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ERIC DAVID VETHA

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EDUCATION

MS. in Electrical and Computer Engineering September 2024 - Present
University of California, Santa Cruz, MS. Santa Cruz, CA

- Concentration in Robotics, Control, and Cyberphysical Systems
- Fully funded through Graduate Research Fellowships
- **Coursework:** Models of Robotic Manipulation, Linear Dynamical Systems, Convex Optimization, Small-Scale UAV Theory and Practice, Digital Signal Processing, Machine Learning

BS. in Robotics Engineering September 2020 - June 2024
University of California, Santa Cruz, BS. Santa Cruz, CA

- GPA: 3.81, Cum Laude Honors
- **Coursework:** Logic Design, Data Structures and Algorithms, Embedded Systems and C Programming, Signals and Systems, Microcontroller System Design, Mechatronics, Feedback Control Systems, Sensors and Sensing Technology

HONORS

2023	Earth Frontiers Institute Frontiers Fellowship recipient	EFI
2024	Carbon Fund Research Award recipient	Carbon Fund
2024	Graduate Student Researcher funding, University of California, Santa Cruz	
2025	Agricultural Experiment Station (AES) Graduate Student Research Fellowship recipient	AES
2025	Dean's Award for Outstanding Thesis	UCSC

PROFESSIONAL EXPERIENCE

Embedded Systems & Signal Processing Research Engineer Santa Cruz, CA
jLab in Smart Sensing @ University of California, Santa Cruz June 2024 - Present

- Designed a novel soil health sensing system using PCB ultra wideband radar and ultra low-power backscatter tags.
- Deployed real-time digital signal processing algorithms in C on embedded BeagleBone Black running Linux.
- Optimized signal processing pipeline using MATLAB's code generation and Simulink applications.
- Developed ROS2 wrapper for IMX IMU in C++ and set up RTK corrections using radio modem for long-range accurate localization of drones and quadruped robots.

Teaching Assistant in Embedded Systems Santa Cruz, CA
University of California, Santa Cruz January 2025 - March 2025

- Assisted students in developing embedded projects using various sensor technologies, including ping sensors, IMUs, and resistive sensors.
- Tutored students on fundamental issues in sensing of temperature, motion, sound, light, position, etc.

Autonomous Sensing & Embedded Systems Research Engineer Santa Cruz, CA
jLab in Smart Sensing @ University of California, Santa Cruz March 2023 - June 2024

- Designed autonomous interfacing scripts using MATLAB to streamline data processing with embedded BeagleBone Black.
- Improved novel soil moisture sensing system though experimental validation of various RF components.

PUBLICATIONS

Poster: Wireless Soil Monitoring Using Energy Harvesting SenSys 2025
E. Vetha, A. Darbonne, C. Josephson ENSsys 2025

Thesis: Remote Soil Moisture Sensing Using RF Backscatter Tags B.S.
E. Vetha University of California Santa Cruz

SKILLS

Languages: MATLAB (Proficient), C (Proficient), ROS2 (Experienced), Python (Experienced), Linux (Experienced), C++ (Experienced), Docker (Moderately Experienced).

Technologies: Experience with embedded programming and communication methods (I2C, SPI, UART); worked with Gazebo simulation tools; created imitation learning models and flight control systems; experience with PCB tools (KiCad and Altium); worked with RF Hardware.

General: Capable of working well both individually and in groups; Comfortable with technical writing.

Projects: UAV Simulation for Drones; Convex Optimization for Signal Denoising; Imitation Learning in Robotic Manipulations; Sensor Based Instrumental Globes; Autonomous Ball Shooting Robot.