed Ahmad, Shelly Bagchi, Felix Gervits, **Zhao Han**, Justin Hart, Daniel Hernández García, Matteo Leonetti, Ross Mead, Emmanuel Senft, Jivko Sinapov, Jason Wilson. "Proceedings of the AI-HRI Symposium at AAAI-FSS 2021." 2021.

O2. Shelly Bagchi, Jason R. Wilson, Muneeb I. Ahmad, Christian Dondrup, **Zhao Han**, Justin W. Hart, Matteo Leonetti, Katrin Lohan, Ross Mead, Emmanuel Senft, Jivko Sinapov, and Megan L. Zimmerman. "Proceedings of the AI-HRI Symposium at AAAI-FSS 2020." 2020.

O1. **Zhao Han** and Holly Yanco. "Investigating Human-Robot Handover Release Behaviors." *2018 New England Manipulation Symposium*, 2018. Poster.

Teaching

Courses Taught

8/2024–12/2024 (expected)	**Augmented Reality** (**4th year and graduate**), *University of South Florida*
1/2024–4/2024	**Software Engineering** (**undergraduate**, 38 students), *University of South Florida* • Redesigned course material: Slides, assessments, technical topic presentations, and final projects

8/2023–12/2023 **Augmented Reality** (**graduate**, 60 students), *University of South Florida*
- Achieved an average rating of **4.4/5.0** in course evaluation
- Successfully taught a large class with 60 mostly international M.S. students

8/2022–12/2022 **Augmented Reality** (**4th year and graduate**, 30 students), *Colorado School of Mines*
- Achieved an average rating of **4.7/5.0** in course evaluation
- Designed course description and developed learning outcomes for essential knowledge and skills
- Developed homework to better assess learning outcomes
- Developed evaluation and experiment design course material

Courses Assisted

9/2018–12/2018 Teaching Assistant, **Artificial Intelligence** (**4th year**), *University of Massachusetts Lowell*
- **Lectured on uninformed search algorithms**
- Went through practical questions in class, provided answer keys for midterm exam questions

1/2018–4/2018 Teaching Assistant, **Mobile Robotics I** (**4th year**), *University of Massachusetts Lowell*
- Graded robot demonstrations and answered questions on the KIPR Wallaby robot controller

9/2017–12/2017 Instructor/Teaching Assistant, **Computing I Lab** (**1st year**), *University of Massachusetts Lowell*
- Led labs, answered C questions, and helped students debug

1/2017–5/2017 Instructor/Teaching Assistant, **Computing II Lab** (**1st year**), *University of Massachusetts Lowell*
- Led labs, answered C++ questions, and helped students debug memory-related bugs
- Coordinated with a grader to grade assignments

9/2016–12/2016 Teaching Assistant, **Software Architecture** (**3rd year**), *University of Massachusetts Lowell*
- Graded assignments written in assembly language

1/2016–4/2016 Marker, **Object-Orientation** (**2nd year**), *University of Manitoba*
- Same as 5/2015 – 8/2015 except marked one Ruby assignment
- The instructor said: "**Thanks so much for being prompt this term and a good grader.**"

Teaching Assistant/Marker, **Advanced Artificial Intelligence** (**4th year**), *University of Manitoba*
- **Lectured**: Bayesian Reasoning, Markov Chains, and Rapidly Exploring Random Trees.
- Graded assignments (written in Python, Java, C++), midterm and final exams

Instructor/Teaching Assistant, **Programming Practices Lab** (**2nd year**), *University of Manitoba*
- Taught 70 students for around 15 minutes in five 75-minute lab sections
- Prepared lab material from the famous Programing Pearls book (Columns 2, 3, 5, 10)
- Assigned lab marks based on their Unix (OS X), C (lldb, Xcode) knowledge
- Provided feedback to the instructor after lab

9/2015–12/2015 Marker, **Databases: Concepts and Usage** (**3rd year**), *University of Manitoba*
- Provided rubrics for **100+ students**' SQL and Relational Algebra assignments

5/2015–8/2015 Marker, **Object-Orientation** (**2nd year**), *University of Manitoba*
- Provided timely and tailored feedback to 40 students who programmed in Java and C++

Teaching Professional Development

8/2023–11/2023 **CITL and ODEI Book Club**
Center for Innovative Teaching and Learning (CITL), University of South Florida

8/2023–11/2023 **Small Tweaks, Large Impact**
Center for Innovative Teaching and Learning (CITL), University of South Florida
- Learned six science-based strategies to enhance learning: Retrieval, Practicing, Interleaving, Self-Explaining, Learning Through Practicing, and Learning Through Connecting.

