

SARAH SEBO

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Department of Computer Science ◊ University of Chicago

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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). During my PhD, I 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 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

- 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. To Appear in *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.

- 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%

WORKSHOP PAPERS AND ABSTRACTS

- W5 **Sarah Strohkorb Sebo** and Brian Scassellati (2019). Enhancing Social Collaboration in Human-Robot Teams. In *Proceedings of the 2019 Pioneers Workshop at the 15th Robotics: Science and Systems Conference (RSS 2019)*.
- W4 **Sarah Strohkorb** and Brian Scassellati (2017). Cultivating Psychological Safety in Human-Robot Teams with Social Robots. In *Proceedings of the 2017 Workshop on Robots in Groups and Teams at the 20th ACM Conference on Computer-Supported Collaborative Work and Social Computing (CSCW 2017)*.
- W3 **Sarah Strohkorb**, Chien-Ming Huang, Aditi Ramachandran, Brian Scassellati (2016). Establishing Sustained, Supportive Human-Robot Relationships: Building Blocks and Open Challenges. In *Proceedings of the 2016 AAAI Spring Symposium on Enabling Computing Research in Socially Intelligent Human-Robot Interaction: A Community-Driven Modular Research Platform*. AAAI Press.
- W2 **Sarah Strohkorb**, Brian Scassellati. Promoting Collaboration with Social Robots. In *Proceedings of the Eleventh ACM/IEEE International Conference on Human Robot Interaction (HRI 2016)*.
- W1 **Sarah Strohkorb**, Brian Scassellati (2015). Promoting Social Collaboration between Children with a Social Robot. In *Proceedings of the 2015 AAAI Fall Symposium on AI for Human-Robot Interaction (AI-HRI 2015)*. AAAI Press.

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]	Autumn 2020
Introduction to Robotics , University of Chicago [website]	Winter 2021

INVITED TALKS

CU Boulder - HRI Course Guest Lecture, <i>The "Ripple Effects" of Vulnerability</i>	Nov 2020
Colorado School of Mines - HRI Course Guest Lecture, <i>Child-Robot Interactions</i>	Nov 2020
University of Chicago HCI Club, <i>Social Dynamics in Human-Robot Interaction</i>	Sept 2020
Cornell University, <i>Trust in HRI: Exploring the Influence of a Social Robot on Trust</i>	Oct 2018

MENTORING

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

University of Chicago 2020 - current

Undergraduate research assistants: Joshua Athayde, Efraim Dahl, Chris Liao, Ting-Han Lin, Spencer Ng, Lawrence Tang, Alex Zhou

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, Michal Lewkowicz (J3), Neil Madhavani, Michael Schutzman (J3)

SERVICE

Organizing Committee

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

Program Committee

ACM/IEEE Conference on Human-Robot Interaction (HRI)	2021
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Refereeing: Grant Agencies

National Science Foundation (NSF)	2021
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Workshop Program Committee Member

HRI Pioneers Workshop at HRI 2017, General Co-Chair	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

SELECTED OUTREACH

UChicago Lab School Robotics Club Presentation , Virtual 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.	Dec 2020
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- 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