# Rebecca Ramnauth

### Ph.D. candidate with the Yale Social Robotics Lab

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**Research Overview:** I build theories about how people think, learn, and interact with the world around them. I apply these theories to develop interfaces and embodied platforms to optimally support stakeholders of various cognitive and technical abilities.

**Keywords:** social cognition, social interaction, computation, human-robot interaction (HRI)

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# **Education**

- May 2018

August 2019 • **Ph.D. in Computer Science** · <u>Yale Social Robotics Lab</u> · Yale University current Advisor: Dr. Brian Scassellati M.Sc. in Computer Science · <u>Yale Social Robotics Lab</u> · Yale University August 2022 • Advisor: Dr. Brian Scassellati, Dr. Aaron Dollar, and Dr. Marynel Vazquez - May 2023 Thesis: Developing an Awareness of Social Contingency for Social Robot Interventions August 2019 • **M.Sc. in Computer Science** (en-route) · <u>Brain Function Lab</u> · Yale University - May 2020 Advisors: Dr. Brian Scassellati and Dr. Joy Hirsch Thesis: Discovering the Neural Mechanisms of Dyadic Social Communication using Human-Robot Interaction August 2019 • M.Phil. in Computer Science (en-route) · Yale University – May 2020 Advisor: Dr. Brian Scassellati and Dr. Marynel Vazquez Thesis: Cognitive Appraisal Interventions for Buffering the Emotional Effects of Isolation September 2017 • M.Sc. in Computer Science · Long Island University Advisors: Dr. Mohammed Ghriga and Dr. Ping-Tsai Chung - May 2018 Theses: An Adaptive & Integrative Knowledge Base Expert Suite for the Screening of Intellectual Disabilities; The Relationship Between Handwriting & Reading in Autism **B.Sc. Honors in Computer Science** · Long Island University September 2017

Advisor: Dr. Christopher League

# **Experience**

August 2022 • - current **Executive Director** · The MIA Foundation · <u>miaoutreach.com</u>
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
MSRE/MS in Urban Development at Brooklyn School of Business, Public Administration,
& Information Sciences · Designed the curriculum for the first graduate real-estate
program in Brooklyn and Long Island

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 LIU Brooklyn & U.S. Department of Education Early College Initiative (ECI)

June 2016 • – July 2019

• **Software Developer & Programming Lead** · Legal Tech & Information Governance Division · Consolidated Edison Company of New York

### Compliance Tracking Systems

Programming lead for RSA Archer GRC Solution, Data Manager, and feed parser systems for cradle-to-grave tracking of change management, operational risk, and compliance items

### Governance, Risk, and Compliance Solution

Advising on and consolidating workflows of compliance procedures and functional requirements for 64+ departments on the regulatory entities of the industry

### Data Management Tools

Engineered intelligent web-scrapers and cross-file translators that expedited data

population efforts by 85%

### Software Risk Prediction

Principal researcher for a software risk prediction method for enterprise management applications based on security metrics and the case-studies of various project management approaches (Agile, Rational Unified Process, PRINCE2, ISO/1EC15504's SPICE and Extreme Project Management) · Advisor: Dr. Anandi Singh, Ph.D.

July 2017 • – July 2019

Software Developer & Administrator · Business Ethics & Compliance · Consolidated Edison Company of New York

### **Business Conduct Systems**

Responsible for the configuration, and reliable operation of standards of business (SBC) conduct training systems and the Conflict-Of-Interest tracking system

### **Process Automation and Testing**

Yale University · CPSC 575 and CPSC 475

Technology · STEP Program

Engineered software robots for process automation and software testing, sentiment analysis and opinion mining plugins for non-programmer's use through the MS Office Suite, and text-identification tools for training assessments

# **Teaching**

Fall 2020 •

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Spring 2025	•	Al For Future Presidents, section instructor · Yale University · CPSC 170
Spring 2024	•	Al For Future Presidents, section instructor · Yale University · CPSC 170
Fall 2023	•	Intelligent Robotics, teaching fellow with Dr. Brian Scassellati · Yale University · CPSC 472 and CPSC 572
Spring 2023	•	Artificial Intelligence, teaching fellow with Dr. Tesca Fitzgerald · Yale University · CPSC 370 and CPSC 570
Summer 2023	•	Social Robotics, co-instructed with Dr. Michael Faison · Yale College · <u>yspa.yale.edu</u>
Spring 2021	•	Introduction to Human-Computer Interaction, teaching fellow with Dr. Marynel Vazquez ·Yale University · CPSC 584 and CPSC 484
Fall 2020	•	<b>Algorithmic and Heuristic Composition</b> , teaching fellow with Dr. Scott Petersen · Yale University · CPSC 531 and CPSC 431
Fall 2020	•	Computational Vision & Biological Perception, teaching fellow with Dr. Steven Zucker

