Rebecca Ramnauth

Postdoctoral Fellow at Yale University

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Research Overview: I build theories about how people think, learn, and interact with the world around them. Then, I apply these theories by building robot-assisted interventions that support users of various neurodevelopmental profiles.

Such theories include a theoretical framework for discerning socially appropriate robotic assistance, robot-assisted social skills interventions for Autism Spectrum Disorder, long-term mental health support for caregivers of and individuals with dementia, a teleoperated robot platform for mitigating social isolation during the COVID-19 pandemic, global benchmarks for AI social capability developed in partnership with the OECD, designing robotic environments for social-emotional regulation for NYC DOE public schools, and building custom social robots for anxiety reduction on university campuses.

Impact: Among the selection of five robot deployments summarized in my Ph.D. thesis, my work has directly engaged **284 families**, with participants ranging in age **from 4 to 104 years**. Collectively, these studies produced **12,984 hours** of continuous, fully autonomous robot operation outside of the lab, in real-world environments. My robots delivered more than **3,000 sessions** total with users, resulting in **950 hours** of active therapy time, and yielding approximately **84 terabytes** of multimodal vision and audio data. All user studies submitted to ACM, IEEE, or joint venues have been recognized as finalists or recipients of Best Paper Awards.

Keywords: artificial intelligence, social cognition, human-robot interaction (HRI)

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Education

Yale University

August 2025 •

Ph.D. in Computer Science · Yale Social Robotics Lab

Committee: Brian Scassellati (advisor; Yale Social Robotics Lab), Frederick Shic (Seattle's Children Research Institute), Marynel Vázquez (Yale Interactive Machines Lab), and Tesca Fitzgerald (Yale Inquisitive Robotics Lab)

Thesis: Building Intelligent Robots for Social Regulation Therapy · PDF · Slide Deck

May 2023 •

M.Sc. in Computer Science · Yale Social Robotics Lab
Advisors: Brian Scassellati, Aaron Dollar (Yale GRAB Lab), and Marynel Vázquez
Thesis: Developing an Awareness of Social Contingency for Social Robot Interventions

May 2020 • **M.Sc. in Computer Science (en-route)** · Brain Function Lab
Advisors: Brian Scassellati and Joy Hirsch (Brain Function Lab)
Thesis: Discovering the Neural Mechanisms of Dyadic Social Communication using Human-Robot Interaction

May 2020 • **M.Phil. in Computer Science (en-route)**
Advisors: Brian Scassellati and Marynel Vázquez
Thesis: Cognitive Appraisal Interventions for Buffering the Emotional Effects of Isolation

Long Island University

May 2018 • **M.Sc. in Computer Science**
Theses: An Adaptive & Integrative Knowledge Base Expert Suite for the Screening of Intellectual Disabilities; The Relationship Between Handwriting & Reading in Autism

May 2018 • **B.Sc. Honors in Computer Science**

Experience

August 2025 – *current* • **Postdoctoral Fellow** · Yale University / Engineering · engineering.yale.edu
Lead PI on several thrusts of research to develop socially assistive robotics. As the primary advisor for students across Computer Science, Mechanical Engineering, Psychology, and Cognitive Science majors at Yale, I lead multi-site studies that design, develop, and deploy robots as tools for understanding human social cognition.

August 2022 – *current* • **Executive Director** · The MIA Foundation · miaoutreach.com
Overseeing the administration, programs, and strategic plan for The MIA Foundation, a non-profit committed to producing resources, research, and solutions for individuals with special needs and their families. The foundation offers annual scholarships to support adults with disabilities to pursue academic goals and talents.

June 2021 – May 2022 • **Research Fellow** · Office of Academic Affairs · Yale University
Co-authored with Dr. Joel Silverman, the *Handbook for College* Deans which details the responsibilities, expectations, and common administrative procedures of an effective Yale College dean. The handbook is currently used internally by the 14 Yale College residential deans and the Yale Office of Academic Affairs.

