Shiye (Sally) Cao

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RESEARCH OVERVIEW

I enhance the social capabilities of conversational agents to enable adaptive and personalized long-term support by emulating natural human-human interactions, empowering stakeholders to co-design meaningful and personalized interactions, and leveraging multimodal inputs.

Keywords: human-robot interaction, human-computer interaction, education.

EDUCATION

Johns Hopkins University, Baltimore, Maryland, USA — Present
PhD Candidate in Computer Science advised by Chien-Ming Huang and Anqi Liu
Master of Science in Engineering (Computer Science)
Bachelor of Science in Computer Science and Applied Mathematics and Statistics

PUBLICATIONS

*Indicates authors contribute equally to the work

Peer-Reviewed Conference Papers

C.5 **Reframing Conversational Design in HRI: Deliberate Design with AI Scaffold**
Shiye Cao, Jiwon Moon, Yifan Xu, Anqi Liu, and Chien-Ming Huang
Accepted to be presented at HRI'26 | Acceptance rate: 23.2%

C.4 **ERR@ HRI 2.0 Challenge: Multimodal Detection of Errors and Failures in Human-Robot Conversations**
Shiye Cao, Maia Stiber, Amama Mahmood, Maria Teresa Parreira, Wendy Ju, Micol Spitale, Hatice Gunes, and Chien-Ming Huang
Proceedings of 33rd ACM International Conference on Multimedia (ACM-MM'25)
https://dl.acm.org/doi/pdf/10.1145/3746027.3762073

C.3 **Interruption Handling for Conversational Robots**
Shiye Cao*, Jiwon Moon*, Amama Mahmood, Victor Nikhil Antony, Ziang Xiao, Anqi Liu, and Chien-Ming Huang
Proceedings of the 2025 Robotics: Science and Systems Conference (RSS'25)
https://www.roboticsproceedings.org/rss21/p089.pdf | Acceptance rate: 27.4%

C.2 **Voice Assistants for Health Self-Management: Designing for and with Older Adults**
Amama Mahmood, **Shiye Cao**, Maia Stiber, Victor Nikhil Antony, and Chien-Ming Huang
Proceedings of 2025 ACM Conference on Human Factors in Computing Systems (CHI'25)
https://dl.acm.org/doi/10.1145/3706598.3713839 | Acceptance rate: 25.1%

C.1 **"What If It Is Wrong": Effects of Power Dynamics and Trust Repair Strategy on Trust and Compliance in HRI**
Ulas Berk Karli*, **Shiye Cao***, and Chien-Ming Huang
Proceedings of 2023 ACM/IEEE International Conference on Human-Robot Interaction (HRI'23)
https://dl.acm.org/doi/10.1145/3568162.3576964 | Acceptance rate: 25.3%

Peer-Reviewed Journal Articles

J.4 **Designing for Appropriate Reliance: The Roles of AI Uncertainty Presentation, Initial User Decision, and User Demographics in AI-Assisted Decision-Making**
Shiye Cao, Anqi Liu, and Chien-Ming Huang
Proceedings of the ACM on Human-Computer Interaction (CSCW'24)
Volume 8, Issue CSCW1, Article 41, Pages 1-32
https://dl.acm.org/doi/10.1145/3637318

J.3 **How Time Pressure from Different Phases of Decision-Making Influences Human-AI Collaboration**
Shiye Cao*, Catalina Gomez*, and Chien-Ming Huang
Proceedings of the ACM on Human-Computer Interaction (CSCW'23)
Volume 7, Issue CSCW2, Article 277, Pages 1-26
https://dl.acm.org/doi/10.1145/3610068

J.2 **Crowdsourcing Thumbnail Captions: Data Collection and Validation**
Carlos Aguirre*, **Shiye Cao*,** and Chien-Ming Huang
ACM Transactions on Interactive Intelligent Systems (TiiS, 2023)
Volume 13, Issue 3, Article 14, Pages 1-28
https://dl.acm.org/doi/10.1145/3589346

J.1 **Understanding User Reliance on AI in Assisted Decision-Making**
Shiye Cao and Chien-Ming Huang
Proceedings of the ACM on Human-Computer Interaction (CSCW'22)
Volume 6, Issue CSCW2, Article 471, Pages 1-23
https://doi.org/10.1145/3555572

Refereed Workshop Paper

W.1 **Eyes Are the Windows to AI Reliance: Towards Real-Time Human-AI Reliance Assessment**
Shiye Cao, Shichang Ke*, Alexandra Mo*, Anqi Liu, and Chien-Ming Huang
2023 CHI Workshop on Trust and Reliance in AI-Assisted Tasks (TRAIT'23)
https://chi-trait.github.io/papers/2023/CHI_TRAIT_2023_Paper_35.pdf

AWARDS

CRA Outstanding Undergraduate Researcher Finalist 2022
Outstanding Intern, Mech-Mind Robotics 2019

TEACHING EXPERIENCES

Teaching Assistant, Introduction to Human-Computer Interaction Fall 2022
Course Assistant, Machine Learning Fall 2020, Spring 2021, Fall 2021

PROFESSIONAL SERVICE

Organizing Committee: ACM-MM'25 ERR@HRI2.0 Challenge
Program Committee: NeurIPS '22 Gaze Meets ML Workshop
Reviewer:HRI'26, CHI'26, CSCW'25, CHI'25, HRI'25, HRI'24, CSCW'24, CSCW'23, THRI
Student Volunteer: HRI'23, CSCW'23, CHI'23, CSCW'22

Selected Press

Aging gracefully with AI (JHU CS News)
Talking robots learn to manage human interruptions (JHU HUB)
CS student named finalist for 2022 CRA Outstanding Undergraduate Researcher Award (JHU CS News)

Skills

Programming Language: Python, C#, C++, Javascript, Java, R, SQL
Software: ROS2, JMP, SPSS, React, Microsoft's Platform for Situated Intelligence
Hardware: Gaze Tracker (Gazepoint GP3, Pupil Labs Invisible), Social Robot, Kinova Gen3, 3D printer
Research Skills: empirical human-subjects research, quantitative and qualitative data analysis, statistics, interaction design, field deployment experience
Computer Science Knowledge: robotics, generative AI, prompt engineering, deep learning, computer vision, natural language processing