

Rafael Delwart

Robotics Engineer

4095 California St, San Francisco, CA 94118 — +1 (415) 802-5537 — radelwart@gmail.com —
ramfi-d.github.io/Engineering-Portfolio/

About Me

I am a Robotics Engineering graduate from UCSC, born and raised in San Francisco, with hands-on experience in microelectronics, programming microcontrollers, and automating complex systems. I am proficient in Kicad, C++, and SolidWorks, capable of simulating and developing real-world applications. I am a fast learner with practical expertise in leading a team, software development, electrical systems, and CAD design.

Major Projects

Wet-Dry Cycler for RNA Production

Recruited and led a team to design and build an automated system to simulate early Earth conditions for non-enzymatic RNA synthesis, supporting origins-of-life research in collaboration with Dr. David Deamer.

3D Tracking Using an IMU for Rock Climbing

Developed an inertial measurement unit (IMU)-based tracking system for analyzing climber movement, improving performance insights, and motion visualization.

Mechatronics Competition (2nd Place)

Led the development of a high-performance autonomous robotic system, integrating microcontrollers, sensors, and real-time feedback for competitive mechatronics tasks.

Detailed descriptions and documentation available at: ramfi-d.github.io/Engineering-Portfolio/

Work Experience

UCSC, Santa Cruz, CA

Undergraduate Tutor — ECE167: Sensors and Sensing

Supervisor: Professor Collen Josephson (cjosephson@ucsc.edu)

Led tri-weekly lab sessions for 100 plus students on sensor technologies and data processing. Covered sensing principles, calibration, signal filtering, ADC, and data acquisition. Guided students in practical lab applications using C programming and lab equipment.

Skills

Programming: Python, Kicad, C, C++, Verilog, MATLAB, Assembly, HTML, CSS, Latex.

Math & Physics: Strong background in advanced concepts.

Systems Modeling: Kinematics, dynamics, SolidWorks, OnShape.

Electronics: LTSpice, Circuit design, analysis, analog/digital systems.

Projects: Microcontrollers, sensors, 3D prototyping, technical documentation.

Languages: Fluent in French and English.

Education

University of California, Santa Cruz (UCSC)

Robotics Engineering, Minor in Electrical Engineering

Sept 2020 - June 2025

Dean's Honor List (4 times)

Major GPA: 3.74

Honors Graduate in both fields

References

Prof. David Deamer (deamer@soe.ucsc.edu) • Prof. Collen Josephson (cjosephson@ucsc.edu) • Prof. Zouheir Rezki (zrezki@ucsc.edu)

Most Relevant Courses

Computer Science:

Logic Design
Data Structures
Probability & Statistics
Assembly
Discrete Math
Python
Programming Abstractions
C Programming

Electrical & Mech. Engineering:

Project for Professor Deamer
Applied Feedback Control
Feedback Control Systems
Analog Electronics
Sensors & Sensing
Embedded Systems
Mechatronics
Signals & Systems
Circuits

Math & Physics:

Statics & Mechanics
Calculus I
Calculus II
Linear Algebra
Vector Calculus
Physics I
Physics III
Mathematical Methods II
Kinematics