June 2020 – January 2022 • **Visiting Lecturer** · Vaughn College of Aeronautics and Technology
Designed and taught courses in robotics and computer programming for the Science & Technology Entry Program (STEP)

December 2018 – August 2019 • **Assistant Dean for Research & Curriculum Development** · Long Island University
School of Business, Public Administration, and Information Science

May 2018 – August 2019 • **Adjunct Professor of Computer Science** · Long Island University
Designed and taught courses in creative computing, programming, and AI

Board Member of U.S. Department of Education Early College Initiative (ECI)

Teaching

Instructor

Spring 2025, Spring 2024 • AI For Future Presidents (Yale, CPSC 170)
avg. eval 4.9/5; 90 students; curriculum co-designed published [C9]
Summer 2023 • Social Robotics (Yale College · yspa.yale.edu), co-instructed with Michael Faison
Fall 2020 • Principles of Programming for Robotics (Vaughn College, STEP Program)
Summer 2020 • Advanced Robotics (Vaughn College of Aeronautics and Technology · STEP Program)
• Robotics Laboratory (Vaughn College of Aeronautics and Technology · STEP Program)
Spring 2019 • Business Information Systems (LIU, BUS 110)
Spring 2019 • Programming in C++ Early Scholars (ECI, CS 102)
Spring 2019 • Advanced Topics in Programming (LIU, CS 117)
Fall 2018 • Programming in C++ (LIU, CS 102)
Fall 2018 • Fundamentals of Computer Science Early Scholars (ECI, CS 101)
Fall 2018 • Fundamentals of Computer Science (LIU, CS 101)
Summer 2018 • Summer Honors Institute Coding Academy (LIU, CS-S)

Teaching Fellow

Fall 2023 • Intelligent Robotics (Yale, CPSC 472/572 with Brian Scassellati)
Spring 2023 • Artificial Intelligence (Yale, CPSC 370/570 with Tesca Fitzgerald)
Spring 2021 • Introduction to Human-Computer Interaction (Yale CPSC 484/584 with Marynel Vázquez)
Fall 2020 • Algorithmic & Heuristic Composition (Yale CPSC 531, MUSI 4228 with Scott Petersen)
Fall 2020 • Computational Vision & Biological Perception (Yale CPSC 475/575 with Steven Zucker)

Awards and Grants

Fellowships

2020 - 2025 • **National Science Foundation (NSF) Graduate Research Fellowship**
The NSF-GRFP is a prestigious grant awarded to approximately **<10%** of student applicants pursuing research-based graduate degrees. Award amount: $46,000 x 3 years. Proposal*: Discovering the neural mechanisms of dyadic social interaction using human-robot interaction*
https://www.nsfgrfp.org/

2020 – 2025 • **National Academies of Sciences, Engineering, and Medicine (NASEM) Ford Foundation Predoctoral Fellowship**
The Ford Fellowship is a competitive grant awarded to **<5%** of Ph.D. or Sc.D. students applicants by the National Academics of Science, Engineering, and Medicine. Award Amount: $27,000 x 3

years. Proposal*: Discovering the neural mechanisms of dyadic social interaction using human-robot interaction*
https://sites.nationalacademies.org/PGA/FordFellowships/PGA_047958

2025 • **NASEM Postdoctoral Fellowship**
Continued support from the Ford Foundation before the program's sunset. Award Amount: $37,000

Paper Awards

2025 • **Best Paper Award** · **KROS Interdisciplinary Award Finalist** · **Best Student Paper Award Finalist** · IEEE RO-MAN Conference [C11]

2025 • **Best Paper Award for Theory & Methods** · ACM/IEEE HRI Conference [C10]

2022 • **Best Paper Honorable Mention** · ACM/IEEE HRI Conference [C4]

2021 • **Best Paper Honorable Mention** · ACM/IEEE HRI Conference [C3]

2018 • **Best Paper** · IEEE Regional Conference [C2]

Conference Grants & Workshops

2025 • **Rising Stars EECS** · MIT and Boston University Workshop
Since its launch at MIT in 2012, the program has become one of the most competitive and influential career development events in the field. This year, 327 applicants applied and 70 were selected (**~21%** acceptance) · October 29 – 31, 2025.

