

Esha Karlekar

eshakarlekar@berkeley.edu | (703) 732-2858 | <https://esha.karlekar.com> | <https://www.linkedin.com/in/eshakarlekar/>

EDUCATION

University of California, Berkeley

Graduating: May 2026

B.S. Electrical Engineering and Computer Sciences (EECS); Minor in Public Policy

GPA: 3.73/4.00; **Coursework:** CS189 (Machine Learning), CS170 (Efficient Algorithms), CS188 (Artificial Intelligence), CS61C (Computer Architecture/Machine Structures), CS61B (Data Structures/Algorithms), CS70 (Discrete Math/Probability), EECS 16A & 16B (Electrical Engineering & Linear Algebra), CS61A (CS Fundamentals & Python), CS195 (Ethics of CS)

EXPERIENCE

Amazon Web Services, Incoming Software Engineering/Machine Learning Intern

Sep 2025 – Dec 2025

Netflix, Software Engineering/Machine Learning Infrastructure Intern — ML Platform

Jun 2025 – Aug 2025

- Building low-latency infrastructure to run Python-based ML models from Java services without relying on web APIs
- Used gRPC, shared memory buffers, Apache Arrow/Flight, Ray, and Protocol Buffers for efficient communication

Netflix, Software Engineering/Machine Learning Intern — Trust & Safety

May 2024 – Aug 2024

- Leveraged ML forecasting models to detect anomalies in time series data of authentication traffic in order to prevent account takeover and fraud on the Netflix site; achieved an estimated 54% increase in fraud detection recall
- Developed ETL scripts w/ Spark for persistent storage and use of model outputs in existing fraud detection systems

SpaceX, Software Engineering/Machine Learning Intern

Jan 2024 – Apr 2024

- Used machine learning (DNNs, XGBoost) and parallelizable heuristic decision tree search methods (MCTS) applied to the fundamentals of orbital dynamics to create flight path trajectories and speed up mission planning
- Resulted in a 10x speedup in trajectory computation and a 50-75% increase in the accuracy of a given neural net prediction
- Worked on existing tech stack for simulating trajectories in object-oriented C++ in order to integrate model results

MITRE, Applied Machine Learning Intern (Transitioned to Part Time Engineer Fall 2023)

May 2023 – Dec 2023

- Built summarization/query tools for satellite data using LLMs (BART, GPT-J, LLaMA), optimized runtimes by 99.9%
- Utilized object detection CV models (YOLO, Tensorflow) to track vehicles in satellite imagery data with >98% accuracy

AMD, Tech Consultant (Contract)

Sep 2024 – Dec 2024

- Built a PowerBI dashboard displaying data and analytics information regarding AMD's university relations and donations

Bluebonnet Data, Data Fellow Volunteer

April 2023 – Jul 2023

- Data analysis for progressive campaigns, conducted analysis using R, Python, ArcGIS, SQL for data on 60,000+ voters

Airbnb, Tech Consultant (Contract)

Feb 2023 – April 2023

- Researched artificial intelligence techniques to combat deepfakes, social engineering, and other hacking methods

Cardiac Vision Laboratory at UCSF, Machine Learning Research Apprentice

Sep 2022 – Aug 2023

- Designed novel deep learning architectures to remove illumination/motion artifacts from optical imaging of heart tissues
- Utilized variety of computer vision techniques to create synthetic video data and build PWC-Net (CNN) pipeline

HHMI Janelia Research Campus Funke Lab, Laboratory Assistant/Intern

May 2020 – Jul 2022

- Designed, implemented, and tested a machine learning system for protein identification in electron microscopy images
- Built computer vision simulations, training pipeline, and visualized key metrics for a secondary Nature publication

TJHSST Computer Systems Senior Research Laboratory, Student Researcher

Aug 2021 – Jun 2022

- Implemented system to translate eye blinks detected from electroencephalograms to Morse code to English text-to-speech

George Mason University ASSIP, Full Stack Development Research Intern

Jun 2021 – Aug 2021

- Built mobile app to parse through geospatial environmental data to inform users about water supply/farmland viability
- Worked on server-side and backend in JavaScript, Python, Flask, and ArcGIS (to parse through map data)

US Naval Research Laboratory, Reinforcement Learning Research Intern

Oct 2020 – Dec 2020

- Researched/implemented reinforcement learning techniques in application to imperfect information gaming for US Navy
- Built multiple bots (using MCTS, Minimax, etc.) to play reconnaissance blind chess, achieved final win rate of above 97%

SKILLS

Languages: Python, Java, JavaScript, HTML, C, C++, Scheme, Swift, RISC-V, SQL **AI/ML:** PyTorch, TensorFlow, OpenCV

Tools: Linux, Git, NumPy, SciPy, Scikit-Learn, Pandas, jQuery, Arduino, Matplotlib, Flask, ArcGIS, MATLAB, JSON, PySpark

Areas of Experience: Object-Oriented Programming, Artificial Intelligence, Computer Vision, Big Data, Data Structures, Neural Networks, Web/Mobile App Dev, Statistical Analysis, Public Speaking, Research, Decking, Image Processing, NLP