Principles of Programming for Robotics · Vaughn College of Aeronautics and

Summer 2020 •	Advanced Robotics · Vaughn College of Aeronautics and Technology · STEP Program
Summer 2020 •	Advanced Robotics Lab · Vaughn College of Aeronautics and Technology · STEP Program
Spring 2019 •	Business Information Systems · Long Island University · BUS 110
Spring 2019 •	Programming in C++ Early Scholars · CS 102 ECI
Spring 2019 •	Advanced Topics in Programming · CS 117
Fall 2018 •	Programming in C++ · CS 102
Fall 2018 •	Fundamentals of Computer Science Early Scholars · Long Island University · CS 101 ECI
Fall 2018 •	Fundamentals of Computer Science, co-instructed with Dr. Christopher League · Long Island University · CS 101

Summer Honors Institute Coding Academy · Long Island University · CS-S

## **Awards and Grants**

### 2022 • SACNAS National Diversity in STEM Conference Grant

The largest multidisciplinary and multicultural STEM diversity event in the United States, the SACNAS conference is a gathering which serves to equip, empower, and energize participants for their academic and professional paths in STEM  $\cdot$  San Juan, Puerto Rico  $\cdot$  Oct. 27 – Oct. 29, 2022. <u>https://www.sacnas.org/conference</u>

- 2022 Best Paper Honorable Mention · ACM/IEEE HRI Conference
  - [C4] A Social Robot for Improving Interruptions Tolerance and Employability in Adults with ASD.
- 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  $\cdot$  Virtual  $\cdot$  May 26 – May 30, 2021. <u>https://ghc.anitab.org/</u>

- 2021 Best Paper Honorable Mention · ACM/IEEE HRI Conference
  - [C3] Challenges deploying robots during a pandemic: An effort to fight social isolation among children
- 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
- 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  $\cdot$  Virtual  $\cdot$  April 14 - 20, 2021.

https://women.acm.org/scholarships/

### 2020 - 2025 • National Science Foundation 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 <a href="https://www.nsfgrfp.org/">https://www.nsfgrfp.org/</a>

# • National Academies of Sciences, Engineering, and Medicine's 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 <a href="https://sites.nationalacademies.org/PGA/FordFellowships/PGA\_047958">https://sites.nationalacademies.org/PGA/FordFellowships/PGA\_047958</a>

- Anita Borg Institute Grace Hopper Celebration Scholarship
  Orlando, Florida, USA · Sept. 29 Oct. 2, 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  $\cdot$  Virtual  $\cdot$  July 20 - 23, 2020.

https://www.microsoft.com/en-us/research/event/frontiers-in-machine-learning-2020/

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

2018 • Best Paper · IEEE Regional Conference

[C2] An adaptive & integrative knowledge base expert suit for the screening of intellectual disabilities

# **Publications**

#### Peer-reviewed Journal Publications

- Matheus, K., Ramnauth, R., Scassellati, B., & Salomons, N. (2025). Long-Term Interactions with Social Robots: Trends, Insights, and Recommendations. Accepted for publication in the ACM Transactions on Human-Robot Interactions (THRI).
- 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.

Adéníran, E.\*, **Ramnauth, R.\***, Salomons, N., Georgiou, N., & Scassellati, B. (2023, April). Improving tolerance to interruptions through training. Pending review in the *Proceedings of the National Academy of Sciences*.

### **Peer-reviewed Conference Publications**

- 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).
- 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)*
- C9 Ramnauth, R., Brščić, D., & Scassellati, B. (2025). A Robot-Assisted Approach to Small Talk Training for Adults with Autism Spectrum Disorder (ASD). In submission to the 2025 *Robotics: Science and Systems.*
- 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).
- 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).
- 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.
- 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).
- 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).

- 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.
- 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**

- August 2024 Research Presentation · International Conference on Robot and Human Interactive Communication (ROMAN '24) · Should I Help?: A Skill-Based Framework for Deciding Socially Appropriate Assistance in Human-Robot Interactions
- March 2024 Keynote · Department of Education Tech Summit · Social Al as Tools for Understanding

  People · https://www.nycschoolstechsummit.com/2024/speaker/1117931/rebecca-ramnauth
- November 2023,
  February 2024,
  December 2024

  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
    - March 2022 Research Presentation · ACM/IEEE International Conference on Human-Robot Interaction (HRI '22) · A Social Robot for Improving Interruptions Tolerance and Employability in Adults with ASD
  - 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
March 2021	•	Research Presentation · ACM/IEEE International Conference on Human-Robot Interaction (HRI '21) · Challenges Deploying Robots During a Pandemic: An Effort to Fight Social Isolation Among Children
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	•	Research Presentation · IEEE Region 1 Conference · <i>The Relationship Between Handwriting &amp; Reading in Autism</i>
March 2018	•	Research Presentation · IEEE Region 1 Conference · An Adaptive & Integrative Knowledge Base Expert Suite for the Screening of Intellectual Disabilities
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 &
December 2017	•	Improvements to the Software Development Life Cycle 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 – <i>current</i> •	Journal of Autism and Developmental Disorders (JA	(DD)
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2019 – *current* • Autism

2021 – *current* • Frontiers Robotics and Al

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

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 Robotic	s Research	Internship	Program ·	Yale University
2020 2020	0150111201		5 1 (05001 011	micomp		Tate Office

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
2014 – 2017	•	Mentor · Mechanical Engineering and Programming · FIRST Robotics
2015 – 2017	•	Counselor · Special Educational Needs Guidance Dept. · Brooklyn Technical High School

## Mentoring

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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**

