Eric Tang

erictang000@berkeley.edu | 408-410-3070 | ⌗ /erictang000 | in /erictang000 | erictang000.github.io

EDUCATION

UNIVERSITY OF CALIFORNIA, BERKELEY

BS in Electrical Engineering and Computer Science   August 2018 - May 2022

GPA: 3.82 / 4.0, Major GPA: 3.92 / 4.0

Selected Coursework: Applications of Parallel Computers, Deep Neural Networks, Databases, Machine Learning, Full Stack DL, Optimization Models, Computer Architecture, Efficient Algorithms, Computer Security, Operating Systems, Data Structures

SKILLS

Languages: Java, Python, C/C++, Golang, SQL, CSS, HTML, Swift, Javascript
Tools: Git, Linux, XCode, Numpy/Pandas, OpenMP, MPI, Django, CUDA, MongoDB, Flask, Docker, Apache Nifi
Machine Learning: Pytorch, Keras, OpenCV, Sklearn, CNNs, Transformers, RNNs/LSTMs

EXPERIENCE

ACCENTURE LABS   June 2020 - August 2020, June 2021 - August 2021
Technology R&D Intern

- **Summer 2021:** Built backend and data pipelines for a knowledge graph based digital twin platform using **TimeScaleDB**, **Apache Nifi**, and **Stardog**.
- Created a machine learning model training and serving API for training and inference on time series data using **Docker** and **BentoML**, modelling in **tsfresh**, **sklearn**, and **PyTorch**.
- Performed probabilistic machine learning for inferring statistical connections in knowledge graphs using **PyMC3** and **PyStan**.
- **Summer 2020:** Developed software architecture in **Python** for a generative design project with a warehouse layout use case, establishing parameterization based on model and expert specs, and writing a layout generation algorithm with intended application to future company projects. Inventor on pending patent.
- Worked on Bayesian black box optimization for layout generation using **sklearn**, and built an evaluation function of layouts based on congestion modelling along the generated graph using **networkx**.

BERKELEY ARTIFICIAL INTELLIGENCE RESEARCH   August 2020 - Present
Undergraduate Researcher

- Worked on using computer vision action recognition models to predict emotional response and human preferences on video data, and using transformer based models to solve challenging mathematics problems with Dan Hendrycks via URAP with Prof. Dawn Song.
- Lead data labeling and filtration using **AWS MTurk** and **Javascript** on 60,000 scraped videos.
- Benchmarked results on video understanding models for adversarial filtration and model assessment using **PyTorch**, managing nodes for machine learning model training on GPU cluster with Slurm.

UNIVERSITY OF CALIFORNIA, BERKELEY   January 2020 - Present
Lead Infrastructure TA for CS 61B - Data Structures

- Worked as lead infrastructure TA to help develop course autograder software ASAG using **Docker** and course grading infrastructure tool **Beacon**, using **SQLAlchemy** and **Flask** written in **Python**, serving 1500 students per semester.
- Automated migration of grades from Gradescope to Beacon server via custom API, and centralized grades on a new page, allowing for students to see real time updates and statistics for course assignments.
- Manage small team of newer TAs in use and development of course infrastructure and software engineering workflows.

UC BERKELEY PHYSICS - CROMMIE GROUP ⌗   April 2019 – Present
Undergraduate Researcher

- Designed and trained convolutional neural networks in **Keras** for classification of subdiffusive particle behavior on sparse experimental data, achieving SoTA accuracy of 85% for sparse time series diffusivity classification.
- Modified models for generating novel visualizations for particle tracks using class activations without loss of accuracy, and demonstrated alignment with expected physical diffusive phenomena.

PROJECTS

GPU-BSW WORK STEALING ⌗   May 2021
- Implemented work stealing for a GPU implementation of the Smith-Waterman Algorithm for DNA sequence alignment using **CUDA** and **OpenMP** for heterogenous computing environments. Final project for CS 267 - Parallel Computing (grad course).

TINY IMAGENET CLASSIFIER ⌗   April 2021
- Built custom architecture for classification on Tiny ImageNet based on Vision Transformers using **PyTorch**. Achieved 85% top 1 accuracy, and explored use of different attention mechanisms, data augmentation methods, and pretrained base models for improving out of distribution robustness. Final project for CS 182 - Deep Learning.

FANTASY BASKETBALL MATCHUP ANALYZER ⌗   December 2019
- Used ESPN's unexposed fantasy basketball API with Pandas and Beautiful Soup in order to create a matchup analyzer for ESPN H2H 9CAT fantasy basketball leagues (anecdotally use resulted in one championship and one second place finish).