

SARAH STROHKORB SEBO

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RESEARCH OVERVIEW

I develop robots that improve the performance of human-robot teams by shaping team dynamics to promote inclusion, trust, and cohesion. Using computational models that detect relevant verbal and nonverbal social cues, predict high-level social dynamics, and generate decision-making policies for robot actions, I explore how a robot’s social actions within a group shape human team members’ behavior.

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

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

AWARDS AND HONORS

Dagstuhl Seminar on “Social Agents for Teamwork and Group Interactions” Participant 2019

Rising Stars in EECS Program 2019

National Science Foundation Graduate Research Fellowship - Honorable Mention 2016

PUBLICATIONS IN PREPARATION

P2 **Sarah Strohkorb Sebo** and Brian Scassellati (2020). Backchanneling Robots Positively Shape Team Inclusion and Psychological Safety in Human-Robot University Course Project Teams. *ACM Transactions on Human-Robot Interaction*.

P1 **Sarah Strohkorb Sebo**, Evelyn Roberts, Sean Hackett, Tom Wallenstein, Michal Lewkowicz, Brian Scassellati (2020). Backchanneling as a Signal for Psychological Safety and Inclusion for Human-Robot Teams. *The ACM International Conference on Multimodal Interaction (ICMI 2020)*.

PUBLICATIONS IN SUBMISSION

- S2 Shannon Yasuda, Devon Doheny, **Sarah Strohkorb Sebo**, Nicole Salomons, Brian Scassellati (2020). Perceived Agency of a Social Norm Violating Robot. The *Forty Second Conference of the Cognitive Science Society (CogSci2014)*.
- S1 **Sarah Strohkorb Sebo**, Brett Stoll, Brian Scassellati, Malte F. Jung (2020). Robots in Groups and Teams: A Literature Review. *Computer Supported Cooperative Work (CSCW)*.

JOURNAL PUBLICATIONS

- 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)*.

CONFERENCE PUBLICATIONS

- C7 **Sarah Strohkorb Sebo**, Ling Liang Dong, Nicholas Chang, Brian Scassellati (2020). Strategies for the Inclusion of Human Members within Human-Robot Teams. To appear in *Proceedings of the the Fifteenth ACM/IEEE International Conference on Human Robot Interaction (HRI 2020)*.
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 Fourteenth ACM/IEEE International Conference on Human Robot Interaction (HRI 2019)*.
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 Thirty-Third AAAI Conference on Artificial Intelligence (AAAI)*.
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 Robot’s Vulnerable Behavior on Trust in Human-Robot Teams. In *Proceedings of the Thirteenth ACM/IEEE International Conference on Human Robot Interaction (HRI 2018)*.
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 Thirteenth ACM/IEEE International Conference on Human Robot Interaction (HRI 2018)*.
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)*.
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 2015 ACM on International Conference on Multimodal Interaction (ICMI 2015)*.
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.

TEACHING EXPERIENCE

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| Intelligent Robotics - Lab , Yale University
A semester-long research project course investigating intelligent robots.
Role: Teaching Assistant | Spring 2017, Fall 2018 |
| Intelligent Robotics , Yale University
An introduction to the construction of intelligent, autonomous systems.
Role: Teaching Assistant | Fall 2016, Spring 2018 |
| CS50 , Yale University
An introductory course for non-majors to computer science.
Role: Teaching Assistant (also lead a 12 person weekly section) | Fall 2015 |
| Software Design , Olin College
An introductory course to computer science.
Role: Teaching Assistant | Spring 2014 |

GRANTS

The 2017 HRI Pioneers Workshop at the 2017 ACM/IEEE International Conference on Human-Robot Interaction	2017
Key personnel, contributed to grant development and writing	
National Science Foundation	
PI: Brian Scassellati	
Travel Grants	
Rising Stars in EECS - Attendee	2019
RSS Pioneers - Attendee	2019
HRI Pioneers - General Chair Organizer	2016
Yale Computer Science Department Grant to attend the Grace Hopper Celebration	2016
HRI Pioneers - Attendee	2015
HRI Student Volunteer	2015
CRA-W Grad Cohort Workshop	2015

MENTORING

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

Hannah Burgess, Yale Undergraduate - Senior Cognitive Science Thesis Project	2019
Michal Lewkowicz, High School Student then Yale Undergraduate	2019
Publications: P1	
Tom Wallenstein, Yale Undergraduate	2019
Publications: P1	
Sean Hackett, Yale Undergraduate - Senior Computer Science Thesis Project	2019
Publications: P1	
Shannon Yasuda, Yale Undergraduate	2019
Publications: S2	
Kayleigh Bishop, Yale Undergraduate	2018-2019
Michael Schutzman, High School Student	2018
Nicholas Chang, Yale Undergraduate	2018
Publications: C7	
Ling Dong, Yale Undergraduate	2018
Publications: C7	
Evelyn Roberts, Yale Undergraduate - Senior Cognitive Science Thesis Project	2017-2019
Publications: P1	
Priyanka Krishnamurthi, Yale Undergraduate	2017-2018
Publications: C6	
Neil Madhavani, High School Student	2017
Rachel Ha, Yale Undergraduate - Senior Cognitive Science Thesis Project	2017
Adam Erickson, Yale Undergraduate	2016
Isabelle Gallagher, High School Student	2016
Ethan Fukuto, Pomona College Undergraduate	2015
Publications: C2	

Bobby Berry, Yale Undergraduate Publications: C2	2015
Charles Taylor, Yale Undergraduate Publications: C2	2015
Natalie Warren, Yale Undergraduate Publications: C1, C2	2014-2015

SERVICE

Organizing Committee

HRI Pioneers Workshop at HRI 2017 General Co-Chair	2016-2017
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Conference Paper Referee

International Conference on Human-Robot Interaction (HRI)	2017-2020
International Conference on Human Factors in Computing Systems (CHI)	2019
AAAI Conference on Artificial Intelligence (AAAI)	2019
International Conference on Robotics and Automation (ICRA)	2019
ACM Symposium on on User Interface Software and Technology (UIST)	2019
International Symposium on Robot and Human Interactive Communication (RO-MAN)	2016-2018
Interaction Design and Children (IDC) Conference	2018
International Conference on Intelligent Robots and Systems (IROS)	2017

Journal Article Referee

Interaction Studies	2019
ACM Transactions on Human-Robot Interaction	2018
IEEE Transactions on Cognitive and Developmental Systems	2017
International Journal of Child-Computer Interaction	2017
International Journal of Social Robotics	2016

SELECTED OUTREACH

Yale Social Robotics Lab Open Houses , Yale University, New Haven CT 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.	2015-2019
Yale Young Global Scholars Program Presentations , Yale University, New Haven CT 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.	2019
Teen Science Club Presentation , Guilford Library, Guilford CT Presented information and a robotics demonstration to a group of local teens interested in robotics.	2016

PRESS

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