Rafael Delwart

Robotics Engineer

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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/Website/

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

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)