ANANTH PILAKA

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OBJECTIVE

Currently pursuing a Master's in Computer Science through the UCSB ECE BS/MS program. Seeking internship or full-time roles that will expand my skills and experiences building clean, efficient, enterprise-level software.

EDUCATION

Computer Science, M.S., University of California, Santa Barbara — Expected Jun 2025
Relevant Graduate Coursework: — GPA: 4.00
Operating Systems, Embedded Systems, Robot Learning, Distributed Systems, ML for Networks, Computer Architecture

Computer Engineering, B.S. (Honors), University of California, Santa Barbara — Oct 2020 - Jun 2024
Relevant Coursework: — GPA: 3.86
Real-time/Embedded Systems, Computer Architecture, Data Structures Algorithms, Machine Learning, Deep Learning, Digital/Analog Circuit Design and Analysis, Computer Vision, Operating Systems

SKILLS

Technical Skills Agile, C/C++, Java, Python, Kotlin, Verilog, Git, Embedded Systems, Computer Vision, Operating Systems & Internals, PyTorch, Machine Learning/AI, Robotics, Computer Architecture

EXPERIENCE

Graduate Research Assistant — Nov 2024 - Present
UCSB ArchLab — *Santa Barbara, CA*

- Researched malware detection using micro-architectural features (caching and branching) and custom DenseNet CNN.
- Minimized parameters for hardware implementation, achieving 88% accuracy on unseen and out-of-distribution data.

Platform Engineering Intern — Jun 2022 - Dec 2022
Backblaze — *San Mateo, CA*

- Independently customized, setup, and troubleshooted Virtualbox Ubuntu virtual machine for development.
- Fixed failing unit tests and wrote new tests to validate GitHub commits in Jenkins CI pipeline.
- Designed and implemented the tracking and reporting of fleet-level drive storage to assist in planning server capacity.
- Performed statistical analysis of drive storage growth to help make projections needed for capcity planning.
- Added Python functionality to dynamically produce and publish HTML reporting elements to an internal company website.

Software Engineering Intern — May 2021 - May 2022
Santa Clara University EPIC Lab — *Santa Clara, CA*

- Developed foundational Kotlin Android app to robustly communicate real-time fire emergency response communications.
- Navigational flow includes: login page, on-call standby, personnel assignment, in-app directions to emergency site, and a robust communication dashboard.
- Integrated app with Firebase back-end to register, authenticate, and personalize user navigation.
- Prototyped simple embedded system (Cortex-M4) to relay mobile app communications to LED array using BLE.

PROJECTS

Chirality Smart Glove Built a smart glove that tracks the finger and palm flexion within a maximum of 2° of error. Glove positioning system (ARM Cortex microcontroller) dynamically balances inertial sensor readings to provide seamless calibration and reliability. It functions as a universal remote, recognizing hand gestures and continually broadcasting the intrinsic positioning of the user's hand. While it has many applications, the glove primarily functions as a virtual reality controller (see website). The project won second place at the 2024 UCSB ECE Senior Capstone Competition. (Project Website)

Chromatic Tuner Designed and implemented an FPGA-based chromatic tuner using Vivado, Xilinx, an LCD screen, rotary encoder, and Microblaze softcore processor. Optimized a real-time FFT algorithm with sine/cosine lookup table, rolling averages, and decimation to identify musical notes, cent error, and octave in under 21ms. Dynamically adjusted optimal FFT parameters for accuracy across octaves. Developed a QP-nano based hierarchical state machine for multi-mode graphical user interface (tuner, octave select, settings, histogram), integrating peripherals via SPI and interrupts to ensure smooth and responsive performance. Extensively tested and validated system across a frequency range of 65 Hz to 4500 Hz.