2021 • **Anita Borg Institute Grace Hopper Celebration Scholarship**
The Grace Hopper Celebration is the world's largest gathering of women technologists. It is produced by AnitaB.org and presented in partnership with ACM · Virtual · May 26 –30, 2021.
https://ghc.anitab.org/

2021 • **ACM-WP Computing Research Association Conference Grant**
CRA-WP annual conference aims to engage and increase the participation of individuals from additional underrepresented groups in the graduate computing research community · Virtual · April 14 - 20, 2021.
https://women.acm.org/scholarships/

2020 • **Anita Borg Institute Grace Hopper Celebration Scholarship**
Orlando, Florida, USA · Sept. 29 – Oct. 2, 2020.

2020 • **ACM-WP Computing Research Association Conference Grant**
New Orleans, Louisiana, USA · April 14 - 20, 2020.

2020 • **Microsoft Research Frontiers in Machine Learning Conference Grant**
This four-day conference brought together academics, researchers, and Ph.D. Students. The program was rich, engaging, and filled with current themes and research outcomes spanning theory and practice in Machine Learning · Virtual · July 20 - 23, 2020.
https://www.microsoft.com/en-us/research/event/frontiers-in-machine-learning-2020/

University Awards

2021 • **Nomination for Distinguished Undergraduate Teaching** · Yale University
The Yale Prize Teaching Fellowships recognize outstanding performance and promise as a teacher. "They are considered among the most important honors that Yale bestows upon graduate students."
https://gsas.yale.edu/academic-requirements/teaching-fellows-requirements/prize-teaching-fellows

2018 • **Faculty Award** · Long Island University
Presented by the LIU Brooklyn Department of Business, Public Administration, & Information Science faculty board

2018 • **Undergraduate Excellence Award** · Long Island University
Awarded to top undergraduate student in the LIU Brooklyn Department of Business, Public Administration, & Information Science

Publications

Journal Publications

J4 **Ramnauth, R.**, Brščić, D., & Scassellati, B. (2026). To Help or Not to Help? Expanded Framework for Deciding Appropriate Robot Assistance. Accepted for publication in *ACM Transactions on Human-Robot Interaction (THRI)*

J3 Matheus, K., **Ramnauth, R.**, Scassellati, B., & Salomons, N. (2025). Long-Term Interactions with Social Robots: Trends, Insights, and Recommendations. *ACM Transactions on Human-Robot Interaction (THRI)*, *14*(3), 1-42.

J2 Georgiou, N. C., **Ramnauth, R.**, Adeniran, E., Lee, M., Selin, L., & Scassellati, B. (2023). Is Someone There or Is That The TV? Detecting Social Presence Using Sound. *ACM Transactions on Human-Robot Interaction (THRI), 12(4), 1-33.*

J1 Adéníran, E.*, **Ramnauth, R.***, Salomons, N., Georgiou, N., & Scassellati, B. (2025, April). Improving tolerance to interruptions through training. Pending review in the *Proceedings of the National Academy of Sciences.*

Peer-Reviewed Conference Publications

C12 **Ramnauth, R.** and Scassellati, B. (March 2026). When Robots Should Break the Rules. *In Proceedings of the 2026 ACM/IEEE International Conference on Human-Robot Interaction.*

C11 **Ramnauth, R.**, Brščic, D., & Scassellati, B. (2025, August) From Fidgeting to Focused: Developing Robot-Enhanced Social-Emotional Therapy (RESET) for School De-Escalation Rooms. In the *34th IEEE International Conference on Robot and Human Interactive Communication (RO-MAN '25).*

C10 **Ramnauth, R.,** Shic, F., & Scassellati, B. (2025). Gaze Behavior During a Long-Term, In-Home, Social Robot Intervention for Children with ASD. *arXiv preprint arXiv:2501.02583.*

Accepted for Publication in the *2025 20th IEEE/ACM International Conference on Human-Robot Interaction (HRI).*

C9 Candon, K., Georgiou, C. N., **Ramnauth, R.,** Cheung, J., Finke, E. C., & Scassellati, B. (2025). Artificial Intelligence for Future Presidents: Teaching AI Literacy to Everyone. Accepted for Accepted for Publication in the *15th Symposium on Educational Advances in Artificial Intelligence (E-AAAI)*

