

Alyssa Unell

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EDUCATION

Massachusetts Institute of Technology (MIT) | Cambridge, MA

Exp. May 2023

Candidate for B.S. in Computation and Cognition; GPA: 4.9/5.0

- **Relevant Coursework:** Machine Learning, Artificial Intelligence, Linear Algebra, Introduction to Software Engineering, Introduction to Algorithms, Probability and Random Variables, Computer Vision, Computational Cognitive Science

RESEARCH & WORK EXPERIENCE

Intel – Architecture and Graphics Software Department | Hillsboro, OR

Jun 2021 - Aug 2021

Machine Learning Intern

- Analyzed Intel distribution of Pandas library through implementation of a recommender system containing 200 million data points, identifying six bugs, and confirming 100x delay of Intel Distribution compared to stock Pandas
- Utilized numerous visualization tools to provide feedback for the proposed Intel profiler UI
- Presented technical concepts to an interdisciplinary audience and was selected to present at the Intern Showcase

MIT Department of Brain and Cognitive Sciences – Sinha Lab | Cambridge, MA

Undergraduate Researcher, Biologically Inspired Noise

Sep 2020 - Present

- Examined effects of biologically inspired noise in neural networks to identify its role in infant visual development
- Trained networks using Keras in TensorFlow and assessed impact of training regimes on robustness to noise in testing
- Determined that biologically inspired training can improve network performance by an average of 15%

Undergraduate Researcher, Facial Recognition Robustness

Jun 2020-May 2021

- Compared effects of image degradations on high-performing facial recognition networks classifications to the effect of the degradations in human ability to recognize faces
- Performed clustering analysis on image classifications to assess networks' accuracy of numeric facial encodings
- Utilized virtual machines as well as GPUs for increased computational capacity

Undergraduate Researcher, Visuomotor Feedback

Jan 2020-May 2020

- Executed pre-post study with 10,000 samples to identify effects of training on visual feedback and fine motor control
- Developed quantitative image comparison method to analyze images and ensure accurate tracing usability

Translational Genomics Research Institute – Bioinformatics | Phoenix, AZ

Jun 2020 - Aug 2020

Summer Intern

- Created scalable R-Shiny application with user-friendly interface to allow researchers to visualize and analyze gene expression in various biofluids

PUBLICATIONS AND POSTERS

Unell, A., Eisenstat, Z.M., Braun, A. et al. Influence of visual feedback persistence on visuo-motor skill improvement. *Sci Rep* **11**, 17347 (2021).

Musser, A., Verma, A., **Unell, A.**, Keane, K. et al. Transformation Tolerance of Machine-Based Face Recognition Systems. ICLR Generalization Beyond the Training Distribution in Brains and Machines Workshop Poster Presentation 2021.

LEADERSHIP

MIT CodeIt

Jan 2020 - Present

Mentor Coordinator

- Organized virtual mentor recruitment and supervised club operating logistics to promote computer science engagement for middle school girls and non-binary students

MIT Women's Varsity Volleyball

Aug 2019 – Present

Captain

- Participated on the MIT women's varsity volleyball team, selected 2022 AVCA All-Region Team
- Leads team by mentoring undergraduate members and organizing logistics of practices, tournaments, and workouts

Learning Assistant

Feb 2021 – May 2021

Introduction to Machine Learning

- Demonstrated mastery of course content by assisting students with assignments and overall conceptual problems

SKILLS & AWARDS

Skills/Languages: Python, PyTorch, Java, WebPPL, Git, TensorFlow, Machine Learning, OpenCV, R, Linux, Pandas, Spanish

Awards: MIT Brain and Cognitive Science Research Award, Undergraduate Academic Award