Alyssa Unell

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EDUCATION

Massachusetts Institute of Technology (MIT) | Cambridge, MA
Candidate for B.S. in Computation and Cognition; GPA: 4.9/5.0 *Exp. May 2023*
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

EPFL Excellence Research Internship Program | Lausanne, Switzerland *May 2022 – Aug 2022*
Software Engineer Intern

- Designed an algorithm to ensure secure data sharing for sensitive information in decentralized machine learning
- Introduced software developments to a novel open-source platform which allows accessible federated and decentralized learning in a secure environment
- Developed unique tests to improve the quality of the existing code within the open-source code base

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 – May 2022*

- 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 artificial and biological neural networks to examine impact of image degradations on classification robustness
- 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

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*
Middle School Mentor Coordinator

- Coordinated mentor recruitment and operating logistics to promote STEM engagement for girls and non-binary students

MIT Women's Varsity Volleyball *Aug 2019 – Present*
Captain, 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: Python, PyTorch, JavaScript, TypeScript, Git, TensorFlow, Machine Learning, OpenCV, R, Linux, Pandas, Spanish
Awards: MIT Brain and Cognitive Science Research Award, Undergraduate Academic Award, Glushko Prize for Outstanding Undergraduate Research in Cognitive Science, EPFL Excellence Scholarship