9/2022–12/2022 **Course: Foundations of Course Design**
Trefny Innovative Instruction Center, Colorado School of Mines

- Synthesize your course vision, purpose, relevance, and key impacts in a course description
- Develop course learning outcomes consistent with course key impacts and course description
- Plan summative assessments that align with CLOs
- Outline Pathways to Mastery that support students in mastering the learning outcomes

Mentoring

Graduate Students (University of South Florida)

10/2023→	**Xiangfei Kong**♀ (M.S. student). AR virtual vs. physical robot experiment results.
8/2023→	**Hong Wang**♀ (Ph.D. student). Indicating a robot's physical vision capability.
8/2023→	**Uthman Tijani** (Ph.D. student). In-air projection for robot communication.

Undergraduate Researchers (University of South Florida)

4/2024→	**James Ocampo**. Implementing robot's physical vision indicator.
1/2024→	**Duy Linh (Liam) Ha**. Using robots to improve college students' mental health.
1/2024→	**Adrian Lozada**. In-air projection for robot communication.
11/2023→	**Tam (Tammy) Do**♀. Using robots to improve college students' mental health.

Thesis Committee Member (University of South Florida)

3/2024	Kejvi Cupa, M.S. in Computer Science. Major Professor: Yu Sun. Title: Automatic Image-Based Nutritional Calculator App.

Graduate Students (Colorado School of Mines)

3/2023-7/2023	Daniel (Danny) Hammer (Ph.D. student, 1st year). Evaluation of cognitive status-informed document planner.
8/2022-12/2022	Mark Higger (1st year M.S. student. **Transitioned to Ph.D. in 2023**. 1 paper). Gesturing in referring form selection.
5/2022-3/2023	**Yifei (Rena) Zhu**♀ (Ph.D. student, 1st year. 1 paper). Comparing AR robot arm with physical robot arm.
8/2021-4/2023	**Ruchen (Puck) Wen**♀ (Ph.D. student, 3rd year to graduate). *Research and career advice*.

Undergraduate Researchers (Colorado School of Mines)

4/2023-7/2023	Aaron Fanganello. Evaluation of Cognitive Status-Informed Document Planner.
10/2022-3/2023	Keenan Schott (1 paper). Comparing deictic and non-deictic spatial gestures.
8/2022-7/2023	**Annie Huang**♀ (1 paper). Comparing deictic and non-deictic spatial gestures.
8/2022-12/2022	Aly Ranucci♀ (1 paper). Comparing deictic and non-deictic gestures. Sander Schott. Gesturing in referring form selection. **Nelson Valencia**. —. **Gazi Md Iftakher Morshed**. —.
11/2021-4/2023	**Gabriel Del Castillo** (1 paper). Givenness Hierarchy-informed theoretic referential choice for linguistic robots.

8/2021–7/2022	**Fernando Sandoval Garza** (2 papers). Comparing AR robot arm with physical robot arm.
8/2021–5/2022	Grace Clark♀ (2 papers). Givenness Hierarchy-informed theoretic referential choice for linguistic robots. **Amia Castro**♀ (2 papers). Eye tracking implementation in augmented reality. **Albert Phan** (2 papers). Comparing virtual robot arm in augmented reality with physical robot arm. **Polina Rygina** (2 papers)♀. Referring forms corpus collection for situated human-robot interaction. Katherine Deal♀. —.
8/2021–12/2021	Aly Ranucci♀. Category transitions between deictic and non-deictic spatial gestures.
2020	Alexander Wilkinson (3 papers – 1 journal). Projection mapping for tabletop manipulation intent. Vittoria Santoro♀. Investigating physical replay to Fetch robot using MongoDB. **Yash Patel**. Converting robot policy programmed in C++ to behavior trees.
5/2019–7/2021	Jenna Parrillo♀ (3 papers). Near-table navigation. Projection mapping for navigation intent. Daniel Giger (2 papers). Robot simulation. Visualize perceived & learned policies using behavior tree.
2019	Gregory LeMasurier (1 paper. **Started Ph.D.** in 2021). Door handle manipulation and robotics simulation. John DeNyse. Enforcing gripper constrain in probabilistic manipulation planning. **Sanskriti Sharma**♀. Extracting common code in the FetchIt mobile manipulation codebase.