C8 **Ramnauth, R.**, Brščić, D., & Scassellati, B. (2025, June). A Robot-Assisted Approach to Small Talk Training for Adults with ASD. In the *21st Robotics: Science and Systems Conference (RSS '25).*

C7 **Ramnauth, R.**, Brščić, D., & Scassellati, B. (2024). A Grounded Observer Framework for Establishing Guardrails for Foundation Models in Socially Sensitive Domains. *arXiv preprint arXiv:2412.18639*. In submission to the *2025 International Joint Conferences on Artificial Intelligence (ICJAI).*

C6 **Ramnauth, R.**, Brščić, D., & Scassellati, B. (2024). More than Chit-Chat: Developing Robots for Small-Talk Interactions. *arXiv preprint arXiv:2412.18023*. In submission to *ICJAI* 2025.

C5 **Ramnauth, R.**, Brščić, D., & Scassellati, B. (2024, August). Should I Help?: A Skill-Based Framework for Deciding Socially Appropriate Assistance in Human-Robot Interactions. In *2024 33rd IEEE International Conference on Robot and Human Interactive Communication (ROMAN)* (pp. 2051-2058). IEEE.

C4 **Ramnauth, R.**, Adéníran, E., Adamson, T., Lewkowicz, M. A., Giridharan, R., Reiner, C., & Scassellati, B. (2022, March). A Social Robot for Improving Interruptions Tolerance and Employability in Adults with ASD. *In Proceedings of the 2022 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 4-13).

C3 Tsoi, N., Connolly, J., Adéníran, E., Hansen, A., Pineda, K. T., Adamson, T., Thompson, S., **Ramnauth, R.**, Vázquez, M., & Scassellati, B. (2021, March). Challenges deploying robots during a pandemic: An effort to fight social isolation among children. *In Proceedings of the 2021 ACM/IEEE International Conference on Human-Robot Interaction* (pp. 234-242).

C2 **Ramnauth, R.,** Chung, P., & Ghriga, M. (2018, April). An adaptive & integrative knowledge base expert suite for the screening of intellectual disabilities." In *Proceedings of the 2018 ACM/IEEE Regional 1 Conference* (*IEEE R1 '18*). Association for Computing Machinery, New York, NY, USA.

C1 **Ramnauth, R.,** Chung, P., & Ghriga, M. (2018, April). The relationship between handwriting & reading in autism." In *Proceedings of the 2018 ACM/IEEE Regional 1 Conference* (*IEEE R1 '18*). Association for Computing Machinery, New York, NY, USA.

Presentations

March 2024	•	Keynote · Department of Education Tech Summit · *Social AI as Tools for Understanding People* · https://www.nycschoolstechsummit.com/2024/speaker/1117931/rebecca-ramnauth
November 2023, February 2024, December 2024, November 2025	•	Guest Lecture · Science of Modern Technology and Public Policy · *Developing Intelligent Robots for Social Good* · Courses APHY 050, APHY 080, ENAS 050, ENAS 080, ENAS 100, EPS 105, EVST 100, PHYS 050, PHYS 080, PHYS 100, led by Dr. Dan Prober, Director of Undergraduate Studies, Yale University
October 2022	•	Research Presentation · Ford Foundation Conference · *Social Contingency Awareness in In-Home Technologies*
October 2022	•	Conference Talk · SACNAS National Diversity in STEM Conference · *Women in Computer Science Education*
October 2022	•	Invited Lecture · Cal Poly Pomona · *Decoding Human Behavior Using Social Robotics*
October 2022	•	Invited Lecture · UC Berkeley · *Creating Equitable Futures Using Social Robotics*
October 2021	•	Research Presentation · Ford Foundation Conference · *Designing Social Robots for Individuals with Autism*
July 2021	•	Guest Lecture · Yale Young Global Scholars Research Showcase II · *Audio Scene Analysis in Social Robots*
June 2021	•	Guest Lecture · Yale Young Global Scholars Research Showcase I · *Social Robotics for Autism*
April 2021	•	Conference Talk · ACM-WP Computing Research Association Conference · *Robots for Good: The Potential Role of Socially Assistive Robots During COVID-19*
February 2021	•	Invited Lecture · Nicholas Christakis Human Nature Lab · *Investigating Group Dynamics Using Social Robots for Children with Autism*
October 2020	•	Research Presentation · Ford Foundation Conference · *Social Robotics for Improving Interruptions Tolerance and Employability in Adults with Autism*
October 2020	•	Research Presentation · Ford Foundation Conference · *Being Sensitive to the Social Context Means Knowing When to Interrupt*
May 2018	•	Invited Lecture to Staff · Public School 7 · *Audio-Visual Simulation for Children with Hearing & Learning Difficulties through Music*

