SARAH SEBO

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RESEARCH OVERVIEW

My research explores **social dynamics in human-robot interactions**, where a robot's social behaviors lead to positive outcomes for people (e.g., improved team dynamics and performance in a human-robot team, educational learning outcomes for children). My work has primarily focused on developing robots that improve the performance of human-robot teams by shaping team dynamics to promote inclusion, trust, and cohesion.

Key words: human-robot interaction (HRI), robotics, groups and teams

EMPLOYMENT

Assistant Professor 2020 - current
Univeristy of Chicago, Computer Science Department

EDUCATION

Ph.D. in Computer Science 2014 - 2020
Yale University, Advisor: Brian Scassellati
Thesis Title: "Developing Robots Teammates that Enhance Social Dynamics and Performance in Human-Robot Teams"
Thesis Committee: Brian Scassellati, Malte Jung, Marynel Vázquez, Nicholas Christakis

B.S. in Electrical and Computer Engineering 2010 - 2014
Franklin W. Olin College of Engineering

JOURNAL PUBLICATIONS

J4 Nicole Salomons, **Sarah Strohkorb Sebo**, Meiying Qin, and Brian Scassellati (2021). A Minority of One against a Majority of Robots: Robots Cause Normative and Informational Conformity. *ACM Transactions on Human-Robot Interaction*, 10(2).

J3 **Sarah Sebo**, Ling Liang Dong, Nicholas Chang, Michal Lewkowicz, Michael Schutzman, and Brian Scassellati (2020). The Influence of Robot Verbal Support on Human Team Members: Encouraging Outgroup Contributions and Suppressing Ingroup Supportive Behavior. *Frontiers in Psychology: Performance Science*, 11.

J2 **Sarah Sebo**, Brett Stoll, Brian Scassellati, Malte F. Jung (2020). Robots in Groups and Teams: A Literature Review. *Proceedings of the ACM on Human-Computer Interaction*, 4(CSCW2).

J1 Margaret Traeger, **Sarah Strohkorb Sebo**, Malte F. Jung, Brian Scassellati, Nicholas A. Christakis (2020). Vulnerable Robots Positively Shape Human Conversational Dynamics in a Human-Robot Team. *Proceedings of the National Academy of Sciences (PNAS)*, 117(12), 6370-6375.

CONFERENCE PUBLICATIONS

C9 Bengisu Cagiltay, Joseph Michaelis, **Sarah Sebo**, Bilge Mutlu (2022). Exploring Children's Preferences for Taking Care of a Social Robot. To Appear In *Proceedings of the 21st ACM Interaction Design and Children Conference (IDC)*.

C8 Shannon Yasuda, Devon Doheny, Nicole Salomons, **Sarah Strohkorb Sebo**, Brian Scassellati (2020). Perceived Agency of a Social Norm Violating Robot. In *Proceedings of the 42nd Conference of the Cognitive Science Society (CogSci 2020)*, 1480-1486.
Acceptance rate: 63%

C7 **Sarah Strohkorb Sebo**, Ling Liang Dong, Nicholas Chang, Brian Scassellati (2020). Strategies for the Inclusion of Human Members within Human-Robot Teams. In *Proceedings of the the 15th ACM/IEEE International Conference on Human Robot Interaction (HRI 2020)*, 309-317. ACM.
Acceptance rate: 24%

C6 **Sarah Strohkorb Sebo**, Priyanka Krishnamurthi, Brian Scassellati (2019). "I Don't Believe You": Investigating the Effects of Robot Trust Violation and Repair. In *Proceedings of the 14th ACM/IEEE International Conference on Human Robot Interaction (HRI 2019)*. 57-65. IEEE.
Acceptance rate: 24%

C5 Aditi Ramachandran*, **Sarah Strohkorb Sebo***, Brian Scassellati (2018). Personalized Robot Tutoring using the Assistive Tutor POMDP (AT-POMDP). In *Proceedings of The 33rd AAAI Conference on Artificial Intelligence (AAAI)*, vol. 33, 8050-8057.
Acceptance rate: 16%, *equal contribution

C4 **Sarah Strohkorb Sebo**, Margaret Traeger, Malte Jung, Brian Scassellati (2018). The Ripple Effects of Vulnerability: The Effects of a Robots Vulnerable Behavior on Trust in Human-Robot Teams. In *Proceedings of the 13th ACM/IEEE International Conference on Human Robot Interaction (HRI 2018)*, 178-186.
Acceptance rate: 23%

C3 Nicole Salomons, Michael Van der Linden, **Sarah Strohkorb Sebo**, Brian Scassellati (2018). Humans Conform to Robots: Disambiguating Trust, Truth, and Conformity. In *Proceedings of the 13th ACM/IEEE International Conference on Human Robot Interaction (HRI 2018)*, 187-195.
Acceptance rate: 23%

C2 **Sarah Strohkorb**, Ethan Fukuto, Natalie Warren, Charles Taylor, Bobby Berry, Brian Scassellati (2016). Improving Human-Human Collaboration Between Children With a Social Robot. In *Proceedings of the 25th IEEE International Symposium on Robot and Human Interactive Communication (RO-MAN 2016)*, 551-556.
Acceptance rate: 47%

C1 **Sarah Strohkorb**, Iolanda Leite, Natalie Warren, Brian Scassellati (2015). Classification of Childrens Social Dominance in Group Interactions with Robots. In *Proceedings of the 17th ACM International Conference on Multimodal Interaction (ICMI 2015)*, 227-234.
Acceptance rate: 41%

THESIS

Sarah Strohkorb Sebo (2020). Developing Robot Teammates that Enhance Social Dynamics and Performance in Human-Robot Teams. *PhD Thesis*. Yale University.

