Shiye (Sally) Cao

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RESEARCH OVERVIEW

I design and develop systems that enhance mutual understanding and trust between humans and AI-powered machines to foster effective human-machine communication.
Keywords: Human-Robot Interaction, Human-AI Interaction, Human-Computer Interaction

EDUCATION

Johns Hopkins University (JHU), Baltimore, Maryland

Doctor of Philosophy in Computer Science	2022–Present
Master of Science in Engineering (Computer Science)	2021–2022
Bachelor of Science in Computer Science and Applied Mathematics and Statistics	2018–2021

PUBLICATIONS *Indicates authors contribute equally to the work

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 (2024)
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 (2023)
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 (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 (2022)
Volume 6, Issue CSCW2, Article 471, Pages 1-23
https://doi.org/10.1145/3555572

Peer-Reviewed Conference Full Papers

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) (2025)
https://arxiv.org/abs/2501.01568 | 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) (2025)
https://arxiv.org/abs/2409.15488 | 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) (2023)
https://dl.acm.org/doi/10.1145/3568162.3576964 | Acceptance rate: 25.3%

Refereed Workshop Papers

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) (2023)
https://chi-trait.github.io/papers/2023/CHI_TRAIT_2023_Paper_35.pdf

AWARDS & HONORS

Outstanding Review, HRI 2024 Main Track	2023
CRA Outstanding Undergraduate Researcher Finalist	2022
Computer Science Departmental Honors, JHU	2022
General Honors, JHU	2022
Outstanding Intern, Mech-Mind Robotics	2019

TEACHING EXPERIENCES

CS490/690 Human Computer Interaction Teaching Assistant	FA22
CS475/675 Machine Learning Head Course Assistant	FA21
CS475/675 Machine Learning Course Assistant	FA20, SP21

PROFESSIONAL SERVICE

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

VOLUNTEER

Member of CS Department Student Council	2022–Present
Mentor for Women Mentoring Whiting	2022–Present

Member of Upsilon Pi Epsilon Honor Society 2021–Present

TECHNICAL EXPERIENCES

Research, Suchi Saria Lab, JHU **Jan. 2020-Sep. 2020**
Applied Machine Learning and Causal Inference techniques onto electronic health record data to develop models that predicts sepsis in emergency room patients robustly over policy shifts over time.

Research, Malone Center for Engineering in Healthcare, JHU **Aug. 2019–May 2020**
Used machine learning and statistical techniques to analyze electronic health record data to look for correlations between physical therapy and patient recovery.

Deep Learning Intern, Mech-Mind Robotics, Beijing, China **May 2019–Aug. 2019**
Developed and deployed deep learning-based computer vision algorithms and deep learning-based robot motion planning algorithms; Researched generation of realistic synthetic data using GANs.

Design Intern, Illustrate My Design, Alexandria, Virginia **May 2018–Jun. 2018**
Worked on Graphic Design projects and rendered 3D objects using Adobe Illustrator and 3Ds-Max.