Akshay Trikha

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

Experience

QuantumScape 09/21 – Present
Machine Learning Engineer *San Francisco, CA*

- Design ML-based image processing pipelines to detect defects, make manufacturing scrapping decisions, and support materials research.
- Maintain 9 segmentation & classification models in production running ∼30,000 inferences/day.
- Develop features for a Vue.js dashboard handling ∼100GB of image data daily.
- Created a REST API using Flask for the dashboard, part of a data engine feeding 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.
- Developed a Jupyter Notebook/Python image processing pipeline using OpenCV, NumPy, and Matplotlib to extract particle sizes and distribution from TEM images, optimized runtime by 25x using Numba.
- Presented at Materials Research Society '21 Spring Meeting & published in MRS Advances (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 at ICAART2020 in Valletta, Malta.
- Co-authored *The Futility of Bias-Free Learning*, presented at AI2019 in Adelaide, Australia (tinyurl.com/amistad-futility).

Projects

Neural Materials Prediction | *PyTorch* 03/24 – Present
Berkeley, CA

- Wrote a dense NN from scratch using NumPy to predict atomization energy using QM7 dataset.
- Implemented SchNet from the paper tinyurl.com/schnet-neurips to predict aspirin molecules' potential energy.
- Investigating scaling laws for material property + discovery architectures.
- Blog posts and code coming soon!

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

- Created a neural style transfer web app generating stylized images from webcam input in real-time using a pretrained TensorFlow.js model (styletransfer.art).

GPT-2 Trump | *HuggingFace Transformers* 12/20
San Francisco, CA

- Finetuned GPT-2 using ∼56,500 Trump tweets for entertainment.
- Reimplemented with HuggingFace in 04/23 (tinyurl.com/gpt2-trump).

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)

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*