

REUBEN M. ARONSON

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I develop technical algorithms, user studies, and theoretical principles for physically assistive human-robot interaction. My research combines rich human experience and complex robot autonomy to enable creative, flexible, and fluent robots for assistive applications.

Key words: Physically assistive robots, human-robot interaction, collaborative manipulation, accessibility

Education

Ph.D. Robotics 2022	Robotics Institute, Carnegie Mellon University Advisor: Henny Admoni Area of study: Human-Robot Interaction
B.S. 2012	Massachusetts Institute of Technology Major: Mechanical Engineering

Work experience

Postdoctoral Scholar, Tufts University Postdoc on 3-year, 4-PI NSF grant no. 2132887 on mutually assistive robotics	2022–2025 Medford, MA
Support Engineer, US Naval Research Laboratory Software and mechanical engineering staff for radar R&D	2012–2015 Washington, DC

Selected Publications

Assistive Robotics and Human-Robot Collaboration

- C1 **Aronson, R. M.** and Short, E. S. (2024). Intentional user adaptation to shared control assistance. In *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*
- C2 Sheidlower, I. , Murdock, M. , Bethel, E. , **Aronson, R. M.** , and Short, E. S. (2024). Online behavior modification for expressive user control of rl-trained robots. In *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*
- C3 Allen, K. H. , Balaska, A. K. , **Aronson, R. M.** , Rogers, C. , and Short, E. S. (2023). Barriers and benefits: The path to accessible makerspaces. In *Proceedings of the 25th International ACM SIGACCESS Conference on Computers and Accessibility, ASSETS '23* Best student paper nominee
- J1 Newman, B. A. , **Aronson, R. M.** , Kitani, K. , and Admoni, H. (2022). Helping People Through Space and Time: Assistance as a Perspective on Human-Robot Interaction. *Frontiers in Robotics and AI*, 8:410
- J2 Newman*, B. A. , **Aronson*, R. M.** , Srinivasa, S. S. , Kitani, K. , and Admoni, H. (2022). HAR-MONIC: A Multimodal Dataset of Assistive Human-Robot Collaboration. *The International Journal of Robotics Research*, 41(1):3–11
- C4 **Aronson, R. M.** and Admoni, H. (2022). Gaze Complements Control Input for Goal Prediction During Assisted Teleoperation. In *Robotics: Science and Systems*
- C5 **Aronson, R. M.** , Santini, T. , Kübler, T. C. , Kasneci, E. , Srinivasa, S. S. , and Admoni, H. (2018). Eye-hand behavior in human-robot shared manipulation. In *ACM/IEEE International Conference on Human-Robot Interaction (HRI)* >100 citations

Reinforcement Learning with Human Feedback

- C6 Huang, J. , Sheidlower, I. S. , **Aronson, R. M.** , and Short, E. S. (2024). On the effect of robot errors on human teaching dynamics. In *12th International Conference on Human-Agent interaction (HAI)*
- C7 Sheidlower, I. , Bethel, E. , Lilly, D. , **Aronson, R.** , and Short, E. S. (2024). Imagining in-distribution states: How predictable robot behavior can enable user control over learned policies. In *2024 33rd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*
- W1 Sheidlower, I. , **Aronson, R. M.** , and Short, E. S. (2024). Towards interpretable foundation models of robot behavior: A task specific policy generation approach. In *Training Agents with Foundation Models workshop at RLC 2024*
- C8 Yu, H. , Fang, Q. , Fang, S. , **Aronson, R.** , and Short, E. S. (2024). How much progress did I make? an unexplored human feedback signal for teaching robots. In *2024 33rd IEEE International Conference on Robot and Human Interactive Communication (RO-MAN)*
- C9 Huang, J. , **Aronson, R. M.** , and Short, E. S. (2024). Modeling variation in human feedback with user inputs: An exploratory methodology. In *2024 ACM/IEEE International Conference on Human-Robot Interaction (HRI)*
- C10 Yu, H. , **Aronson, R.** , Allen, K. , and Short, E. (2023). From “thumbs up” to “10 out of 10”: Reconsidering scalar feedback in interactive reinforcement learning. In *2023 IEEE/RSJ International Conference on Intelligent Robots and Systems (IROS)*

Skills

Technical skills

- Programming languages: python (async), C++, javascript, web-based user studies
- Software: ROS, Linux (ubuntu), VPN (remote robot operation)
- Hardware: Kinova Gen3 and Jaco arms; new hardware integration via available drivers
- System integration: vision/sensing, user input, autonomous behavior, planning and execution, data collection; ensure sufficient reliability for public demos and user studies

Research skills

- Human subjects research: study design, IRB process, study execution, statistical analysis
- Communication: conference and journal publications, conference presentations, invited talks, reading groups and informal research discussions, workshop organization (with paper submissions)
- Mentorship: undergraduate and graduate students; project ideation, refinement, execution, and publication; refining rejected papers for publication; supporting student confidence and comfort in the challenging experience of research

Service

Reviewer for (selected) AAMAS 2023–2024, HRI 2018–2024, HUMANOIDS 2016–2017, 2019, ICRA 2021–2022, 2024, IROS 2018, 2023, RA-L 2021, RO-MAN 2021, RSS 2019, 2022–2023, THRI 2020–2022, US National Science Foundation (Panel Member)

General Chair, Assistive Applications, Accessibility, and Disability Ethics (A3DE) workshop at HRI 2024 <https://a3de-hri.github.io/>

Co-founder and organizer, Tufts HRI Colloquium (weekly series)

Founding member of **CMU Tech4Society**, which provided technical support to non-profit and activist groups in the Pittsburgh area

2024

2022–2023

2016–2019