

Kayleigh “Kaleb” Bishop

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RESEARCH INTERESTS

I am interested in researching embodied computational models of human behavior, especially perceptual, linguistic, and social skills. Using knowledge of how humans perceive and operate on the world and the social beings around them can inform the creation of more intelligent, adaptive, and communicative systems. I am particularly interested in the potential application of these skills in the creation of socially assistive robotics. My other interests include human-robot interaction, natural language processing, artificial intelligence, and social learning across cultures.

EDUCATION

University of Colorado at Boulder Ph.D. in Computer Science, Advisors: Bradley Hayes & Alessandro Roncone	Boulder, CO 2020–Current
Yale University B.S. in Cognitive Science, GPA: 3.92/4.00 <ul style="list-style-type: none">– Concentration: Mind and Computation– Thesis: “Towards Flexible Referring Expression Generation for a Collaborative Robot”– Advisor: Brian Scassellati	New Haven, CT 2016–2020

RESEARCH POSITIONS

University of Colorado at Boulder Graduate Research Assistant Human Interaction & Robotics Group <i>and</i> Collaborative AI and Robotics Lab	Boulder, CO Fall 2020—Current
Yale University Undergraduate Research Assistant Yale Social Robotics Lab	New Haven, CT Fall 2017—Spring 2020

MENTORSHIP & TEACHING

• Senior Advising Fellow at Matriculate <i>Non-profit college advising for low-income high school students</i>	2018—Current
• First-year Counselor at Yale University <i>Academic and residential advisor to first-year students</i>	2019—2020
• Yale Summer Session Counselor at Yale University <i>Residential advisor to high school students in summer course program</i>	Summer 2019
• Computer Science Tutor at Yale University <i>Artificial Intelligence (CPSC470) and Data Structures & Programming Techniques (CPSC223)</i>	2018—2019
• ONEXYS Mathematics Leader at Yale University <i>Teaching college math fundamentals for incoming Yale students from low-income backgrounds</i>	Summer 2017

SKILLS

- **Programming:** Python, C/C++, Java, Lisp
- **ML & CV libraries:** PyTorch, Tensorflow, SciPy, OpenCV, Panda
- **Robotics misc.:** ROS, Webots, PyBullet, Flask

LANGUAGES

- **Spanish:** Advanced I
- **Korean:** Intermediate II

PROJECTS

- **Grounded Natural Language for Collaborative Robotics; Undergraduate thesis project, 2019-2020.** Social and communicative barriers between humans and robots limit human-robot collaboration from reaching the fluency and intuitiveness of human-human interactions. I helped to address this limitation by creating a cognitively-inspired semantic grounding model for language generation, based largely on recent work in psychophysics and psycholinguistics. I collected a corpus of original referring expression data from human participants and analyzed it to ensure the model was based on sound and consistent principles of human speech. This model allowed the robot to dynamically generate natural and informative requests for tools and other task-relevant objects from a human partner.
- **Lights! Camera! Action! Learning a Lighting Policy for Robot Photography; CPSC490 Building Interactive Machines, Fall 2020.** I collaborated with two other undergraduates to design an autonomous lighting adjustment system for a robot photographer. The system utilizes deep reinforcement learning to learn how to adjust studio lighting for portrait-taking based on the environment, camera pose, and subject pose.
- **Network controller for the Baxter robot; Yale Social Robotics Lab, Spring 2019.** Our lab worked in collaboration with a New York-based research laboratory on a novel cognitive architecture. My primary contribution was the creation of a Flask-based controller that allowed our local robot to receive data and instructions from our partner lab's remote server and translate them to environment models and joint commands for our local Baxter robot.
- **Exploring robots as team-builders; Yale Social Robotics Lab, Fall 2018.** I led data extraction and analysis for the preliminary phase of a mentor's project exploring the role of social robots as boosting team cohesion and psychological safety. I also assisted in planning the next round of trials, including adjusting the algorithmic approaches of the autonomous system.

SCHOLARSHIPS AND AWARDS

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| • Chancellor's Fellowship, University of Colorado at Boulder | 2020–2021 |
| • Magna Cum Laude, Yale University | 2020 |
| • Honors in Cognitive Science, Yale University | 2020 |
| • Richard U. Light Fellowship, Yale University | 2018 |
| • Nathan Hale Scholarship, Yale University | 2016–2017 |