

Iana Lin

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EDUCATION

University of California, Berkeley

B.S. in Electrical Engineering & Computer Science; B.A. in Neuroscience

Expected: May 2027

GPA: 4.0

TECHNICAL SKILLS

Languages: Python, C/C++, R, MATLAB, Java

Tools: Git, Jupyter, Linux, Z3 Theorem Solver
Optimization

Frameworks: PyTorch, NEST, Seurat

Domains: Machine Learning, Signal Processing, Neural Modeling,

RESEARCH EXPERIENCE

Formal Approaches to Characterize Emerging Arithmetic Realizations

June 2024 – Nov 2024

Research Experience for Undergraduates (REU)

University of Utah

- **Formal Methods:** Developed formal models of floating-point arithmetic for matrix accelerators using Satisfiability Modulo Theories (Z3 Theorem Prover)
- **Publication:** Poster at 2024 International Supercomputing Conference: "Formal Approaches to Characterize Emerging Arithmetic Realizations"

Cell Segmentation using Large Spatial Transcriptomics Datasets

Jan 2024 – June 2024

Computational Biology Research Assistant

University of California, Irvine

- **Deep Learning for Cell Segmentation:** Trained deep convolutional neural network for 3D segmentation of spatial transcriptomics dataset (30GB+) to achieve state-of-the-art performance
- **Image Preprocessing:** Designed full segmentation pipeline with parameter sweeps, multi-plane cropping, mask correction, and confidence-based stratification of training data to improve model generalization

PHLDA2 Gene Loci Analysis

Jul 2023 - Apr 2024

Computational Genomics Research Assistant

University of California, Irvine

- **Data Analysis:** Generate heat maps and principal component analysis plots with R and Python for 30 gene loci
- **Scripting and Computational Resource Management:** Write bash script and execute SLURM commands to request resources on server to run the computationally intensive analysis
- **Reporting:** Report findings for data processing pipeline in JupyterLabs and present in weekly lab meetings with the team

PROJECTS

Spiking Neural Network Simulation | Personal Project

Jan 2025

- Followed a NEST Simulator tutorial to implement and simulate simple spiking neural networks using Python.
- Explored LIF neuron models and synaptic connectivity patterns, visualized spiking activity & temporal dynamics

Signal Processing of Simulated Neural Data | Personal Project

Spring 2025

- Built a pipeline in C++ for spike detection and sorting using thresholding, band-pass filters, and peak analysis.
- Applied DFT and convolution filters to clean synthetic extracellular recordings.

Machine Learning for Neural Data Classification | Course Project

Spring 2025

- Trained decision trees and SVMs on a neuroscience-inspired time-series classification dataset.
- Performed hyperparameter tuning and PCA for noise-robust prediction.

BabyGPT | Personal Project

Dec 2024

- Exploratory project designed to incrementally build a GPT-like language model. The project begins with a simple Bigram Model and gradually incorporates advanced concepts from the Transformer model architecture.

RISC-V | Course Project

Dec 2024

- Hard-wired control logic for RISC-V 32-bit instructions with pipelined datapath; optimized softmax function improving accuracy 60% to 85%.

Robyn - Python Web Framework | Open-Source Contribution

June 2023

- Code backend mime-type handling of a multi-threaded, asynchronous Python/Rust Web Server

VOLUNTEER

- Tiny Tapeout** | Stanford UniversityNov 2024
- Assist 50 students in designing MOSFET transistor and digital logic design during a tapeout workshop

AWARDS & HONORS

- Dean’s List - College of Engineering** | University of California, Berkeley2025
- Valedictorian** | Troy High School2022