Undergraduate Researchers (UMass Lowell)

2020	Alexander Wilkinson (3 papers – 1 journal). Projection mapping for tabletop manipulation intent. Vittoria Santoro♀. Investigating physical replay to Fetch robot using MongoDB. **Yash Patel**. Converting robot policy programmed in C++ to behavior trees.
5/2019–7/2021	Jenna Parrillo♀ (3 papers). Near-table navigation. Projection mapping for navigation intent. Daniel Giger (2 papers). Robot simulation. Visualize perceived & learned policies using behavior tree.
2019	Gregory LeMasurier (1 paper. **Started Ph.D.** in 2021). Door handle manipulation and robotics simulation. John DeNyse. Enforcing gripper constrain in probabilistic manipulation planning. **Sanskriti Sharma**♀. Extracting common code in the FetchIt mobile manipulation codebase.

Mentoring Service and Professional Development

11/2022-12/2022	**Program Committee Member** *AAAI 2023 Undergraduate Consortium*
10/28/2022	**Poster Presentation Judge**, 2022 Fall Undergraduate Research Symposium *Colorado School of Mines* • Rated three posters on visual organization, verbal delivery, and individual sections • Gave feedback and encouragement to undergraduate researchers
10/26/2022	**Workshop**, "Mentorship: The Key to Success in the Academic Workspace"
4/18/2022	**Workshop**: "Centering Equity and Inclusion in Undergraduate Research Mentoring."
4/18/2022	**Poster Presentation Judge**, 2022 Spring Undergraduate Research Symposium *Colorado School of Mines* • Rated five posters on visual organization, verbal delivery, and individual sections • Gave feedback and encouragement to undergraduate researchers

Professional Service and Leadership

5/2024	**Review Panelist**, Foundational Research in Robotics (FRR) *National Science Foundation (NSF)*

9/2023-3/2024	**Co-Organizer**, *Workshop on "Causal-HRI: Causal Learning for Human-Robot Interaction," 2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*	
10/2023–11/2023	**Program Committee (PC) Member** (Main Track, Studies Theme) *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)* • Attended 2.5-day in-person meeting discussing over 40 papers with 6 top HRI researchers • Recruited 7 expert reviewers, meta-reviewed 4 papers, and grand-reviewed 5 papers	Program Committee
8/2023→	**Guest Editor**, Special Issue on Human-mediated Robot Autonomy *International Journal of Social Robotics*	Editorial
7/2023-10/2023	**Diversity and Inclusion Chair, Program Committee (PC) Member** *2023 AAAI Fall Symposium on Artificial Intelligence for Human-Robot Interaction (AI-HRI)* • Secured 5 complimentary registrations to promote Diversity, Equity, and Inclusion • Meta-reviewed 3 submissions and discussed them during PC meeting	Program Committee Organizer
6/2023→	**Lead Topic Editor**, Perceiving, Generating, and Interpreting Affect in HRI *Frontiers in Robotics and AI* • Co-drafted research topic proposal with a list of 118 potential authors	Editorial
6/2023-3/2024	**Publications Co-Chair** *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*	Organization
2/2023–9/2023	**Co-Organizer** *2023 Workshop on Affective Human-Robot Interaction, 11th International Conference on Affective Computing & Intelligent Interaction (ACII 2023)* • Co-drafted workshop proposal • Initiated a special issue (special topic collection) with Frontiers in Robotics and AI • Advertised CFP in multiple mailing lists • Hosted the workshop in person (5 keynote speakers and 8 authors)	Organizer
9/2022–11/2022	**Program Committee (PC) Member** (Main Track, Technical Theme → Studies Theme) *2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI)* • Attended 3-day PC meeting discussing over 40 papers with 13 top HRI researchers • Recruited 16 expert reviewers, meta-reviewed 5 papers, and grand-reviewed 4 papers	Program Committee
10/2022	**Session Co-Chair**, Special Session: Computational Advances in Human-Robot Interaction 1 *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*	Organization
4/2022–11/2022	**General Co-Chair** *2022 AAAI Fall Symposium on Artificial Intelligence for Human-Robot Interaction (AI-HRI)* • Led symposium application and discussion with 14 co-organizers on theme, topic, format, etc. • Promoted diversity by initiating DEI Chair negotiating five complimentary registrations • Initiated a Blue Sky Ideas track and attracted over 20 submissions • Co-led PC meeting and hosted the 2.5-day hybrid symposium in Washington, D.C., USA	Organizer
3/2022–10/2022	**Co-Organizer** *2022 Workshop on Affective Human-Robot Interaction, 10th International Conference on Affective Computing & Intelligent Interaction (ACII 2022)* • Attracted 10 submissions and participated in all aspects of workshop organization • Contacted and invited one of the speakers and hosted the early morning session	Organizer
4/2022–6/2022	**Area Chair, Program Comittee** *2022 ACM International Conf. on Automotive UI and Interactive Vehicular Applications (AutomotiveUI)* • Recruited multiple reviewers for manuscripts in autonomous vehicles	Program Committee
4/2022→	**Elected Councilor** (7/2022–6/2025), Mathematical, Computing, & Statistical Sciences Division *Council on Undergraduate Research (CUR)*	Education