May 2018	•	IEEE Systems, Man, and Cybernetics Society Student Branch · *Introduction to Big Data Clustering using Voronoi Diagrams and the k-means Algorithm*
May 2018	•	Research Presentation · Long Island University IEEE Branch · *Analysis & Demonstration of Common Object Request Broker Architecture*
March 2018	•	Invited Lecture · New York Institute of Technology IEEE Computer Society Student Branch · *Relating Introspective Abilities to Enhance Special-Needs Literacy Education*
December 2017	•	Invited Lecture · IEEE Computer Society Student Branch · *Source Code Vulnerabilities & Improvements to the Software Development Life Cycle*
December 2017	•	Thesis Lecture · IEEE Systems, Man, and Cybernetics Society Student Branch · *Methods for Improving Domain-Specific Knowledge Bases for Expert Systems*
July 2015	•	Guest Lecture · Microsoft NYC · *Data Searching & Sorting Algorithms for Social Science*

Professional Service

Program Committee Member

2018	•	International Conference on Dependable Systems and Their Applications (IEEE)
2018	•	International Conference on Trustworthy Systems and Their Applications (IEEE)
2018	•	International Conference on Dependable Computing and Internet of Things (IEEE)
2018	•	International Conference on Creative Lifestyle Computing (IEEE)
		International Symposium on Art-Science-Architecture

Journal Referee

2019 – *current*	•	Journal of Autism and Developmental Disorders (JADD)
2019 – *current*	•	Autism
2021 – *current*	•	Frontiers Robotics and AI
2019 – 2021	•	International Journal of Child-Computer Interaction (IJCCI)
2019 – 2021	•	IEEE Transactions on Cognitive and Developmental Systems (IEEE-TCDS)
2019 – 2021	•	SAGE Journal of Autism (SAGE-JoA)
2018 – 2021		International Journal of Creative Computing (IJCrC)

Conference Referee

2023 – *current*	•	ACM/IEEE World Haptics Conference (WHC)
2020 – *current*	•	IEEE Internal Symposium on Robot and Human Interactive Communication (RO-MAN)
2019 – *current*	•	ACM/IEEE Conference on Human Robot Interaction (HRI)

Member

- 2021 – *current* • Institute of Electrical and Electronics Engineers (IEEE)
- 2019 – *current* • National Academies of Science (NAS)
- 2018 – *current* • Association for Computing Machinery (ACM)
- 2018 – 2020 • ACM Computer Science Teachers Association
- 2017 – 2019 • Institute of Physics (IOP) Computational Physics Group
- 2017 – 2019 • IEEE Computer Society
- 2017 – 2019 • IEEE Systems, Man, and Cybernetics Society

Volunteer

- 2023 – 2025 • Organizer · Social Robotics Research Internship Program · Yale University
- 2023 – 2025 • Coordinator · High School Pathways to Science · Yale University
- 2022 – 2024 • Steering Committee Member · Future Leaders of Yale · Yale University
- 2022 – 2024 • Spokesperson · *For Humanity Illuminated* international campaign · Yale University
- 2022 – 2024 • Fellow · Office of Development · Yale University
- 2021 – 2022 • Fellow · Office of Academic Affairs · Yale University
- 2020 – 2022 • Organizer · Computer Science Colloquium · NASEM Ford Foundation
- 2020 – 2022 • Mentor · Health Career Opportunity Programs · University of Connecticut
- 2020 – 2021 • Mentor · STEM High School Academy · Vaughn College
- 2014 – 2019 • Mentor · Engineering Science Programs · Brooklyn Technical High School
- 2015 – 2019 • Contributor · Stanford Scholars Initiative
- 2015 – 2017 • Instructor · Girls Who Code · Brooklyn Technical High School
- 2014 – 2017 • Coordinator · New York State Division · Special Olympics

