

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 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 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

AWARDED GRANTS

NSF CISE Core Medium (\$750k, Co-PI with Elaine Short and Trevion Henderson)	2024
NSF CAREER (\$775k, PI)	2024
NSF CISE Core Medium (\$1.2m, Co-PI with Bilge Mutlu and Joe Michaelis)	2023
UChicago-Chapin Hall Joint Research Fund (\$64k, Co-PI with Kiljoong Kim)	2023
Curricular Innovation Fund for UChicago Intro Robotics Course (PI)	2022
Milgrom Computer Coding Fellowship (Co-PI w/ Randall H. Landsberg)	2022

AWARDED GRANTS, SCHOLARSHIPS, AND PRIZES TO STUDENTS

Quad Undergraduate Research Scholars Program for undergrad student Kaitlyn Li	2024
Milgrom Student Research Initiative Grant (\$20,000) for PhD student Alex Wuqi Zhang	2023
Quad Undergraduate Research Scholars Program for undergrad student Clark Kovacs	2023
Quad Undergraduate Research Scholars Program for undergrad student Stephanie Kim	2021

JOURNAL PUBLICATIONS

- J6 Hadas Erel*, Marynel Vázquez*, **Sarah Sebo***, Nicole Salomons*, Sarah Gillet*, and Brian Scassellati* (2024). RoSI: A Model for Predicting Robot Social Influence. *ACM Transactions on Human-Robot Interaction*.
*equal contribution
- J5 Sarah Gillet, Marynel Vázquez, Sean Andrist, Iolanda Leite, and **Sarah Sebo** (2024). Interaction-Shaping Robotics: Robots that Influence Interactions between Other Agents. *ACM Transactions on Human-Robot Interaction*.
- 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.

CONFERENCE PUBLICATIONS

- C20 Alex Wuqi Zhang, Rafael Queiroz, and **Sarah Sebo** (2025). Balancing User Control and Perceived Robot Social Agency through the Design of End-User Robot Programming Interfaces. In *Proceedings of the the 21st ACM/IEEE International Conference on Human Robot Interaction (HRI 2025)*. ACM.
Acceptance rate: 25%
🏆 *Nominated for Best Paper*
- C19 Ting-Han Lin, Hannah Dinner, Tsz Long Leung, Bilge Mutlu, J. Gregory Trafton, and **Sarah Sebo** (2025). Connection-Coordination Rapport (CCR) Scale: A Dual-Factor Scale to Measure Human-Robot Rapport. In *Proceedings of the the 21st ACM/IEEE International Conference on Human Robot Interaction (HRI 2025)*. ACM.
Acceptance rate: 25%

- C18 Tewodros W. Ayalew*, Jennifer Wang*, Michael L. Littman, Blase Ur, and **Sarah Sebo** (2025). Enabling End Users to Program Robots Using Reinforcement Learning. In *Proceedings of the the 21st ACM/IEEE International Conference on Human Robot Interaction (HRI 2025)*. ACM.
*equal contribution
Acceptance rate: 25%
- C17 Alex Wuqi Zhang, Clark Kovacs, Liberto de Pablo, Justin Zhang, Maggie Bai, Sooyeon Jeong, and **Sarah Sebo** (2025). Exploring Robot Personality Traits and Their Influence on User Affect and Experience. In *Proceedings of the the 21st ACM/IEEE International Conference on Human Robot Interaction (HRI 2025)*. ACM.
Acceptance rate: 25%
- C16 Michael Fusheng Xu, Bengisu Cagiltay, Joseph Michaelis, **Sarah Sebo**, and Bilge Mutlu (2024). Robots in Family Routines: Development of and Initial Insights from the Family-Robot Routines Inventory. In *Proceedings of the the 33rd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN 2024)*. IEEE.
- C15 Stephanie Kim, Jacy Reese Anthis, and **Sarah Sebo** (2024). A Taxonomy of Robot Autonomy for Human-Robot Interaction. In *Proceedings of the the 20th ACM/IEEE International Conference on Human Robot Interaction (HRI 2024)*. ACM.
Acceptance rate: 25%
🏆 *Nominated for Best Paper*
- C14 Spencer Ng, Ting-Han Lin, You Li, and **Sarah Sebo** (2024). Role-Playing with Robot Characters: Increasing User Engagement through Narrative and Gameplay Agency. In *Proceedings of the the 20th ACM/IEEE International Conference on Human Robot Interaction (HRI 2024)*. ACM.
Acceptance rate: 25%
- C13 Alex Wuqi Zhang, Ting-Han Lin, Xuan Zhao, **Sarah Sebo** (2023). Ice-Breaking Technology: Robots and Computers Can Foster Meaningful Connections between Strangers through In-Person Conversations. In *Proceedings of the 2023 ACM CHI Conference on Human Factors in Computing Systems (CHI)*.
Acceptance rate: 28%
- 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.
*equal contribution
Acceptance rate: 16%
- C4 **Sarah Strohkorb Sebo**, Margaret Traeger, Malte Jung, Brian Scassellati (2018). The Ripple Effects of Vulnerability: The Effects of a Robot’s 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 Children’s 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

Introduction to Robotics, University of Chicago [website] 2021 - current

Description: UChicago’s CMSC 20600/30600 Introduction to Robotics course gives students a hands-on introduction to robot programming covering topics including sensing in real-world environments, sensory-motor control, state estimation, localization, forward/inverse kinematics, vision, and reinforcement learning. This course is centered around 3 mini projects exploring central concepts to robot programming and 1 final project whose topic is chosen by the students. Each of these mini projects will involve students programming real, physical robots interacting with the real world. The use of physical robots and real-world environments is essential in order for students to 1) see the result of their programs ‘come to life’ in a physical environment and 2) gain experience facing and overcoming the challenges of programming robots (e.g., sensor noise, edge cases due to environment variability, physical constraints of the robot and environment).