- Design and implement initiatives to support and promote high-quality mentored undergraduate research, scholarship, and creative inquiry
- Attend the ConnectUR conference for career development to learn, study, and master approaches to undergraduate research

2/2022–10/2022	**Lead Principal Co-Organizer**, Special Session on Computational Advances in HRI *2022 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS 2022)* • Proposed & drafted an application explaining goal and themes of submitted papers • Accepted to the top-tier robotics conference with five other organizers • Attracted over 20 IROS and RA-L submissions and expanded two special sessions • Led to two papers nominated as IROS best paper awards, one per session	Editorial Organizer
1/2022→	**Standards Voting Member**, P3107 – Standard Terminology for Human-Robot Interaction *IEEE Standards Association (IEEE SA)*	Policy Standards
12/2021→	**Subgroup Co-Chair & Standards Voting Member**, P3108 – Recommended Practice for HRI Design of Human Subject Studies *IEEE Standards Association (IEEE SA)* • Contributed topic coverage for HRI human-subjects study recommendations • Co-chairing subgroup 4 on Data Reporting/Release, Replicability (eight members)	Policy Standards
12/2021→	**Guest Editor**, Special Issue on Artificial Intelligence for Human-Robot Interaction *ACM Transactions on Human-Robot Interaction (THRI)* • Drafted special issue application and Call for Paper (CFP) • Communicated with journal editors to announce the CFP • Sought and assigned reviewers for submitted manuscripts • Attracted 18 submissions and wrote two meta reviews	Editorial Organizer
4/2020–11/2021	**Co-Organizer, Program Co-Chair, Session Chair** *2020 and 2021 AAAI Fall Symposium on Artificial Intelligence for Human-Robot Interaction (AI-HRI)* • Reviewed symposium application submitted to AAAI • Helped determine program for virtual conference: breakout rooms • Chaired a paper session (Ethics/Trust) • Wrote meta-reviews, assigned reviewers, maintained website, publicized on Twitter	Organizer
2019→	**Professional Society Member** • Association for Computing Machinery (ACM) — SIGCHI, SIGAI • Institute of Electrical and Electronics Engineers (IEEE) — Robotics and Automation Society (RAS) • Association for the Advancement of Artificial Intelligence (AAAI) • Council on Undergraduate Research (CUR) • Research Data Alliance (RDA) • National Postdoctoral Association (NPA)	Membership

Manuscript Referee Service

Journal

- ACM Transactions on Human-Robot Interaction (**THRI**) – ’21 (1), ’22 (2), ’23 (1)
- IEEE Robotics and Automation Letters (**RA-L**) – ’21 (2), ’22 (2), ’23 (1)
- Frontiers in Robotics and AI – ’22 (1)
- IEEE Transactions on Neural Systems and Rehabilitation Engineering (**TNSRE**) -’23 (1)

Conference

HRI, Robotics, AI

- ACM/IEEE International Conference on Human-Robot Interaction (**HRI**) – ’22 (6), ’23 (9), ’24 (9)
- IEEE International Conference on Robotics and Automation (**ICRA**) – ’18 (1), ’19 (2), ’20 (1), ’21 (1), ’23 (2)
- IEEE/RSJ International Conference on Intelligent Robots and Systems (**IROS**) – ’22 (1), ’23 (1)
- IEEE International Conference on Robot and Human Interactive Communication (**RO-MAN**) – ’22 (2)
- Robotics: Science and Systems (RSS) (**RSS**) – ’24 (2)

