

SARAH SEBO

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Department of Computer Science ♦ University of Chicago

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RESEARCH OVERVIEW

My current research explores **social dynamics in human-robot interactions**. I seek to transform interactions with robots that are stale, scripted, and transactional to interactions that feel more like talking to a friend - socially engaging, intuitive, and meaningful. I focus on applications that directly result in positive outcomes for people (e.g., improved performance in human-robot teams, enhanced educational learning outcomes for children, seamless interactions with in-home assistant robots).

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

EMPLOYMENT

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

Ph.D. in Computer Science 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	2014 - 2020
B.S. in Electrical and Computer Engineering Franklin W. Olin College of Engineering	2010 - 2014

JOURNAL PUBLICATIONS

- J4 Nicole Salomons, **Sarah Strohkorb Sebo**, Meiyang 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.

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

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

Co-Advised PhD Students: Valerie Zhao

Undergraduate Research Assistants: Elsa Athiley (C10), Efraim Dahl, Beza Desta (C10), Madeleine DeVoe (C12), Stephanie Kim, Clark Kovas, Jason Lin, Ting-Han Lin (C11), Spencer Ng (C11), Javier Portet, Bhakti Shah, Bayard Walsh, Alex Zhou

Yale University

2014 - 2020

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

Undergraduate 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), <i>Registration Co-Chair</i>	2021
HRI Pioneers Workshop at HRI 2017, <i>General Co-Chair</i>	2017

Editorial Service

ACM Transactions on Human-Robot Interaction, <i>Associate Editor</i>	2021-present
Frontiers in Robotics and AI, <i>Guest Editor</i>	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
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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, <i>General Co-Chair</i>	2017
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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