

Sachiko Matsumoto

Computer Science and Engineering
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Research Interests Robotics, Human-Robot Interaction, Artificial Intelligence, Shared Control, Telepresence, Health Technology

Education **University of California, San Diego** *June 2024*
Ph.D., Computer Science and Engineering *(Expected)*
Advisor: Dr. Laurel D. Riek
Thesis: Telepresence Robots for Safety-Critical Environments: Contextualizing Shared Control for Dynamic Spaces

University of California, Berkeley *May 2018*
B.A., Computer Science; B.A., Physics

Publications

Matsumoto, S. and Riek, L. D. (2024). Telepresence Robots for Dynamic, Safety-Critical Environments. In *Proceedings of the ACM/IEEE International Conference on Human-Robot Interaction (HRI) Pioneers Workshop*.
[Acceptance rate: 31%]

Matsumoto, S., Ghosh, P., Jamshad, R., and Riek, L. D. (2023). Robot, Uninterrupted: Telemedical Robots to Mitigate Care Disruption. In *Proceedings of the ACM/IEEE International Conference on Human Robot Interaction (HRI)*.
[Acceptance rate: 25%]

Matsumoto, S., Washburn, A., and Riek, L. D. (2022). A Framework to Explore Proximate Human-Robot Coordination. In *ACM Transactions on Human-Robot Interaction (THRI)*.

Matsumoto, S. and Riek, L. D. (2022). Shared Control in Human Robot Teaming: Toward Context-Aware Communication. In *AAAI Spring Symposium on Closing the Assessment Loop: Communicating Proficiency and Intent in Human-Robot Teaming*.

Matsumoto, S., Moharana, S., Devanagondi, N., Oyama, L. C., and Riek, L. D. (2021). Iris: A Low-Cost Telemedicine Robot to Support Healthcare Safety and Equity During a Pandemic. In *EAI PervasiveHealth*.

Taylor, A. M., **Matsumoto, S.**, Xiao, W., Riek, L. D. (2021). Social Navigation for Mobile Robots in the Emergency Department. In *IEEE International Conference on Robotics and Automation (ICRA)*.

Taylor, A. M., **Matsumoto, S.**, Riek, L. D. (2020). Situating Robots in the Emergency Department. In *AAAI Spring Symposium on Applied AI in Healthcare: Safety, Community, and the Environment*.

Matsumoto, S. and Riek, L. D. (2019). Fluent Coordination in Proximate Human Robot Teaming. In *AI and Its Alternatives for Shared Autonomy in Assistive and Collaborative Robotics, Workshop at Robotics: Science and Systems (RSS)*.

Washburn, A., **Matsumoto, S.**, and Riek, L. D. (2019). Trust-Aware Control in Proximate Human-Robot Teaming. In *Trust in Human-Robot Interaction: Research and Applications*. Elsevier.

Awards and Honors	HRI Pioneers Workshop Travel Grant	2024
	Chosen to participate in a highly selective workshop seeking to foster creativity and collaboration across human-robot interaction	
	NSF GRFP Honorable Mention	2020
	One of 1,827 students, of approximately 12,000 who apply annually	
	Inclusion@RSS Travel Grant	2019
	Selected for workshop bringing together new robotics researchers to increase the participation of traditionally underrepresented groups in robotics	
	CRA-W Grad Cohort Workshop for Women Travel Grant	2019
	Selected for workshop bringing together women in computing to connect students with senior researchers and professionals	
Work Experience	HRL Laboratories, Malibu, CA	2022
	Research Intern	
	<ul style="list-style-type: none"> ◆ Researched, developed, and deployed natural language and dialogue models ◆ Led work on recognition methods that were deployed on robots working in real-world environments 	
	Surface Optics Corporation, San Diego, CA	2016
	Research and Development Intern	
	<ul style="list-style-type: none"> ◆ Led work on the bidirectional reflectance distribution function (BRDF) of different paints using the SOC-210 for the development of stealth vehicle coatings, computer generated imagery, and advanced lighting design ◆ Led technology transfer efforts through documentation for the SOC-210 	

