

Akshay Trikha

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EDUCATION

University of California, Berkeley (Part-time) Master of Engineering in Materials Science & Engineering GPA: 3.700	08/23 – 05/25 Berkeley, CA
Harvey Mudd College Bachelor of Science in Computer Science	08/17 – 05/21 Claremont, CA

SKILLS

Technical: Python (PyTorch, TensorFlow, NumPy, SciPy, Scikit-learn, Pandas, OpenCV), C++, C, JavaScript (TensorFlow.js), React, Vue, SQL, HTML/CSS, Java
Natural Language: Hindi (fluent), Mandarin (conversational), Sanskrit (learning), English (fluent).

EXPERIENCE

QuantumScape Machine Learning Engineer	09/21 – Present San Francisco, CA
<ul style="list-style-type: none">Design & manage ML-based image processing pipelines to detect defects, make manufacturing scrapping decisions, and support materials research.My 9 segmentation & classification models in production run inference ~25,000 times / day.Develop features for a Vue.js dashboard able to efficiently handle ~100GBs / day worth of image data.Created a REST API using Flask used in our dashboard as a part of a data engine that feeds into models.	
Sandia National Laboratories Researcher, 9-person team	09/20 – 05/21 San Francisco, CA
<ul style="list-style-type: none">Investigated link between diameter of ferroelectric barium titanate nanoparticles and dielectric constant.Created a Jupyter Notebook / Python image processing pipeline using OpenCV, NumPy, and Matplotlib to extract particle sizes and distribution from transmission electron microscope images. Then optimized runtime 25x by using Numba library.Presented at Materials Research Society '21 Spring Meeting & published in MRS Advances, link at tinyurl.com/sandia-paper.	
AMISTAD Lab Researcher, 6-person team	05/19 – 12/19 Claremont, CA
<ul style="list-style-type: none">Explored why machine learning works from an information theory and search perspective.Co-authored <i>The Bias-Expressivity Tradeoff</i>, won best paper award for ICAART2020 in Valletta, Malta.Co-authored <i>The Futility of Bias Free Learning</i>, which team presented at AI2019 in Adelaide, Australia.Created tinyurl.com/amistad-futility to communicate research findings in more accessible manner.	
Coinhako Software Engineer Intern	07/18 – 08/18 Singapore
<ul style="list-style-type: none">Helped develop SmartWallet, a crypto to crypto exchange platform that is in production.Wrote smart contracts in Solidity for handling ERC20 token transactions. Two are now in production with >100k users.	

PROJECTS

Neural Style Transfer JavaScript, React, HTML/CSS	07/21 San Francisco, CA
<ul style="list-style-type: none">Created a neural style transfer web app that generates stylized images of webcam input in near real time.Used a pretrained TensorFlow.js model, link at styletransfer.art.	
Flow Battery Simulation Jupyter Notebook	05/20 Singapore
<ul style="list-style-type: none">Characterized single cell vanadium redox flow battery discharging by numerically integrating a system of governing differential equations in a Jupyter notebook.Python packages: SciPy, NumPy, Matplotlib. Link at tinyurl.com/flow-battery-sim.	
AES Encryption C, SystemVerilog	06/2020 Claremont, CA
<ul style="list-style-type: none">Built a hardware implementation of AES FIPS 197 encryption specification using an FPGA that ran in 300 nanoseconds (excluding SPI transfer from a microcontroller)Software implementation using C ran on average 13715.3 ns, or 45x slower. Link at tinyurl.com/akshay-aes.	