

Crista Falk

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(208) 446-6696

EDUCATION

- **Tufts Graduate School of Arts and Sciences**, Medford, MA
Doctorate of Philosophy in Psychology/Cognitive Science Ongoing
- **Massachusetts Institute of Technology**, Cambridge, MA
Bachelor of Science, Computation and Cognition (GPA 4.8) June 2023

HONORS

- Tufts Graduate Student Research Competition Award Recipient (Fall 2023)
- MIT Walle Nauta Award for Excellence in Undergraduate Teaching (2023)
- MIT STEMVAULT Video Competition Finalist (2023)
- MIT Brain and Cognitive Sciences Department Undergraduate Research Award (2022)
- MIT Burchard Scholars Program (2022)
- Questbridge Scholars Program (2019)

RESEARCH EXPERIENCE

Multisensory Perception Lab - Tufts University Psychology Department

Graduate Research Assistant, Fall 2023-Current

Advisor: Stephanie Badde

Machine Learning Project Group - KIT ETP

International Research Student, Summer 2022

Advisors: Lars Sowa, Roger Wolf

- Global learning opportunity through the MISTI Germany program.
- Project centered around analyzing what occurs behind the scenes of a neural network.
- Through methods such as Taylor Coefficient Analysis, I trained and investigated a discrimination model for interneurons and pyramidal neurons based on the firing rate behavior of cells in behaving rats.

Seethapathi Motor Control Lab - MIT BCS

Undergraduate Research Assistant, January 2022 - May 2023

Advisor: Nidhi Seethapathi

- Using prior collected data from an existing infant study [1], my project sought to recontextualize infant locomotive behavior in terms of continuous trajectory rather than purely area explored.
- Tested the efficiency of using Deep Lab Cut for future infant locomotion experiments.
- Simulated a model of Optimal Foraging Theory to generate a descriptive model of infant exploration.
- The ultimate goal is to determine whether such a model might reveal a reward-based objective function and elucidate new understanding about why babies explore.

[1] Hoch, J. E., O'Grady, S. M., & Adolph, K. E. (2019). It's the journey, not the destination: Locomotor exploration in infants.

Human-Computer Interaction - MIT CSAIL

Undergraduate Research Assistant, October - December 2021

Advisor: Rob Miller

- Praxis project explored ways to use software for measurement, analysis, and visualization of skill-building in a variety of domains of human activity, particularly domains that have no tradition of practicing, or where human coaches are scarce or nonexistent.
- Aided in the development of this project in the domain of musicianship (oboe)
- Drew upon my past experience and formalized a concept for software that enables independent, unguided instrument skill development.
- Leveraged my technical skills in software engineering, machine learning, and web programming to produce an implementation plan and collected many audio recordings of my own practice to allow for a future prototyped version of this tool.

LEADERSHIP

MIT Office of Experiential Learning (OEL)

Experiential Learning Ambassador, May 2022 - June 2023

- Planned and ran events to help students learn about opportunities on campus for research, study abroad, public service, entrepreneurship, and project development.
- Promoted experiential learning opportunities (ELOs) and resources such as the experiential learning exchange (ELx) website through social media, emails, and publicizing on campus.
- Hosted office hours to meet with students, review their applications and resumes, and provide resources to help them prepare for interviews and future ELOs.
- Acted as a student voice for upcoming Office of Experiential Learning initiatives.
- Suggested idea for subsidized coffee chats initiatives to facilitate student mentorship.

First-generation and/or Low Income (FLI) @ MIT

Publicity Officer, September 2020 - May 2021

Executive Director, September 2021- June 2023

- Responsible for overseeing the wide-scale operations of FLI@MIT, advocating on behalf of FLI identities on campus, and working to improve FLI visibility and support at MIT.
- Frequently interfaced with MIT Office of the First Year and First Generation Program to meet the needs of first generation and/or low-income students on campus (organizing social events, professional development workshops, alumni talks, and other forms of outreach).
- Led weekly executive meetings and delegate responsibilities among FLI@MIT committee leaders to carry out our initiatives.

TEACHING

PSY 027 Perception

Graduate TA, Fall 2023 | Tufts University

- Attended lectures and moderate zoom discussions for students joining class virtually.
- Acted as a resource for professor and students.
- Ran weekly office hours

Machine Learning Academy: Coding Deep Neural Networks

Instructor, Summer 2023 | iDTech Academy MIT Campus

- Acted as an instructor for six, two-week sessions covering topics such as dense NNs, CNNs, Recurrent NNs, and more.
- Taught 7 hour daily lessons to classes of ~10 students ages 14-18.
- Advised on self-guided final projects which applied concepts from the course to students' interests.
- Supervised overnight campers during non-class hours and field trips around the Boston area.

9.00 Introduction to Psychological Science

Course TA, Spring 2022 | MIT

- Introduced students to topics in psychology: including memory, intelligence, development, mental health, social psychology, and many more.
- Ran a weekly recitation session to cover concepts from lecture and textbook readings
- Other responsibilities included: formulating quiz questions, providing feedback on students' essays, grading assignments, preparing slides to review materials, overseeing office hours, and meeting with the other TAs to coordinate course logistics.

TECHNICAL SKILLS

Languages and Technologies: Python (Numpy, Pytorch, Matplotlib, PsychoPy), Matlab, R, Java, Arduino/C++, Javascript, React, HTML/CSS, Git and GitHub, Google Colab/Jupyter, MaxMSP, Music21

LANGUAGES

- English (fluent, native)
- German (rudimentary)