- ACM International Conference on Human-Agent Interaction (**HAI**) – '22 (1), '23 (2)
- International Conference on Ubiquitous Robots (**UR**) – '21 (1)
- ACM/IEEE International Conference on Human-Robot Interaction (**HRI**), **Short Contributions** – '21 (1), '23 (1)
- **AAAI** Conference on Artificial Intelligence – '23 (1)

HCI, AR/VR, Cognitive Science

- ACM Conference on Human Factors in Computing Systems (**CHI**) – '23 (1), '24 (4)
- ACM Conference on Human Factors in Computing Systems (**CHI**), **alt.chi** – '22 (2), '23 (1)
- IEEE International Symposium on Mixed and Augmented Reality (**ISMAR**) – '22 (1)
- IEEE Conference on Virtual Reality and 3D User Interfaces (**IEEE VR**) – '23 (2), '24 (1)
- ACM International Conference on Automotive UI and Interactive Vehicular Applications (**AutomotiveUI**) – '22 (2)
- Annual Conference of the Cognitive Science Society (**CogSci**) – '22 (1), '23 (2), '24 (2)

Symposium, Workshop, and Late-Breaking Report

- AAAI Fall Symposium on Artificial Intelligence for Human-Robot Interaction (**AI-HRI**) – '20 (5), '21 (4), '22 (2)
- ACM/IEEE International Conference on Human-Robot Interaction (**HRI**), **Late-Breaking Report** – '22 (1)
- ACM Conference on Human Factors in Computing Systems (**CHI**), **Late-Breaking Work** – '22 (5)
- International Conference on Affective Computing & Intelligent Interaction (**ACII**), **Late-Breaking Work** – '23 (1)
- Robotics: Science and Systems Conference (**RSS**), **Pioneers Workshop** – '20 (2)
- IEEE International Conference on Data Science and Advanced Analytics (**DSAA**) – '15 (1)

Institutional Service and Leadership

Spring 2024	**Spring Induction to the Profession Ceremony** *College of Engineering, University of South Florida*
Fall 2023	**Graduate Admissions Committee Member** *Department of Computer Science and Engineering, University of South Florida* • Contributed revision of Ph.D. program admission in catalog

Diversity, Equity, and Inclusion (DEI) Service and Leadership

9/2023- 3/2024	**Co-Organizer** *3rd Workshop on Inclusive HRI: Equity and Diversity in Design, Application, Methods, and Community, HRI 2024*	Professional
8/2023→	**Faculty Advisor** *Chinese Students and Scholars Association, University of South Florida*	University
11/2022- 3/2023	**Co-Organizer** *Inclusive HRI II: Equity and Diversity in Design, Application, Methods, and Community, HRI 2023* • Co-authored the workshop application for the 2023 edition • Hosted a morning paper session with six papers • Attracted 11 submissions and participated in all aspects of workshop organization	Professional
8/2022- 10/2022	**Planning Committee Member** *Front Range Industry & Postdoc Summit (FRIPS)* • Approached sponsors and secured one corporate sponsor • Recruited Robotics companies to attract Computer Science and Engineering postdocs	Regional Postdoc
3/2022	**Program Committee Member** *Inclusive HRI Workshop: Equity and Diversity in Design, Application, Methods, and Community, HRI 2022*	Professional
3/2022- 8/2023	**Committee Member**, Public Policy Subcommittee, NPA Advocacy Committee *National Postdoctoral Association* • Helping to improve postdoc policies in NSF documents • Advocating improving benefits and increasing salary range of postdocs	National Postdoc

