

# RACHEL MA

Email: [rachelm8@mit.edu](mailto:rachelm8@mit.edu)

(+1) 401-499-8846 • <https://rachelma80000.github.io/>

## EDUCATION

**MAY 2023**

**BACHELOR OF SCIENCE WITH HONORS**, BROWN UNIVERSITY, USA

Double major in ScB in Computer Science with Honors (AI and Security Pathways) and AB. in Music with Honors.

**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

**Programming Skills**: Python, Tensorflow, Bash, Robot Operating System (ROS), C, Java, LaTeX, CSS, HTML

## RESEARCH PUBLICATIONS

<sup>1</sup> indicates first author.

**R. Ma<sup>1</sup>**, L. Lam, B.A. Spiegel, A. Ganeshan, B. Abbatematteo, R. Patel, D. Paulius, S. Tellex, G. Konidaris, “**Generalizable Skills With Verbs**” in *International Conference for Intelligent Robots and Systems (IROS) 2023, Accepted*.

## RESEARCH EXPERIENCES

**JANUARY 2022 – PRESENT**

**ROBOTICS AND NLP RESEARCHER**, BROWN UNIVERSITY

Robotics researcher, project leader, advisors: George Konidaris and Stefanie Tellex

Leading research in robotics and natural language processing through transferring skills (robot manipulation) across different objects from ideation to submitted paper (first author).

**JANUARY 2021 – DECEMBER 2021**

**CHOREO-ROBOTICS RESEARCH**, BROWN UNIVERSITY

Robotics research assistant, beat detection team leader, advisor: Stefanie Tellex

Worked on projects to develop reactive dancing robots. Experimented with two robots: Spot with grasping objects and Baxter with dancing the Macarena moves to different songs. Led a beat detection project using deep learning methods. Helped with grant writing and designing curriculum for the Choreo-robotics course offered at Brown.

**MARCH 2020 – DECEMBER 2021**

**DRONE AND STEM EDUCATION RESEARCH**, BROWN UNIVERSITY

Robotics Research Assistant, Project Manager, Communications lead. Advisor: Stefanie Tellex

Communicated with professors and team members; delegated tasks; led meetings, developed curriculum; led training, outreach, and tech support to high school teachers and students. Research with autonomous drones/systems: built drones from parts, utilized ROS, implemented localization and PID control.

## RELATED EXPERIENCES

**OCTOBER 2021 – MAY 2023**

**COMPUTER SCIENCE META TEACHING ASSISTANT (MTA),** BROWN UNIVERSITY

One of two MTAs coordinating the CS TA program, managing, and leading approximately 60 HTAs and 400 UTAs each semester, and communicating between undergrads, technical staff, and CS faculty. Also represents the CS department at Brown events.

**SEPTEMBER 2020 – MAY 2022**

**COMPUTER SCIENCE UNDERGRAD TA (UTA) AND HEAD TA (HTA),** BROWN UNIVERSITY

HTA: AI (CS1410) in Fall 2021, Intro to Discrete Math and Probability Structures (CS0220) in Spring 2022.

UTA: Computing Foundations: Data (CS0111) in Fall 2020, Cybersecurity and International Relations (CS1800) in Spring 2021.

UTA: Held TA hours for students, assignment development, led lab sections and discussions, graded assignments and projects. HTA: worked with professors on homework and course development, administrative duties, made changes to auto-grader scripts, trained and lead TAs for the class.

**SEPTEMBER 2020 – MAY 2022**

**MEIKLEJOHN PEER ADVISOR,** BROWN UNIVERSITY

Peer advisor to first year students at Brown university interested in Computer Science or Engineering.

**SEPTEMBER 2021 – DECEMBER 2021**

**MUSIC KEYBOARD LAB UNDERGRAD TA (UTA),** BROWN UNIVERSITY

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

Held private TA sessions one on one with students to teach them keyboard and music lab exercises and techniques including sight reading, clef reading, scales/arpeggios/chords, learning short piano pieces, ear training, sight singing, and harmonization.

**FEBRUARY 2021 – MARCH 2021**

**CYBER 9/12 SECURITY AND POLICY COMPETITION**

Represented Brown University in a 10 minute presentation and a paper for a case study.

## ACTIVITIES

**SEPTEMBER 2020 – DECEMBER 2022**

**BROWN INNOVATION FOR HEALTH,** BROWN UNIVERSITY

Organizing committee for the Brown Hatch Health incubator for Brown students.

**FEBRUARY 2021 – MAY 2023**

**ALPHA CHI OMEGA,** ZETA THETA CHAPTER AT BROWN UNIVERSITY

COB chair, Intellectual Development Resource Chair, Day chair, and member

Member of the Zeta Theta Chapter of the AXO sorority. In charge of organizing recruitment and events for those interested in joining the chapter and providing academic resources to members.

**PIANIST**

Soloist, Chamber Musician, Accompanist

Achieved distinction for grade 10 piano and received two piano performance diplomas (ARCT and LRCM) as a piano soloist, musician playing in piano trios and duets, also involved with accompaniment and larger ensemble work. Recordings from performances at Brown: <https://youtu.be/LjCFzkgYXkY> and <https://youtu.be/wTzGq1DfR9I> and <https://youtu.be/IgPQboKMYNI?t=4066>

## **2014– PRESENT**

### **COMPOSER**

Composed and recorded pieces for a variety of music ensembles including multiple piano and violin duets, piano quintet, 4 hands piano, and a piece for a project with the Scarborough Philharmonic Wind Orchestra. Also took Composition seminar and Orchestration seminar classes at Brown. Currently working on composing an orchestral piece.

## **AWARDS**

**Norman K. Meyrowitz Award** (May 2023, Brown CS Department): graduating senior for outstanding service to the department.

**MH. Mann Premium Award** (May 2023, Brown Music Department): female student excelling in music and music appreciation.

**Honorable Mention for Computing Research Association (CRA) Outstanding Undergraduate Researcher Award** (Nominated to CRA in Fall 2022 by Brown CS faculty, awarded Honorable Mention in Dec 2022): recognizes undergraduate students in North American colleges/universities who show outstanding research potential in an area of computing research.

**Molly and David Wadhwani Foundation Meta UTAship in honor of Andy van Dam** (Fall 2022, Brown CS department): for MTA duties.

**Norm Meyrowitz '81 Meta-TAship in honor of Ugur Cetintemel** (Spring 2022, Brown CS department): for MTA duties.

**Margery MacColl Award** (2021, Brown Music department): Awarded to a freshman or sophomore who show exceptional promise as a potential concentrator.

**Karen T. Romer Undergraduate Teaching and Research Awards UTRA** (awarded twice: Summer 2021, Summer 2020, Brown University): for research in the DuckieSky and Choreorobotics research projects respectively.