Mentoring

- 2023 • Rodrigo Chousal Cantu, Yale Undergraduate ’23 · Computer Science Thesis
  Social Contingency Detection in a Group HRI Setting
- 2021 • Michael Lee, Yale Undergraduate ’23 · [J2]
- 2021 • Lila Selin, Yale Undergraduate ’23 · [J2]
- 2021 • Caroline Reiner, Yale Undergraduate ’23 · [C4]
- 2021 • Rohit Giridharan, Yale Undergraduate ’22 · [C4]
- 2021 • Michal A. Lewkowicz, Yale Undergraduate ’24 · [C4]
- 2021 • Skylar Regan, Yale Undergraduate ’21 · Computer Science Thesis
  Tracking Attentional Gaze of Children with ASD in a Long-Term, In-Home Social Robotics Study

2021 • Maciej Zielonka, Yale Undergraduate '21 · Computer Science Thesis
To what extent does speech behavior signal social contingency?

2020 • Louisa Nordstrom, Yale Undergraduate '20 · Senior Cognitive Science Thesis
The effect of differential spatiotemporal contexts on the perceptual saliency of animacy, emotion, and intentionality

2019 • Wooje Chang, Yale Undergraduate '20 · Senior Cognitive Science Thesis
Neural mechanisms of human-to-chatbot communication to investigate the applicability of the interactive brain hypothesis to artificial stimuli

2019 • Jessica McCurdy, Yale Undergraduate '20 · Senior Cognitive Science Thesis
Impact of human-robot synchronization on perceptions of fair, strategic, and altruistic behavior

Related Press

April 17, 2024 • *Using AI and Robots To Build Social Connections For All Students* · Tech & Learning Magazine (Front Cover) · https://www.techlearning.com/news/using-ai-and-robots-to-build-social-connections-for-all-students

March 29, 2022 • *How Robots Can Assist Students with Disabilities* · New York Times · https://www.nytimes.com/2022/03/29/technology/ai-robots-students-disabilities.html

Nov. 2, 2021 • *AI, Virtual Reality, and Robots Advancing Autism Diagnosis and Therapy* · IEEE Pulse and IEEE Engineering in Medicine and Biology Society · https://www.embs.org/pulse/articles/ai-virtual-reality-and-robots-advancing-autism-diagnosis-and-therapy/

Sept. 23, 2020 • Yale researchers develop AI technology for adults with autism · Yale Daily News · https://yaledailynews.com/blog/2020/09/23/yale-researchers-develop-ai-technology-for-adults-with-autism/

Sept. 11, 2020 • *Tech to Help People with ASD in the Workplace Gets NSF Funding* · Yale SEAS · https://seas.yale.edu/news-events/news/tech-help-people-asd-workplace-gets-nsf-funding

June 9, 2020 • *Fighting Social Isolation with Robots* · Yale SEAS · https://seas.yale.edu/news-events/news/fighting-social-isolation-robots

March 31, 2020 • *Three Scazlab members to receive coveted 2020 NSF GRFP award* · Yale Social Robotics Lab · https://scazlab.yale.edu/news/three-scazlab-members-recieve-coveted-2020-nsf-grfp-award

March 31, 2020 • *Rebecca Ramnauth (GS) wins the prestigious 2020 NSF Graduate Research Fellowship* · Yale University Computer Science · https://cpsc.yale.edu/news/valerie-chen-my20-and-rebecca-ramnauth-gs-win-prestigious-2020-nsf-graduate-research-fellowship

Sept. 1, 2019 • *Treating childhood autism one robot at a time* · Yale Medicine Magazine · https://medicine.yale.edu/news/yale-medicine-magazine/article/treating-childhood-autism-one-robot-at-a-time/