Akshay Trikha

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EDUCATION

Harvey Mudd College Claremont, CA

Bachelor of Science in Computer Science *2017 – 2021*

Last 2 Years GPA: 3.635. Selected coursework: Algorithms, Computer Systems, Machine Learning, Scientific Computing, Natural Language Processing, Materials Science of Energy Conversion & Storage, Quantum Physics, Microprocessors.

SKILLS

Technical: Python (NumPy, SciPy, Scikit-learn, Pandas, OpenCV), C++, C, JavaScript (TensorFlow.js), React, SQL, HTML/CSS, Java, Swift, Haskell, Git, Bash.

Natural Language: Hindi (fluent), Mandarin (conversational), Sanskrit (learning), English (fluent).

EXPERIENCE

QuantumScape 09/07/21 – Present

Software Engineer *San Francisco, CA*

- Image processing of solid state battery data.
- Building internal websites to communicate results.

Sandia National Laboratories 09/01/20 – 05/16/21

Researcher, 9-person team *San Francisco, CA*

- 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 05/20/19 – 12/20/19

Researcher, 6-person team *Claremont, CA*

- Explored why machine learning works from an information theory and search perspective.
- Co-authored *The Bias-Expressivity Tradeoff*, won best paper award for ICAART2020 in Valletta, Malta.
- Co-authored *The Futility of Bias Free Learning*, which team presented at AI2019 in Adelaide, Australia.
- Created tinyurl.com/amistad-futility to communicate research findings in more accessible manner.

Coinhako 07/02/18 – 08/31/18

Software Engineer Intern *Singapore*

- Helped develop SmartWallet, a crypto to crypto exchange platform that is in production.
- Wrote and tested smart contracts in Solidity for handling ERC20 token transactions, two of which are now in production with >100k users.

PROJECTS

Neural Style Transfer | *JavaScript, React, HTML/CSS* 07/21

- Created a neural style transfer web app that generates stylized images of webcam input in near real time. *San Francisco, CA*
- Used a pretrained TensorFlow.js model, link at styletransfer.art.

Flow Battery Simulation | *Jupyter Notebook* 05/20

- Characterized single cell vanadium redox flow battery discharging by numerically integrating a system of governing differential equations in a Jupyter notebook. *Singapore*
- Python packages: SciPy, NumPy, Matplotlib. Link at tinyurl.com/flow-battery-sim.

AES Encryption | *C, SystemVerilog* 06/2020

- Built a hardware implementation of AES FIPS 197 encryption specification using an FPGA that ran in 300 nanoseconds (excluding SPI transfer from a microcontroller) *Claremont, CA*
- Software implementation using C ran on average 13715.3 ns, or 45x slower. Link at tinyurl.com/akshay-aes.

CashPost | *React, Swift* 03/18 – 03/19

- Created a platform connecting customers to restaurants and rewarding them for sharing experiences on social media. *Claremont, CA*
- Made a dashboard with React and an iOS app with Swift.