

Ariel N. Lee

@ ariellee@bu.edu |  LinkedIn |  GitHub |  Portfolio |  Boston, MA

EDUCATION

M.Sc., Boston University (BU)

Boston, MA

Electrical & Computer Engineering, Subconcentration: Data Analytics; GPA: 3.71

Sep 2020 – Jun 2023

Activities: Out in STEM; Graduate Women in Science & Engineering

Relevant Coursework: Machine Learning (CS 549), Deep Learning (CS 523), AI (CS 640), Computer Vision (CS 585), Advanced Algorithms (EC 504), Opt. Theory & Methods (EC 524), Opt. for ML (EC 525)

B.Sc., University of California, Los Angeles (UCLA)

Los Angeles, CA

Microbiology, Immunology, & Molecular Genetics (MIMG); GPA: 3.45

Sep 2011 – Jun 2015

PUBLICATIONS & COMPETITIONS

[Paper, Arxiv 2023] - Under Submission

Ariel N. Lee, Sarah Adel Bargal, Janavi Kasera, Stan Sclaroff, Kate Saenko, Nataniel Ruiz. "Hardwiring ViT Patch Selectivity into CNNs using Patch Mixing" *arXiv preprint arXiv:2306.17848 (2023)*

[Competition, META AI 2023]

Meta AI Video Similarity Challenge: **8/196** overall, **1/42** in AI grad course

GRADUATE & POST-GRADUATE RESEARCH EXPERIENCE

Platypus-30B

Boston, MA

Independent Researcher, Large Language Models

Jun 2023

- Curated a dataset of 110,000+ question-answer pairs with **Cole Hunter**, focused on STEM and logic, to instruction fine-tune a model based on the LLaMa-30B transformer architecture.
- HuggingFace LLM Leaderboard evaluation submission pending after competitive benchmark test results.

Boston University

Boston, MA

Graduate Researcher, Computer Vision

Oct 2022 – May 2023

- Worked with **Dr. Nataniel Ruiz**, **Prof. Sarah Adel Bargal**, and **Prof. Kate Saenko** to research patch selectivity in modern convnets and ViTs. Released datasets for public use.
- Introduced new c-RISE explainability method to show that by training CNNs with Patch Mixing, we simulate the natural ability of ViTs to ignore out-of-context information. NeurIPS submission pending.

TeachForward & BU Wheelock Educational Policy Center

Boston, MA

Data & Process Engineer, MLOps Dev Team

Sep 2022 – Dec 2022

- Created a feature extraction pipeline to analyze the use of teaching time based on 10,000+ videos of classroom observations.

Boston University, AI4ALL

Boston, MA

Research Intern, Computer Vision

May 2022 – Aug 2022

- Worked with **Dr. Nataniel Ruiz** and **Prof. Sarah Adel Bargal** on counterfactual simulation and testing of modern convnets and ViTs.

WORK EXPERIENCE

Boston University

Boston, MA

Deep Learning Course Grader

Jul 2022 – May 2023

- Handled grading and answered student questions for the Deep Learning graduate course with **Prof. Sarah Adel Bargal** and **Prof. Brian Kulis** for multiple semesters.

AI4ALL @ BU

Boston, MA

Program Coordinator

May 2022 – Aug 2022

- Led a summer program for high school students dedicated to diversity and inclusion in AI.

eMinutes

Corporate Paralegal (Remote)
Manager of Entity Management
Corporate Paralegal

Los Angeles, CA — Boston, MA

Aug 2019 – Mar 2021

Oct 2018 – May 2019

Apr 2017 – Oct 2018

- Evaluated technology deficits on main website, where all document production and communication is handled through a web-based system.
- Managed and trained two law school clerks throughout their clerkship, and maintained corporate governance for 25,000+ entities in 50 states.

Law Offices of Sanford Jossen

Paralegal
Legal Assistant

Los Angeles, CA

Oct 2016 – Apr 2017

Oct 2015 – Oct 2016

- Researched and drafted legal documents, and summarized complex medical records.

PROJECTS

Ensemble Effect: Leveraging Fine-tuned Models for Prompt Prediction | [GitHub](#)

- Ensemble-based approach for predicting text prompts used to generate Stable Diffusion images.
- Surpassed the performance of traditional image captioning models by employing fine-tuned OpenAI CLIP and ViT models, along with the CLIP Interrogator (BLIP+CLIP), using a custom dataset of 105,000 image-prompt pairs

Visual Odometry: Mapping Out the Camera Path | [GitHub](#)

- 3rd place in CS 585 Computer Vision class challenge, focused on estimating the camera path by recovering relative motion between successive frames.
- Implemented Random Sample Consensus (RANSAC) and linear triangulation from scratch for fundamental matrix and camera pose estimation, respectively.

Crypto of the Future: Reinforcement Learning | [GitHub](#)

- DL reinforcement algorithm — proximal policy optimization — to devise an automatically generating strategy for Ethereum transactions.
- LSTM is used to make predictions for next day closing prices, which are in turn used to construct the automatic policy.

UNDERGRADUATE RESEARCH EXPERIENCE

UCLA Department of MIMG

Undergraduate Researcher, Characterization of Novel Bacteriophages

Los Angeles, CA

Sep 2014 – Jun 2015

- Worked with **Dr. Giorgia Pirino** to advance phage therapy research in the SEA-PHAGES project by isolating a novel bacteriophage: PH8s.
- Probed potential gene functions via electron microscopy and plaque assays, leading to a fully annotated genome added to the [NCBI GenBank database](#) and presented at the MIMG symposium.

UCLA Department of Psychology

Undergraduate Researcher, Directed Research in Medicine

Los Angeles, CA

Jun 2014 – Aug 2015

- Conducted research with **Dr. Thomas Minor** for senior project by using learned helplessness to model symptoms of Post-Traumatic Stress Disorder.

SKILLS

Python (PyTorch, TensorFlow, NumPy, Pandas, scikit-learn), Java, MATLAB, OpenCV, Cloud Computing Clusters, Git/GitHub, HuggingFace Hub, Docker

LINKS & REFERENCES

All papers, pre-prints, and code can be found at arielnlee.com.