

Shiye (Sally) Cao

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RESEARCH OVERVIEW

I study factors that impact user behavior and experience in human-machine collaborative work and use the knowledge gained to design more optimal human-machine interactions.

Keywords: Human-AI Interaction, Human-Robot Interaction, Human-Computer Interaction, Human Factors, Artificial Intelligence, Machine Learning

EDUCATION

Johns Hopkins University (JHU), Baltimore, Maryland

Ph.D in Computer Science	2022 – Present
M.S.E. in Computer Science	2021 – 2022
B.S. in Computer Science & Applied Mathematics and Statistics	2018 – 2021

PUBLICATIONS *Indicates authors contribute equally to the work

1. **S. Cao**, A. Liu, and C.M. Huang, “Designing for Appropriate Reliance: The Roles of AI Uncertainty Presentation, Initial User Decision, and User Demographics in AI-Assisted Decision-Making,” accepted and to appear in *Proceedings of the ACM on Human-Computer Interaction (CSCW)*, 2024.
2. **S. Cao**, C. Gomez, and C. M. Huang, “How Time Pressure from Different Phases of Decision-Making Influences Human-AI Collaboration,” accepted and to appear in *Proceedings of the ACM on Human-Computer Interaction (CSCW)*, 2023
3. C. Aguirre*, **S. Cao***, A. Mahmood, and C. M. Huang, “Crowdsourcing Thumbnail Captions: Data Collection and Validation,” *ACM Transactions on Interactive Intelligent Systems (TiiS)*, 2023.
4. U. Karli*, **S. Cao***, and C. M. Huang, “What If It Is Wrong”: Effect of Power Dynamics and Trust Repair Strategy on Trust and Compliance in HRI,” *Proceedings of the 2023 ACM/IEEE Interactional Conference on Human-Robot Interaction (HRI '23)*.
5. **S. Cao** and C. M. Huang, “Understanding User Reliance on AI in Assisted Decision-Making”, *Proceedings of the ACM on Human-Computer Interaction (CSCW)*, 2022.

AWARDS & HONORS

CRA Outstanding Undergraduate Researcher Finalist	2022
Computer Science Departmental Honors at Graduation	2022
General Honors at Graduation	2022
Mech-Mind Outstanding Intern	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 FA 20, SP21

PROFESSIONAL SERVICE

Reviewer: CSCW '23, CSCW '24
Program Committee: NeurIPS '22 Gaze Meets ML Workshop
Student Volunteer: CSCW '22, HRI '23, CHI '23, CSCW '23

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

ProjectX, JHU Sep. 2020 - Nov. 2020
3-month long team machine learning research competition hosted by University of Toronto.
Developed ML algorithms to predict potential bacterial hosts give bacteriophage using genomic data.

Research Intern, 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, JHU Malone Center for Engineering in Healthcare 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.

Research Assistant, Research Mentorship Program, Santa Barbara, CA Jun. 2016 – Aug. 2016
Used sentiment analysis to analyze relationship between online news sentiments and stock market price movement; drafted a technical paper and presented at university symposium and poster session.

SKILLS

Programming Language: Python, Java, R, C, C++, JavaScript, CSS, LaTeX, Git, Linux Commands
Web development: JavaScript, CSS, SQL
Computer Science Knowledge: Machine Learning, Deep Learning, Computer Vision, Generative AI (prompt engineering), causal inference, data science, statistics, probability, linear algebra
Research Skills: empirical research, exploratory research, designing and conducting user studies, quantitative and qualitative data analysis, statistical analysis (hypothesis testing)