The Scripps Research Institute, La Jolla, CA 2015

Research Intern

- ♦ Led research exploring how to visualize connections between genes and diseases via a graph database with Implicitome and Semmed data in Neo4j

Teaching Experience

CSE 276D/176A: Healthcare Robotics, UC San Diego

Teaching Assistant

2020, 2022

- ♦ *Developed homework and lab questions, specified rubrics, wrote code samples, prepared lab hardware, provided constructive feedback on homework and labs*

Invited Talks

Society of Women Engineers (SWE) San Diego AI Forum

2024

Developing Robotic Systems to Support People in Safety-Critical Environments

San Diego Robotics Forum

2023

Telepresence Robots for Safety-Critical Environments

ENGR 212: Introduction to Unix and Linux for Engineers, CSU San Francisco

2023

Human-Robot Teaming to Support People in Dynamic Environments

UCSD Pixel Cafe

2023

Designing Telepresence Robots for Emergency Medicine

UCSD CSE Open House

2022

Human-Robot Coordination in Proximate Teaming and Acute Care Contexts

Toyota HSR Community Meeting

2022

Human-Robot Collaboration in Uncertain, Dynamic Environments

Toyota HSR Community Meeting

2021

Proximate Human-Robot Teaming in Uncertain Environments

Workshop on AI and Its Alternatives for Shared Autonomy in Assistive and Collaborative Robotics, RSS

2019

Fluent Coordination in Proximate Human-Robot Teaming

UCSD CSE Open House

2019

Coordinating Proximate Human-Robot Teaming in Dynamic Environments

Contextual Robotics Institute Forum

2018

Coordinating Proximate Human-Robot Teaming in Dynamic Environments

Professional Affiliations and Leadership	UC San Diego Robotics Graduate Student Organization	2018-Present
	<i>President (2021-2022), Vice President (2020-2021), Secretary (2019-2020)</i>	
	Mechanical and Aerospace Engineering Graduate Women's Mentorship Program	2023-Present
	Graduate mentor	
	GradAMP Program	2022-2023
	Mentored an undergraduate student applying to graduate school	
	My CS Ph.D.	2020-2021
Conducted interviews and wrote posts to provide better information about Ph.D.s in computer science to undergraduates		
Jacobs Undergraduate Mentoring Program	2019-2020	
Graduate Mentor		
Bay Area Scientists in Schools (BASIS)	2015-2018	
Taught hands-on science lessons in underprivileged elementary schools		

Supervisees	Vivek Gupte (M.S. Mechanical and Aerospace Engineering)	2023-Present
	Priyanshu Arora (M.S. Computer Science)	2023-Present
	James Olichney (B.S. Cognitive Science)	2023-Present
	Arthi Haripriyan (M.S. Computer Science)	2022-Present
	Alex Chow (B.S. Computer Science)	2022-2023
	Vincent Santos (B.S. Computer Science)	2021-2022
	Ashwin Rao (B.S. Computer Engineering)	2020-2021
	Raechel Walker (B.S. Data Science)	2020-2021
	Sharon Banh (B.S. Cognitive Science)	2020-2021
Nimisha Devanagondi (B.S. Cognitive Science)	2020-2021	

Academic Service	Reviewer ACM/IEEE Conference on Human Robot Interaction (HRI)	2020-2024
	Reviewer ACM Transactions on Human-Robot Interaction (THRI)	2021-2024
	Reviewer IEEE International Conference on Robotics and Automation (ICRA)	2021-2023

Professional Competencies	Programming Languages: Python including popular machine learning libraries such as sklearn C++ C# C Java SQL Matlab
	Software Tools and Systems: ROS (and robotics simulators such as Gazebo) Latex Github Figma Linux Windows MacOS
	Hardware: Arduino Raspberry Pi HoloLens Various robot platforms (e.g., Turtlebot 2, Kuri, Toyota HSR, Stretch)
	User-Centered Design and Research Methods: Ethnographic observation Interviews Qualitative analysis Rapid prototyping Storyboarding Wireframing