

# Rafael Delwart

Robotics Engineer

## 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 coding, electrical systems, and 3D modeling.

## 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 real-time 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/](https://ramfi-d.github.io/Website/)

## Most Relevant Courses

---

### Computer Science:

CSE 100/L: Logic Design (A-)  
CSE 101: Data Structures (B)  
CSE 107: Prob. & Stats (B-)  
CSE 12: Assembly (A)  
CSE 16: Discrete Math (B)  
CSE 20: Python (B)  
CSE 30: Prog. Abstractions (B)  
ECE 13: C Programming (A-)

### Electrical & Mech. Engineering:

ECE 129A/B/C: Project for Professor Deamer (A)  
ECE 242: Applied Feedback Control (A)  
ECE 141: Feedback Control Systems (A)  
ECE 171/L: Analog Elec. (A-)  
ECE 167/L: Sensors (B+) Lab (A+)  
ECE 121/L: Embedded Systems (A)  
ECE 118: Mechatronics (A)  
ECE 103/L: Signals & Systems (A+)  
ECE 101/L: Circuits (B+)

### Math & Physics:

ECE 9: Statics & Mechanics (B)  
MATH 19A: Calc I (B+)  
MATH 19B: Calc II (B)  
MATH 21: Linear Algebra (A)  
MATH 23A: Vector Calc (B)  
PHYS 5A/L: Physics I (B+) Lab (A)  
PHYS 5C/N: Physics III (B+) Lab (A)  
AM 20: Math Methods II (A-)  
ECE 10: Kinematics (A+)

## Work Experience

---

### UCSC, Santa Cruz, CA

Undergraduate Tutor — ECE167: Sensors and Sensing

Winter Quarter 2025

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

Led tri-weekly lab sessions 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.

## 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:** Circuit design, analysis, analog/digital systems.

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

**Languages:** Fluent in French.

## Education

---

### University of California, Santa Cruz (UCSC)

Robotics Engineering, Minor in Electrical Engineering

Sept 2020 - June 2025

## References

---

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

## Contact

---

132 Donna Ct, Santa Cruz, CA 95060

+1 (415) 802-5537

Email: rdelwart@gmail.com Website: [ramfi-d.github.io/Website/](https://ramfi-d.github.io/Website/)