2/15/2022	**Workshop Presenter**, Interactive Workshop "Solidarity, Not Model Minority" *Celebration of DI&A Symposium, Colorado School of Mines* • Raised awareness of the history and harm of the Model Minority myth • Broke the "Not Your Model Minority" film into three digestible interactive sessions with discussions • Attracted 25+ attendees, promoting Stop Asian Hate movement as solidarity opportunity	University
1/2022- 10/2022	**Planning Committee Member** *Second Mines Community Alliances Professional Development Conference, Colorado School of Mines* • Proposed invited talks to attract the previously underrepresented faculty members, postdocs, and graduate students, ensuring all university communities are welcomed at the event	University
11/2021- 5/2023	**Founding Chair** *Mines Asian Community Alliance, Colorado School of Mines* • Established the organization to foster inclusive environment for Asian staff and faculty at Mines • Coordinated with other 4 community alliances & university president to issue 3 support statements • Recruited members, officers as well as exclusive sponsor from university leadership team • Created a survey on the needs and interests of the membership and the university community	University
10/2021- 6/2023	**Founding Officer** *Postdoctoral Affairs and Professional Development, Colorado School of Mines* • Promoted an inclusive environment for the underrepresented postdocs as research faculty • Developed resources in benefits, housing, professional development, mental health, DE&I, et al. • Helped develop website with on- & off-campus resources to support incoming & current postdocs	University Postdoc
9/2016– 9/2019	**Vice President** (2017 – 2019) & Member (2016) *Chinese Students & Scholars Association, University of Massachusetts Lowell* • Promoted an inclusive environment for Asians & raised awareness of Chinese culture • Wrote, presented, and voted on funding proposals with the Office of Multicultural Affairs monthly • Coordinated and organized events for traditional Chinese & East Asian festivals (200+ attendees) • Recruited new members, maintained website & online forum	University

Outreach and Engagement

6/27/2023	**Interactive Workshop Presenter** *Summer Multicultural Engineering Training (SUMMET) program, Colorado School of Mines* • Introduced robot kinematics to 30+ high-schoolers, including underrepresented/first-generation	K-12
10/12/2022	**Co-Presenter to Toyota Research Institute** *Department of Computer Science, Colorado School of Mines* • Introduced 20 Toyota Research Institute employees to the lab's research in referring form selection	Department
6/24/2022	**Lecturer for 6-10th Grade Students** (1 hour) *Department of Computer Science, Colorado School of Mines* • Explained the mathematical representation of robot arms • Lectured the underlying math of forward and inverse kinematics to 25+ 6-10 grade students • Presented a demo showing an JavaScript implementation in browser	K-10 Department
5/17/2022	**Co-Presenter to External Advisory Board** *Department of Computer Science, Colorado School of Mines* • Introduced 10+ board members to the lab's research in AR and referring form selection	Department Advisory Board
2/26/2022	**Interactive Activity Presenter** *"Girls Lead the Way" Conference, Colorado School of Mines* • Introduced 30+ high school girls to math concepts & algorithms of motion planning with demo	K-12
11/16/2021	**STEM Fair Presenter** *Shelton Elementary Math & Science Night STEM Fair, Golden, CO*	K-6 STEM Fair

- Proposed & presented a robot arm activity for 50+ elementary students to control the arm with rviz
- Explained to parents about motion planning, rapidly-exploring random trees, & inverse kinematics

10/27/2019	**Department Tour Guide** *Department of Computer Science, University of Massachusetts Lowell* • Presented the FetchIt collaborative mobile manipulation kitting demo • Explained to 80+ prospective students and their parents about this lab research platform	K-12 Department
8/9/2018	**Research Center Tour Guide** *New England Robotics Validation and Experimentation (NERVE) Center, University of Massachusetts Lowell* • Presented a robot-to-human handover demo (HRI'19 paper) to 50+ junior high school students	K-12 University
4/28/2018	**Judge** *Botball Educational Robotics Program* • Enforced scoring rules and recorded scores of robot performance at competition tables	K-12 Judging
1/17/2018– 1/18/2018	**Technical Workshop Assistant** *Botball Educator Workshops* • Answer 20+ middle school teachers' questions on the KIPR Wallaby robot controller and C language	Teacher Workshop

Miscellaneous

2011	**Contributor**, Translator, *KDE UserBase Wiki*
2009-10	**Photographer**, *The Manitoban Newspaper (University student newspaper)*
6/2009	**Organizer Assistant**, *Manitoba Marathon*

