Annie Zhang

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Technical Skills

Languages: Java, Python, C/C++, SQL (Postgres), R, JavaScript, HTML/CSS
Frameworks: PyTorch, React, Node.js, FastAPI
Developer Tools: Git, Github, Google Cloud Platform, Firebase, Android Studio, VSCode, Visual Studio, PyCharm, IntelliJ, Unity
Libraries: TensorFlow, pandas, NumPy, Matplotlib, OpenCV, Keras
Specialized Knowledge: NeRFs (Neural Radiance Fields), Convolutional Neural Networks, Linear Regression, Deep Learning, Natural Langugage Processing, Computer Vision

Education

University of California, Berkeley Expected May 2027

Intended Bachelor's of Electrical Engineering and Computer Sciences

- **Relevant Coursework:** The Structure And Interpretation Of Computer Programs, Data Structures And Algorithms, Discrete Math and Probability Theory, Designing Information Devices and Systems, Multivariable Calculus, Linear Algebra and Differential Equations

Experience

Amazon – Incoming Software Engineer Intern Summer 2024

Launchpad UC Berkeley – Machine Learning Engineer Aug 2023 - Present

- Leveraged Neural Radiance Fields (NeRFs) for efficient 3D object modeling from 2D images, utilizing InstantNGP and NerfStudio within Unity for style transfer, enabling rapid conversion of NeRFs into video game assets for Subway Surfers.

Caltech Seismological Laboratory – Research Intern May - Sep 2022

- Engineered low-cost seismometers (able to sense earthquakes within 18k km) with Raspberry Pi's and use computer algorithms to analyze data
- Spearheaded seismic research project 'Utilizing HVSRPy and Raspberry Shake to find Resonant Frequency of Local Region;" leveraged HVSRPy and Jupyter Labs to analyze data from Raspberry Shake Network, SCSN, and USGS, uncovering key insights on geographical impact on earthquake effects felt, aiding in disaster mitigation strategies.

Caelux Corporation – Summer Engineering Intern Jun - Aug 2022

- Engineered and soldered Passivated Emitter Rear Contact (PERC) solar cells achieved a 50% cost reduction and 20-30% higher efficiency compared to standard silicon cells, far surpassing the industry average of 5-10% greater.
- Enhanced Arduino Uno programming for targeted environmental monitoring, vital in testing perovskite solar cells, focusing on key temperature and light intensity parameters to an accuracy of $\pm 0.01°C$.
- Innovated a cost-effective, Arduino-based magnetic field measurement device, achieving microtesla-level precision. Developed a specialized IR sensor gadget for precise glass thickness measurement in millimeters.

University of California, Los Angeles – Scientific Researcher May - Sep 2022

- Authored a 20-page paper on a novel Alzheimer's diagnostic technique using machine learning to detect cerebral amyloid accumulation biomarkers in retinal imaging with Dr. Gal Bitan's mentorship at UCLA's Brain Research Institute
- Awarded a $6.5k scholarship in the UCLA x Pioneer Research Program for significant research involvement

Projects

Plantlytics | *Java, Android Studio, Firebase, Tensorflow* Dec 2022

- Train a convolutional neural network utilizing over 70,000 images on 19 distinct plant types and 39 varieties of plant conditions to diagnose plant illnesses with 95% accuracy and integrate into Android Mobile app
- Won 1st Place at the Congressional App Challenge and was recognized by Congresswoman Judy Chu
- Earned 3rd place at the IgniteCS Programming Expo in Web/Mobile Applications; Secured exclusive invitation to present to Congress members at the STEM Expo in the US Capitol Building, featured on the House of Representatives website during #HouseOfCode festival

BERT Wikipedia Sentence Classification | *Python, Pytorch, matplotlib, Model Optimization, Fine Tuning* Dec 2023

- Leveraged Huggingface's Bidirectional Encoder Representations from Transformers (BERT) for rapid, efficient fine-tuning of sentence classification on the CoLA dataset, attaining 83% accuracy (MCC). Implemented BERT to identify the top 5 semantically similar comments, focusing on those classified as "attacks" in the dataset.

Handwritten Digit Recognition | *NumPy, OpenCV, pandas, Keras, matplotlib, Python, Image Processing,* Dec 2023

- Designed and implemented a CNN in PyTorch on the MNIST dataset to classify handwritten digits
- Utilized dropout and batch normalization to prevent overfitting and improve model generalization, achieving an accuracy of 98% in digit recognition