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, Microprocessor-based Systems.

Experience

Punk House Inc. Summer 2021

Software Engineer Intern *San Francisco, CA*

- Building a dashboard using Retool for a client to source and track their brand deals.
- Dashboard interacts with a PostresSQL database.

Sandia National Laboratories 2020–2021

Undergraduate Researcher *San Francisco, CA*

- Part of Harvey Mudd College clinic team investigating link between diameter of ferroelectric barium titanate nanoparticles and dielectric constant.
- Created a Jupyter Notebook / Python image processing pipeline using OpenCV, NumPy, Matplotlib to extract particle sizes and distribution from transmission electron microscope images. Then optimized runtime 25x by using Numba library.
- Presented findings at Materials Research Society 2021 Spring Meeting.

AMISTAD Lab Summer & Fall 2019

Undergraduate Researcher *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 Summer 2018

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*

- 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 | *Python, Jupyter Notebook*

- 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*

- 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.

CashPost | *React, Swift*

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

Skills

Technical: Python, Jupyter Notebook, C++, C, JavaScript, React, SQL, HTML/CSS, Java, Swift, Haskell, Git, Bash.

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