Talks

Excluding presentations of papers listed in the publications section above

3/2024	**Invited Talk**, "Enabling Robot Explainability with AR," 7th International Workshop on Virtual, Augmented, and Mixed-Reality for Human-Robot Interactions at HRI 2024, Boulder, CO
1/2024	**Invited Talk**, "Embodied Intelligence and Collaborative Robotics," DFW Chinese IT Association (DFWITA), Dallas, TX (Online)
12/2023	**Invited Talk**. "Evaluating AI in Physical World and Coping Failures," AI Seminar, Tampa, FL.
10/2023	**Invited Talk**. "Independent Living Through Assistive Manipulation," Research Opportunities in AgeTech, Tampa, FL.
5/2023	**Invited Talk**. "Bridging The Gap Between Robots and Humans Through Explainability," IEEE Denver, University of Denver, Denver, CO.
4/2023	**Invited Participant**. NSF-funded "Workshop on Dialogue with Robots," University of Pittsburgh, Pittsburgh, PA.
3/2023	**Invited Talk**. "Bridging The Gap Between Robots and Humans Through Explainability," University of Maryland, Baltimore County (UMBC), Baltimore, MD.
3/2023	**Invited Talk**. "Bridging The Gap Between Robots and Humans Through Explainability," University of Texas at Dallas (UT Dallas), Dallas, TX.
2/2023	**Invited Talk**. "Bridging The Gap Between Robots and Humans Through Explainability," University of South Florida, Tampa, FL.
1/2023	**Invited Talk**. "Bridging The Gap Between Robots and Humans Through Explainability," UC Merced, Merced, CA.
3/2022	**Invited Panelist**. Explainability Panel, 2022 AAAI Spring Symposium on Closing the Assessment Loop: Communicating Proficiency and Intent in Human-Robot Teaming, Stanford, CA.

11/2021	**Invited Talk**. "State Summarization With Behavior Trees for Explanation Generation & Communicating Causal Information of Past Actions," ONR MURI Grant Annual Review, Virtual.
10/2021	**Invited Talk**. "Robot Explanation Generation Using Behavior Trees," Georgia Tech, Virtual.
5/2021	**Invited Talk**. "Robot Explanation, AR, and Multiple Resource Theory," Colorado School of Mines, Virtual.
4/2021	**Invited Talk**. "Robot Explanation, AR, and Multiple Resource Theory", Colorado School of Mines, Virtual.
2/2021	**Lighting Talk**. "Communicating Missing Information of Robots' Past Actions," Office of Naval Research (ONR) Multidisciplinary University Research Initiatives (MURI) Grant Student Meeting, Virtual.
8/2020	**Integration Talk**. Zhao Han and Michael Lee (CMU). "Using Behavior Trees to Improve Human's Understanding of Agent Behavior," ONR MURI Grant Annual Review, Lowell, MA.
8/2020	**Integration Talk and Demo**. Zhao Han and Tyler Frasca (Tufts). "Going Cognitive: A Demonstration of the Utility of Task-General Cognitive Architectures for Adaptive Robotic Task Performance," ONR MURI Grant Annual Review, Lowell, MA.
11/2019	**Lighting Talk**. "Investigating Human-Robot Handover Release Behaviors," 2018 New England Manipulation Symposium, Yale University, New Haven, CT.
9/2018	**Invited Guest Lecturer**. "Informed Search Algorithms", Artificial Intelligence, UMass Lowell, Lowell, MA.
6/2018	**Guest Lecturer**. "Bayesian Reasoning," "Markov Chains," and "Rapidly Exploring Random Trees," University of Manitoba, Winnipeg, MB, Canada.
2/2016	**Guest Lecturer**. "Bayesian Reasoning," "Markov Chains," and "Rapidly Exploring Random Trees", University of Manitoba, Winnipeg, MB, Canada.

Media Exposure

2021	ROS Discourse, "ROS News for the Week of 12/13/2021 (Projecting Robot Navigation Paths)", December 2021.
2020	MassRobotics, "Analog Devices Sensor Fusion Challenge", June 2020.
2020	MassRobotics, "Panasonic Prototype 3D LiDAR Challenge", May 2020.
2019	ONR MURI SUCCESS Project, "Annual Review Meeting 2019", December 2019.
2019	ONR MURI SUCCESS Project, "Summer 2019 Hacking and Integration", August 2019.
2019	UMass Lowell, "UML 125 Years Proud", August, 2019
2019	Inside Logistics (Canada), "Fetch rewards university team in manipulation challenge", May 2019.
2019	Bloomberg, The Associated Press, Robotics Tomorrow, Business Wire, "Winner of Fetch Robotics FetchIt! Challenge Executes Complex Manufacturing Tasks Using Autonomous Mobile Robotic Arm", May 2019.
2019	Today's Medical Developments, "Fetch Robotics FetchIt! Mobile Manipulation Challenge winners", May 2019.

