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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

Digital Signal Processing & Mechatronics Researcher Santa Cruz, CA
jLab in Smart Sensing @ University of California, Santa Cruz March 2023 - Present

- Implemented real-time digital signal processing algorithms in C on embedded BeagleBone Black running Linux.
- Streamlined DSP pipeline performance using MATLAB code generation tools for embedded deployment.
- Built a TensorFlow-based machine learning workflow in Python, leveraging transfer learning on radargram datasets.
- Developed a ROS2 driver in C++ for IMX IMU integration and configured RTK corrections via radio modem for high-precision localization of UAVs and quadruped robots.
- Engineered a novel soil health sensing platform combining UWB radar with ultra-low-power backscatter RFID tags.

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.

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.