Human-Robot Interaction: Research and Practice, University of Chicago 2020 - current [website] (Formerly named: Topics in Human-Robot Interaction 2021-2022)

Description: UChicago’s CMSC 20630/30630 Human-Robot Interaction: Research and Practice course focuses on the core concepts and cutting-edge research in the field of human-robot interaction (HRI), covering topics that include: nonverbal robot behavior, verbal robot behavior, social dynamics, norms & ethics, collaboration & learning, group interactions, applications, and future challenges of HRI. In class meetings, students lead discussions about cutting-edge peer-reviewed research HRI publications. In weekly labs, students engage in hands-on activities to learn the essential skills of human-robot interaction research, including experiment design, robot programming, and data analysis techniques. Students also participate in a quarter-long collaborative research project, where they pursue an HRI research question that involves conducting their own human-subjects research study where they recruit human subjects to interact with a robot.

INVITED TALKS

U.S. Military Academy at West Point - HRI Course Guest Lecture	Mar 2025
University of Michigan - Human Evaluation of Robot Systems Course Guest Lecture	Feb 2025
RSS’24 GROUND Workshop on Robot-Group Interactions [website]	Jul 2024
Midwest Robotics Workshop	Apr 2024
Rohit and Harvanit Kumar Conference on Early Childhood Development	Nov 2023
Northwestern University Center for Robotics and Biosystems Seminar	Jan 2023
University of Chicago Department of Psychology Brownbag	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 Presentation to Labs of Malte Jung and Susan Fussell	Oct 2018

MENTORING

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

University of Chicago 2020 - current

PostDocs: Teresa Flanagan

PhD Students: Ting-Han Lin (C11, C13, C14, C19), Lauren Wright, Alex Wuqi Zhang (C13, C17, C20)

Undergraduate Research Assistants: Elsa Athiley (C10), Madeline Busse, Wei Cai, Guan Chen, Efraim Dahl, Andre Dang, Beza Desta (C10), Liberto de Pablo (C17), Madeleine DeVoe (C12), Stephanie Kim (C15), Bonnie Ko, Clark Kovas (C17), Tsz Long (Quincy) Leung (C19), Kaitlyn Li, You Li (C14), Jason Lin, Ting-Han Lin (C11, C13), Rachel Liu, Kanchan Naik, Spencer Ng (C11, C14), Lucas Pardo, Javier Portet, Rafael Queiroz (C20), Aurelie Roubinowitz, Riya Sahni, Bhakti Shah, Elizabeth Singer, Pooja Vegesna, Kendrick Xie, Bayard Walsh, Hewitt Watkins, Kathy Yao, Justin Zhang (C17), Alex Zhou

High School Summer Interns: Maggie Bai (C17), Clarisse Cheung - University of Chicago, Eli Coustan, Hannah Dinner - UIUC (C19), Esha Mujumdar, Himani Musku

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>Finance Co-Chair</i>	2025, 2026
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>	
– Special Issue: Social Dynamics in Multi-Agent Groups and Teams	2021-2022
– Special Issue: From Child-Centered to Family-Centered Design for New Technology	2024-2025

Program Committee

ACM/IEEE Conference on Human-Robot Interaction (HRI)	2021-2024
Robotics: Science and Systems Conference	2025

Refereeing: Grant Agencies

National Science Foundation (NSF)	2021, 2022, 2023, 2025
Air Force Office of Scientific Research (AFOSR)	2021

Workshop Program Committee Member

From Child-Centered to Family-Centered Interaction Design (IDC 2023), <i>Co-Organizer</i>	2023
HRI Pioneers (HRI 2017), <i>General Co-Chair</i>	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

Science: Robotics
 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
 International Journal of Human - Computer Studies
 Frontiers in Robotics and AI
 Autonomous Agents and Multi-Agent Systems

SELECTED OUTREACH

Summer Robotics Course for South Side Chicago High School Students	2023, 2024
Taught a 6-week summer course that provides local South-Side Chicago high school students enrolled in UChicago's Collegiate Scholars Program. This course provides students with a hands-on introduction to designing and programming robots using Blockly, a block-based programming tool (see course website).	
Robot Demos at Chicago's Museum of Science and Industry	2022-2025
Human-Robot Interaction lab students demoed their research and robots at MSI's National Robotics Week Block Party exhibit.	
Human-Robot Interaction Lab Tours	2022-2024
Human-Robot Interaction lab members demoed their research and robots to groups including Girls Who Code and the Warrior Scholars Project.	

PRESS

- 7/29/24 [Sarah Sebo Awarded Prestigious CAREER Grant](#), UChicago CS News
- 4/12/24 [Annual robot block party held at Museum of Science and Industry](#), NBC Chicago
- 4/12/24 [Local universities competing in MSI's Robot Block Party](#), WGN News
- 11/07/23 [High School Students in the Collegiate Scholars Program Get to Know Robots](#), UChicago Magazine
- 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