SARAH SEBO

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RESEARCH OVERVIEW

My current research explores **social dynamics** in **human-robot interactions**. I design social robots that can shape human-to-human interactions, enable long-term human-robot social relationships, and build a fundamental understanding of how to engineer human-like social interactions. My research demonstrates real impact in people's everyday lives through the design and development of robots for use in education, within collaborative teams, and in the home.

Key words: Human-Robot Interaction (HRI), Robotics, Human-Computer Interaction (HCI)

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

C13 Alex Wuqi Zhang, Ting-Han Lin, Xuan Zhao, **Sarah Sebo** (2022). Ice-Breaking Technology: Robots and Computers Can Foster Meaningful Connections between Strangers through In-Person Conversations. To appear in *Proceedings of the 2023 ACM CHI Conference on Human Factors in Computing Systems (CHI)*.

C12 Alex Mazursky, Madeleine DeVoe, **Sarah Sebo** (2022). Physical Touch from a Robot Caregiver: Examining Factors that Shape Patient Experience. In *Proceedings of the 31st IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*.
Acceptance rate: 64%

C11 Ting-Han Lin*, Spencer Ng*, **Sarah Sebo** (2022). Parental Benefits of an Interactive Robot Character in Immersive Puzzle Games. In *Proceedings of the 31st IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*.
*equal contribution
Acceptance rate: 64%

C10 Keziah Naggita, Elsa Athiley, Beza Desta, **Sarah Sebo** (2022). Parental Responses to Aggressive Child Behavior towards Robots, Smart Speakers, and Tablets. In *Proceedings of the 31st IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*.
Acceptance rate: 64%

C9 Bengisu Cagiltay, Joseph Michaelis, **Sarah Sebo**, Bilge Mutlu (2022). Exploring Children's Preferences for Taking Care of a Social Robot. In *Proceedings of the 21st ACM Interaction Design and Children Conference (IDC)*.
Acceptance rate: 35%

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.

AWARDED GRANTS

Curricular Innovation Fund for Intro Robotics Course, University of Chicago 2022

AWARDED GRANTS, SCHOLARSHIPS, AND PRIZES TO STUDENTS

Quad Undergraduate Research Scholars Program for student Clark Kovacs 2023
Quad Undergraduate Research Scholars Program for student Stephanie Kim 2021

TEACHING

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

INVITED TALKS

Northwestern University Center for Robotics and Biosystems Seminar Talk Jan 2023

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: Tewodros Ayalew, Lauren Wright, Alex Wuqi Zhang (C13)

Co-Advised PhD Students: Valerie Zhao

Undergradute Research Assistants: Elsa Athiley (C10), Efraim Dahl, Beza Desta (C10), Liberto de Pablo, Madeleine DeVoe (C12), Stephanie Kim, Clark Kovas, You Li, Jason Lin, Ting-Han Lin (C11, C13), Spencer Ng (C11), Lucas Pardo, Javier Portet, Bhakti Shah, Bayard Walsh, Alex Zhou

High School Summer Interns: Hannah Dinner

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 - University of Michigan, Michal Lewkowicz (J3) - Yale University, Neil Madhavani - Cornell University, Michael Schutzman (J3) - Binghamton University

SERVICE

Organizing Committee

ACM/IEEE Conference on Human-Robot Interaction (HRI), *Registration Co-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) — 2021-2023

Refereeing: Grant Agencies

National Science Foundation (NSF) 2021, 2022, 2023
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

Human-Robot Interaction Lab Tours 2022-2023
Human-Robot Interaction lab members demoed their research and robots to groups including Girls Who Code and the Warrior Scholars Project.

Robot Demos at Chicago's Museum of Science and Industry 2022-2023
Human-Robot Interaction lab students demoed their research and robots at MSI's National Robotics Week Block Party exhibit.

Leadership of CS Career Panel for Local Chicago High School Students 2022
Lead a "Careers in CS" Panel for the Peter and Judy Kovler Career Conference for High School Students at the University of Chicago in collaboration with UChicago's Office of Speical Programs - College Prep program.

Mentorship of Students from Groups Historically Marginalized in CS 2022
Hosted mentorhsip meetings with students in partnership with Discover UChicago and the Rising Stars in Data Science workshop.

UChicago Lab School Robotics Club Presentation 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.

PRESS

03/29/2023 Robots and Computers Can Help Strangers Have Meaningful In-Person Conversations, UChicago CS News

01/08/2023 University of Chicago Prof. Sarah Sebo presents robot-human interaction research, The Daily Northwestern

10/18/2022 UChicago Research Tests Whether Robots or Humans Are Better Game Partners, UChicago CS News

09/06/2022 First In-Person Robotics Class Lets Students See Code Come To (Artificial) Life, UChicago CS News

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