TEACHING

Topics in Human-Robot Interaction, University of Chicago, [website] 2020 - current
Introduction to Robotics, University of Chicago [website] 2021 - current

INVITED TALKS

University of Chicago Department of Psychology Brownbag Talk	Oct 2021
University of Chicago's Center for Decision Research Behavioral Science Workshop	Oct 2021
Toyota Technical Institute of Chicago (TTIC) Colloquium	Oct 2021
ICML'21 Workshop on Human-AI Collaboration in Sequential Decision-Making	July 2021
University of Chicago - Computational Social Science Workshop	May 2021
Tufts University - Computer Science Colloquium	Mar 2021
University of Colorado Boulder - Human-Robot Interaction Course Guest Lecture	Nov 2020
Colorado School of Mines - Human-Robot Interaction Course Guest Lecture	Nov 2020
University of Chicago Human-Computer Interaction Club	Sept 2020
Cornell University	Oct 2018

MENTORING

Co-authored publication numbers refer to the publication lists above.

University of Chicago 2020 - current

PhD Students: Alex Wuqi Zhang

Co-Advised PhD Students: Valerie Zhao

Undergradute Research Assistants: Joshua Athayde, Efraim Dahl, Stephanie Kim, Clark Kovas, Chris Liao, Jason Lin, Ting-Han Lin, Spencer Ng, Javier Portet, Bhakti Shah, Lawrence Tang, Alex Zhou

Yale University 2014 - 2020

Yale Undergradutes Completing Thesis Projects: Hannah Burgess, Rachel Ha, Sean Hackett, Priyanka Krishnamurthi (C6), Evelyn Roberts

Undergradute Research Assistants: Bobby Berry (C2), Kayleigh Bishop, Nicholas Chang (C7, J3), Ling Dong (C7, J3), Adam Erickson, Ethan Fukuto (C2), Charles Taylor (C2), Tom Wallenstein, Natalie Warren (C1, C2), Shannon Yasuda (C8)

High School Summer Interns: Isabelle Gallagher, Michal Lewkowicz (J3), Neil Madhavani, Michael Schutzman (J3)

SERVICE

Organizing Committee

ACM/IEEE Conference on Human-Robot Interaction (HRI), *Registration Chair* 2021
HRI Pioneers Workshop at HRI 2017, *General Co-Chair* 2017

Editorial Service

ACM Transactions on Human-Robot Interaction, *Associate Editor* 2021-present

Frontiers in Robotics and AI, *Guest Editor* 2021-2022
– Special Issue on Social Dynamics in Multi-Agent Groups and Teams

Program Committee

ACM/IEEE Conference on Human-Robot Interaction (HRI) 2021, 2022

Refereeing: Grant Agencies

National Science Foundation (NSF) 2021
Air Force Office of Scientific Research (AFOSR) 2021

Workshop Program Committee Member

HRI Pioneers Workshop at HRI 2017, *General Co-Chair* 2017

Conference Paper Referee

ACM/IEEE Conference on Human-Robot Interaction (HRI)
Conference on Computer Supported Collaborative Work and Social Computing (CSCW)
International Conference on Human Factors in Computing Systems (CHI)
Int. Symposium on Robot and Human Interactive Communication (RO-MAN)
International Conference on Intelligent Robots and Systems (IROS)
International Conference on Robotics and Automation (ICRA)
AAAI Conference on Artificial Intelligence (AAAI)
ACM Symposium on on User Interface Software and Technology (UIST)
Interaction Design and Children (IDC) Conference

Journal Article Referee

ACM Transactions on Human-Robot Interaction
Interaction Studies
IEEE Transactions on Affective Computing
IEEE Transactions on Cognitive and Developmental Systems
International Journal of Child-Computer Interaction
International Journal of Social Robotics
Frontiers in Robotics and AI
Autonomous Agents and Multi-Agent Systems

SELECTED OUTREACH

Robot Demos at Chicago's Museum of Science and Industry, MSI, Chicago, IL 2022
Human-Robot Interaction lab students demoed their research and robots at MSI's National Robotics Week Block Party exhibit.

UChicago Lab School Robotics Club Presentation, Virtual Dec 2020
Presented a talk on "Social Robots as Tutors and Teammates" to middle school and high school members of the UChicago Lab School's Robotics Club.

Yale Social Robotics Lab Open Houses, Yale University, New Haven CT 2015-2019
Robotics demonstrations including Nao, Keepon, and Jibo at annual lab open houses for the public, drawing approximately 100 people each time the event was held from the greater New Haven community.

Yale Young Global Scholars Program Presentations, Yale University, New Haven CT 2019
Presented exciting research about human-robot tutoring to several 200-student sessions of high school students from around the globe interested in studying science and engineering.

Teen Science Club Presentation, Guilford Library, Guilford CT 2016
Presented information and a robotics demonstration to a group of local teens interested in robotics.

PRESS

03/27/2020 Empathy Machine: Humans Communicate Better after Robots Show Their Vulnerable Side, Scientific American

03/09/2020 Robots that admit mistakes foster better conversation in humans, Yale News

03/29/2019 Robot discovers that lying about a betrayal helps to rebuild trust, New Scientist

10/03/2016 Taking Robots to the Next Level: Small Talk and Bear Hugs?, PC Mag