

Curriculum Vitae

Kayleigh 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

Bachelor of Science, Cognitive Science May 2020
Yale University

Senior Thesis: *Modeling human perception and communication for referring expression generation (REG)*, adviser Brian Scassellati

Relevant coursework: Artificial Intelligence, Intelligent Robotics, Building Interactive Machines, Natural Language Processing, Cognitive Science of Language, Philosophy of Language, Semantics

Honors: Psi Chi society electee, 2018 Light Fellowship recipient

RESEARCH EXPERIENCE

Research Assistant, Yale Department of Computer Science September 2017-present

I have been an Undergraduate Research Assistant in the [Yale Social Robotics Lab](#) under Dr. Brian Scassellati for over 2 years. I have worked on a variety of projects during my time in the lab and gained valuable experience with both computer science and research process. I spent my first year in the lab learning the ropes and contributing where possible to various graduate student projects. Since then, I have been able to contribute more meaningfully to several more recent projects.

- *Data analysis for teamwork HRI project* (Fall 2018)

This past year, I collaborated on a human-robot collaboration project led by a graduate student for which I helped with data annotation and wrote data analysis software. This data was used to inform changes to a second version of the project.

- *Web client controller for Baxter Robot* (Spring 2019)

I collaborated on a project for which I wrote a controller API for a Baxter robot which could receive commands remotely via HTTPS and execute them to the robot.

- [Modeling human perception and communication for referring expression generation \(REG\)](#) (Summer – Fall 2019) (project lead)

This past summer and current academic year, I am doing an original senior thesis project in Cognitive Science. My project involves the design and implementation of a contextual referring expression generation system - an integrated, embodied system which can perceive objects in a shared environment and learn to use appropriate levels of detail to describe them to a human partner. The goal of this project is to produce a system that can, in a limited application domain, consider the perceptual and communicative capabilities of a human partner.

This topic fascinates me because it combines the classical computational problem in natural language processing of referring expression generation with concepts from philosophy of language and linguistics - the ways that we consider the viewpoint of listeners to accomplish communicative goals.

Other Projects

- [Lights! Camera! Action! Learning a Lighting Policy for Robot Photography](#) (Fall 2019)

I am currently collaborating on a project 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.

POSTER PRESENTATIONS

[“Learning to Generate Referring Expressions for Human-Robot Collaboration,”](#) Yale Undergraduate Research Symposium, Fall 2019.

SKILLS

Technical:

- Python (primary), C/C++, Scheme
- ROS
- OpenCV
- TensorFlow, ScikitLearn
- RESTful interfaces
- Statistics & data analysis

Other

- Human subject research

Yale University Activities

Aug. 2019-present First-Year Counselor, Timothy Dwight College

Oct. 2018-present College Advising Fellow, [Matriculate](#)

Summer 2019 Counselor, Yale Summer Session

Spring 2019 Tutor, Computer Science (Artificial Intelligence and Data Structures)

Summer 2017 Math and Science mentor, [Online Experiences for Yale Scholars](#) (ONEXYS)