

Akshay Trikha

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EDUCATION

University of California, Berkeley <i>Master of Engineering in Materials Science & Engineering</i>	2023 – 2025 Berkeley, CA
Harvey Mudd College <i>Bachelor of Science in Computer Science</i>	2017 – 2021 Claremont, CA
Selected coursework: Machine Learning, Natural Language Processing, Materials Science of Energy Conversion & Storage, Quantum Physics, Microprocessors.	

SKILLS

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

EXPERIENCE

QuantumScape <i>Machine Learning Engineer</i>	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.Use Landing AI for segmentation, object detection, and classification model development. My 10 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 <i>Researcher, 9-person team</i>	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 <i>Researcher, 6-person team</i>	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 <i>Software Engineer Intern</i>	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 <i>JavaScript, React, HTML/CSS</i>	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 <i>Jupyter Notebook</i>	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 <i>C, SystemVerilog</i>	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.	