

# Rachel Ma

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## EDUCATION

### Massachusetts Institute of Technology

Sept 2023 - Present

#### *S.M and Ph.D. in Electrical Engineering and Computer Science*

- Research: Intersection of Robotics and Natural Language Processing for Human Robot Interaction + Alignment.
- Relevant Coursework: Robotic Manipulation
- Activities: Graduate Women in Course 6 (GW6) Co-President

### Brown University

Sept 2019 - May 2023

#### *B.Sc in Computer Science (Honors), A.B in Music (Honors)*

- Honors Theses: “*Skill Generalization With Verbs*” (CS), “*Odyssey*” (Music)
- Relevant Coursework: Artificial Intelligence, Intro to Comp. Systems, Computer Vision, Collaborative Robotics, Theory of Computation, Software Security Exploitation, User Interface & Experience, Deep Learning, Discrete Struc. & Probability, Linear Algebra, Statistics, Multivariable Calculus
- Activities: U/H/M Teaching Assistant, Alpha Chi Omega, Chamber Music, Meiklejohn Peer Advisor

### University of Toronto Schools

Sept 2013 - June 2019

#### *Middle and High School Diplomas*

- Activities: DECA, CAYPT, Junior + Senior Math Clubs, Twig Tape, Dance Committee, Varsity Badminton, Music Ensembles

## RESEARCH PUBLICATIONS

**Generalizable Skills With Verbs:** R. Ma , L. Lam, B.A. Spiegel, A. Ganeshan, B. Abbatematteo, R. Patel, D. Paulius, S. Tellex, G. Konidaris, in the International Conference for Intelligent Robots and Systems (IROS) 2023.

## RESEARCH EXPERIENCES

### Graduate Researcher — *Algorithmic Alignment Group*

Sept 2023 - Present

- Supervisor: Dylan Hadfield-Menell
- Research: Intersection of Robotics and Natural Language Processing for Human Robot Interaction + Alignment.

### Robotics and NLP Researcher — *Intelligent Robot Lab, Humans To Robots Lab*

Jan 2022 - Aug 2023

- Supervisors: George Konidaris and Stefanie Tellex
- Led research in robotics and natural language processing through transferring skills (robot manipulation) across different objects from ideation to submitted paper (first author).

### Choreo-Robotics Researcher — *Humans To Robots Lab*

Jan 2021 - Dec 2021

- Supervisors: Stefanie Tellex
- Led beat detection project to develop reactive dancing robots, worked with Spot and Baxter robots
- Helped with grant writing and designing curriculum for *Choreorobotics 101*.

### Drone and STEM Education Research — *Humans To Robots Lab*

March 2020 - Dec 2021

- Robotics Research Assistant, Project Manager, Communications Lead; Supervisors: Stefanie Tellex
- Led meetings, developed curriculum, organized training and outreach, and led tech support for high schools.
- Research with autonomous drones and systems: build drones, used ROS, localization and PID control

## Teaching/Peer Mentoring Experiences

### Meta Teaching Assistant — *Brown University, Computer Science Dpt.*

Oct 2021 - May 2023

- One of two MTAs who coordinated the CS TA program, managed and led 60 HTAs and 400 UTAs each semester
- Communicated between undergrads, technical staff, and CS faculty and represented the CS department at Brown events.

### Head Teaching Assistant — *Brown University, Computer Science Dpt.*

- Introduction to Discrete Math and Probability Structures (CS0220) Spring 2022
- Artificial Intelligence (CS1410) Fall 2021
- Administrative duties, course development, auto-grader scripts, trained and led class UTAs, UTA duties

### Undergraduate Teaching Assistant — *Brown University, Computer Science Dpt.*

- Cybersecurity and International Relations (CS1800) Spring 2021
- Computing Foundations: Data (CS0111) Fall 2020
- Held TA hours for students, assignment development, led lab sections and discussions, graded assignments and projects.

### Undergraduate Lab Teaching Assistant — *Brown University, Music Dpt.*

- Keyboard lab TA for all intro music theory classes (MUSC400A, MUSC400B, MUSC550) Fall 2021

### Meiklejohn Peer Advisor — *Brown University*

Sept 2020 - May 2022

- Peer advisor to 1st years interesting in Computer Science or Engineering

## AWARDS

MIT Presidential Fellowship	Sept 2023
Norman K. Meyrowitz Award	May 2023, Brown CS Department
MH. Mann Premium Award	May 2023, Brown Music Department
Honorable Mention for Computing Research Association (CRA)	
Outstanding Undergraduate Researcher Award	Dec 2022
Molly and David Wadhvani Foundation Meta UTAship in honor of Andy van Dam	Fall 2022, Brown CS department
Norm Meyrowitz '81 Meta-TAship in honor of Ugur Cetintemel	Spring 2022, Brown CS department
Margery MacColl Award	2021, Brown Music department
Karen T. Romer Undergraduate Teaching and Research Awards (UTRA)	Summer 2021, Brown University
Karen T. Romer Undergraduate Teaching and Research Awards (UTRA)	Summer 2020, Brown University
Lum Family Scholarship	2019, UTS
The John and Margaret Withrow Music Scholarship - Twig CD	2019, UTS
Dr. Michael D. Kolin Memorial Award	2018, UTS
The John and Margaret Withrow Music Scholarship	2017, UTS

## OTHER EXPERIENCES/HOBBIES

### Graduate Women in Course 6 (GW6) — *Co-President, MIT*

Dec 2023 - Present

### Alpha Chi Omega — *Various chair positions, Brown University*

Feb 2021 - May 2023

### Piano

2006 - Present

- Licentiate Diploma (LRM), Associate Diploma (ARTCT) in Piano Performance from the Royal Conservatory of Music (RCM) 2019, 2016
- Active as a piano soloist, chamber musician (duos and piano trio), accompaniment, large ensemble work
- Recordings from performances at Brown: <https://youtu.be/LjCFzkgYXkY> , <https://youtu.be/wTzGq1DfR9I>, <https://youtu.be/lqPQboKMYNI?t=4066>

### Composition

2014 - Present

- Composed and recorded pieces for a variety of music ensembles (duos, quintet, wind orchestra, symphony).