

# Sonika Vuyyuru

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## EDUCATION

**University of California, Berkeley** | GPA: 3.86

**Berkeley, CA**

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

*May 2024*

- Relevant coursework: 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+]
- Awards: EECS Honors Program, Cal Alumni Association Leadership Merit Scholarship, Perfect 36 ACT

## EXPERIENCE

**NASA, Glenn Research Center** | [tinyurl.com/sonika-nasa-ml](https://tinyurl.com/sonika-nasa-ml)

**Cleveland, OH**

*Software Engineering Intern*

*May - Aug. 2023*

- Developed and trained neural network with **TensorFlow** to optimize control laws, reducing transient stall margin in novel hybrid-electrified gas turbine engine, improving energy efficiency and **lowering operational costs by a projected 20%**
- Implemented a genetic algorithm to generate and analyze AGTF30 engine model data under non-adiabatic thermal conditions

**Multiply Labs**

**San Francisco, CA**

*Software Engineering Intern*

*May - Aug. 2022*

- Led development of an automated 'one-click' IoT device setup, **reducing deployment time by 50%** and enhancing security and reliability across production systems through custom **AWS CloudFormation** stacks for Secrets, Alarms, and EC2 instances
- Implemented **Pytest**-based testing framework, leveraging **fixtures, context managers, mocks** to **reduce testing time by 30%**

**OpenBCI** | [tinyurl.com/sonika-openbci](https://tinyurl.com/sonika-openbci)

**Brooklyn, NY**

*Software Engineering Intern*

*May - Aug. 2021*

- Developed hardware/software integration for multimodal VR BCI headset by implementing signal processing and real-time classification techniques on EEG and EMG data for neural control, achieving **90% accuracy in intent detection**

## PROJECTS

**Personalized EECS Class AI Assistant** | [sonikavuyyuru.github.io/pages/ed](https://sonikavuyyuru.github.io/pages/ed)

- Developed a deep learning pipeline to fine-tune **LLaMA2 LLM** on class forum data, enabling context-aware responses to course-specific questions, reducing student query **response time by 50%** and increasing student **satisfaction by 80%**
- Implemented **Parameter-Efficient Fine-Tuning (PEFT)** with **Low-Rank Adaptation (LoRA)**, **reducing trainable parameters by 50%** while maintaining accuracy for resource-constrained deployment

**Comment Extractor Chrome Extension**

- Developed tool that extracts post comments from dynamic web content, **reducing comment collection time by 90%**
- Utilized **JavaScript, HTML, and CSS** to interact with complex DOM structures, implementing event listeners, background scripts, and asynchronous programming patterns (async/await, Promises) for seamless data collection and analysis workflows
- Integrated **Clerk** for seamless user authentication, enabling secure login, session management, and role-based access control
- Implemented **Python** scripts with **Selenium** and **BeautifulSoup** to automate batch processing and gather data for offline analysis

**FPGA RISC-V CPU Outstanding Project Award Winner** | [sonikavuyyuru.github.io/projects/eecs151-project/](https://sonikavuyyuru.github.io/projects/eecs151-project/)

- Built 3-stage pipelined RISC-V processor on **FPGA** with full instruction support, **memory-mapped I/O**, and UART interface
- Implemented an optimized global history branch predictor (5-bit register) achieving **96.3% accuracy** and **1.051 CPI**
- Selected for Outstanding Project Award by a panel of Apple hardware engineers from a class of 130 students

## ACTIVITIES

**AddisCoder** | [addiscoder.com](https://addiscoder.com)

**Addis Ababa, Ethiopia**

*Teaching Assistant*

*July - Aug. 2024*

- Volunteered to teach **data structures** and **algorithms** in a competitive 4-week CS program for 100 of Ethiopia's top high school students, covering topics like dynamic programming, delivering daily mini-lectures, Python-based labs, and personalized support

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

**Berkeley, CA**

*CS61C: Computer Architecture uGSI/TA*

*June 2021 - May 2024*

- TA for 680-student course, providing lab/discussion instruction on computer architecture, parallel programming, assembly, and C

**Berkeley Model United Nations** | [github.com/bmun/huxley](https://github.com/bmun/huxley) | [huxley.bmun.org](https://huxley.bmun.org)

**Berkeley, CA**

*VP of Technology*

*Sep. 2020 - May 2024*

- Led team of 6 developers to implement features, such as automated Smartwaiver API integration, for an open-source Model UN web application used by **2000+**, enhancing both frontend and backend functionality with **React** and **Django** for scalability

## TECHNICAL SKILLS

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