Akshay Trikha

akshaytrikha@berkeley.edu | 510-301-0042 | akshaytrikha.github.io | US Citizen

Education

University of California, Berkeley 08/23 – 05/25
(Part-time) Master of Engineering in Materials Science & Engineering *Berkeley, CA*
GPA: 3.700

Harvey Mudd College 08/17 – 05/21
Bachelor of Science in Computer Science *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 09/21 – Present
Machine Learning Engineer *San Francisco, CA*

- Design ML-based image processing pipelines using to detect defects, make manufacturing scrapping decisions, and support materials research.
- My 9 segmentation & classification models in production run inference ∼30,000 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 09/20 – 05/21
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 05/19 – 12/19
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.

Projects

Neural Materials Prediction | *PyTorch* 03/24
- Wrote a dense NN from scratch using NumPy to predict atomization energy using QM7 dataset *Berkeley, CA*
  - Implemented SchNet from the paper https://tinyurl.com/schnet-neurips to predict aspirin molecules' potential energy
  - Blog posts and code coming soon!

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.

GPT-2 Trump | *HuggingFace Transformers* 12/20
- Finetuned GPT-2 using ∼56,500 Trump tweets for endless entertainment *San Francisco*
  - Reimplemented with HuggingFace in 04/23. Blog at https://tinyurl.com/gpt2-trump
  - Mixed real tweets with the best model generated ones and fooled ∼50% of my friends & family