Industry Experience

5/2013–8/2013 **Software Developer**, *iQmetrix, Winnipeg, Canada*

- Involved in designing and implementing payment gateway API by integrating multiple payment providers (e.g., Avalon, Chase), consumed by retail management applications connected to POS machines
- Communicated with payment providers, such as Avalon, to clarify issues that existed in their payment gateway documentation
- Introduced the concept of aspect-oriented programming and reduced boilerplate code (cross-cutting concerns) for each API endpoint
- Mastered Scrum process with daily meetings, sprint planning, and story sizing
- Used C#, Visual Studio, Team Foundation Server (Agile project management, revision control, and code review)

9/2012–12/2012 **Blackberry Software Developer**, *Research in Motion, Ottawa, Canada*

- Worked on Twitter & Blackberry Messenger apps on Blackberry OS)
- Designed and implemented Model and Controller for compose screen. Collaborated with another co-op student who was working on UI.
- Investigated Push SDK on BBOS for registration & messages.
- Practiced multi-threaded programming to achieve faster list loading featured with auto more loading and list image loading.
- Prioritized and fixed defects, worked with the server team to clarify API issues.
- Involved in the Scrum process with daily meetings, sprint planning, and story sizing.
- Collaborated with SV&V (Software Verification & Validation) team to verify fixes.
- Used Java, Eclipse, Rally (Agile Project Management), Perforce (Revision Control), Code Collaborator (Code Review), MKS Integrity (Defect Tracking), and Jenkins (Continuous Integration).

1/2012–4/2012 **Application Developer (Co-op)**, *Wawanesa Insurance, Winnipeg, Canada*

- Assigned to design and develop an AJAX-based web application in an insurance broker application, allowing insurance business people to manage files and content for insurance broker portal
- Contributed to a 12-people scrum team who rewrote and enhanced the insurance broker portal
- Collaborated with BA (Business Analyst) to help gather and clarify business requirements and document them on SharePoint, Web Designer to help make user interface decisions, other developers to deliver shippable product increments on spring basis, and QA (Quality Assurance) to fix defects reported on a bug tracking web appl – JIRA
- Reported status updates and provided feedback in a daily Scrum stand-up meeting
- Used Java, Eclipse, JQuery, HTML, CSS, Struts 2 (web framework), Apache Jackrabbit (Database), Subversion (Revision Control), Spring framework (Inversion of Control), Hibernate(Object Relational Mapping), and Selenium (Browser Automation)

Technical Background

Programming

- Proficient in: **Languages** (C++/C, Ruby, Java, Python, Scala, JavaScript, PHP, C#, R), **Robotics** (ROS, navigation, manipulation, MoveIt, perception, PCL), **Machine Learning/Deep Learning** (scikit-learn, PyTorch, WEKA), **Augmented Reality** (Unity, Vuforia), **Data Science/Data Analysis** (R, ggplot2, Frequentist/Bayesian inferential statistics), **Web** (Rack – Ruby on Rails, WordPress, HTML – Slim, CSS – Sass, ASP.NET, Struts2, web2py, Nginx, Apache HTTP Server), **Mobile** (Android, iOS – React.js, Blackberry QT), **GUI/Computer Graphics** (OpenGL, Swing, Visual C#), **Object-Oriented** Programming and Design Patterns, Test-Driven Development (JUnit, Ruby), **Multi-Threaded** Programming (Java, C++, Ruby, Python, Scala)
- Extensive knowledge of: BASH, Prolog (Logic programming)
- Course knowledge of: Perl, Assembly Language (LC-3)
- Familiar with: Spring, Hibernate, Selenium, Qt GUI framework (Blackberry 10 OS)

Databases

- Proficient in: MySQL, MongoDB, Redis, SQLite, Apache Jackrabbit
- Course knowledge of: IBM DB2, Microsoft Access, HSQLDB

Tools

- Proficient in: Operating System (Ubuntu/OS X/Linux/GNOME, Windows, iOS, Android, Blackberry OS), IDE (CLion, Eclipse, RubyMine, IntelliJ IDEA, PyCharm, Visual Studio, Netbeans, Geany RStudio,), Code Review (Code Collaborator), Revision control (Git, Perforce, CVS, SVN), Defect Tracking (MKS Integrity, JIRA), Continuous Integration (Jenkins), Text editor (Sublime, VIM, gedit, notepad++), Microsoft Office, LibreOffice, Nikon Capture NX 2, Adobe Photoshop, Adobe Dreamweaver
- Hobby knowledge of: FreeCAD, KiCAD (PCB design)