

Sonika Vuyyuru

svuyyuru@berkeley.edu | (703) 884-7028 | [linkedin.com/in/sonikavuyyuru](https://www.linkedin.com/in/sonikavuyyuru) | sonikavuyyuru.github.io

EDUCATION

University of California, Berkeley | GPA: 3.86

Berkeley, CA

Bachelor of Arts in Computer Science (Honors) and Cognitive Science

May 2024

- Relevant coursework: CS194: Machine Learning for Hardware Design [A], CS170: Algorithms [A-], CS182: Deep Learning [A], CS189: Machine Learning [A], CS188: Artificial Intelligence [A], EECS127: Optimization Models [A-], EECS151/LB: Digital Design and Integrated Circuits [A, A+], CS61C: Comp. Architecture [A], MUSIC30: Computational Creativity in Music [A]
- Awards: EECS Honors Program (110-person cohort), Cal Alumni Association Leadership Merit Scholarship

EXPERIENCE

NASA, Glenn Research Center | tinyurl.com/sonika-nasa-ml

Cleveland, OH

Machine Learning Engineering Intern

May - Aug. 2023

- Developed neural network using **TensorFlow** to optimize control laws, reducing transient stall margin in novel hybrid-electrified gas turbine engine, enhancing energy efficiency and lowering operational costs by a projected **20%**
- Utilized a genetic algorithm to generate data from AGTF30 model with thermal conditions, deriving a baseline control schedule

Multiply Labs

San Francisco, CA

Software Engineering Intern

May - Aug. 2022

- Spearheaded 'one-click' IoT device setup through custom **AWS CloudFormation** stacks to automate deployment of device's resources (e.g. Secrets, Alarms, EC2), enhancing system security, reliability, and reducing setup time by **50%**
- Deployed Secrets and LUKS Encryption Key Rotation Lambda function with **CloudWatch** monitoring to fortify device security
- Reduced testing time by **30%** with automated unit and integration tests, utilizing **Pytest fixtures**, context managers, and mocks

OpenBCI | tinyurl.com/sonika-openbci

Brooklyn, NY

Software Engineering Intern

May - Aug. 2021

- Designed and tested electronics for a multimodal VR headset, integrating EEG, EMG, and eye-tracking signals for neural control
- Engineered interactive demos, including a concentration-controlled toy helicopter and EMG-controlled Tetris game, utilizing signal processing, control mapping via PyAutoGui, and UDP networking protocol for real-time user feedback and control

PROJECTS

Personalized EECS Class AI Assistant | sonikavuyyuru.github.io/pages/ed

- Deep learning project to fine-tune **LLaMA2 LLM** for answering class-specific questions by fine-tuning on class forum data
- Implemented Parameter Efficient Fine-Tuning (**PEFT**) method Low-Rank Adaptation (**LoRA**) for optimal model performance
- Achieved performance retention while reducing fine-tuning parameters by **50%**, optimizing for resource-limited environments

FPGA RISC-V CPU Outstanding Project Award Winner | sonikavuyyuru.github.io/pages/riscv

- Designed and programmed Apple award winning 3-stage pipelined RISC-V processor with 5-bit history register global branch predictor, achieving **96.3% prediction accuracy** and optimized **CPI of 1.051** on FPGA, programmed in **Verilog** using **Vivado**

Training SVM and Gaussian Classifiers for MNIST Digit Images Dataset

- Coding Support Vector Machine and Linear and Quadratic Gaussian Classifiers from scratch (without using out-of-the-box classification like sklearn) to classify MNIST dataset of images of handwritten digits, reaching **high accuracy rate of 94.2%**

ACTIVITIES

AddisCoder | addiscoder.com

Addis Ababa, Ethiopia

Teaching Assistant

July - Aug. 2024

- Volunteered to teach data structures and algorithms in extremely rigorous 4-week Intro to CS program, helping 100 top Ethiopian students gain foundational coding skills through daily mini-lectures, one-on-one support, and Python-based lab exercises

UC Berkeley Electrical Engineering & Computer Science (EECS) Course Staff

Berkeley, CA

CS61C: Computer Architecture uGSI/TA

June 2021 - May 2024

- Four-time TA for a 680-student course, providing weekly lab instruction, discussion section lectures, and one-on-one mentorship to support students in mastering computer architecture concepts, parallel programming, and C programming

Berkeley Model United Nations | github.com/bmun/huxley | huxley.bmun.org

Berkeley, CA

VP of Technology

Sep. 2020 - May 2024

- Led team of 6 developers to implement features, such as real-time messaging and automated Smartwaiver API integration, for open-source Model United Nations web application **used by 2000+** students, by leveraging **React** and **Django** for scalability
- Conducted code reviews and provided mentorship to junior developers on industry best practices and scalable code design

TECHNICAL SKILLS

- Languages: Python, C, Java, JavaScript, HTML, SQL, Verilog, MATLAB, RISC-V
- Tools & Frameworks: AWS (CloudFront, Lambda, Secrets, EC2, S3), Git, PyTorch, TensorFlow, NumPy, Sklearn, React, Django