

# Cole Schreiner

Checkout my biggest projects at: [UserIsMissing.GitHub.io](https://UserIsMissing.GitHub.io)

## About Me

I am a Robotics Engineering graduate from UC Santa Cruz with 10+ years of hands-on experience in microelectronics, embedded systems, and automation. I bring a strong proficiency in microcontroller programming, software development, and CAD-based mechanical design, supported by a track record of leading small technical teams to deliver unique engineering solutions. I thrive in multidisciplinary environments and am driven to build innovative, novel technologies. I'm excited to apply my technical versatility to forward thinking robotics organizations.

## Education

### University of California, Santa Cruz

Graduated 2026

Robotics Concentration ~ Graduated with Highest Honors

- Master of Science in Electrical and Computer Engineering
- Bachelor of Science in Robotics Engineering
- Minor in Electrical Engineering

### El Camino Community College

Graduated 2022

M.E.S.A. Member

- Associate of Science in Physics
- Associate of Science in Mathematics

## Technical Skills

**Languages:** Verilog, VHDL, Matlab, C, C++, Java, Python

**Tools and Programs:** AutoDesk, OnShape, SolidWorks, Git, Vivado, LTSpice, Oscilloscopes, 3D Printing, Laser Cutting

**Circuit Theory:** Kirchhoff's Laws, voltage and current division, op-amps, RL and RLC circuits, frequency response, filters, Bode plots, Thevenin/Norton equivalence, analog electronics, and PSpice circuit modeling

**Data Structures:** Trees, Heaps, Binary Search Trees, Graphs, BFS, and DFS

**Engineering:** Statics, Dynamics and kinematic motion of Robots, Feedback Control Systems, VLSI, Microcontroller System Design

## Major Projects

### Capstone - Wet-Dry Cycler (RNA Replicator) - [\[Project Link\]](#)

2024 - 2025

Project Director - Origins of Life Simulation Device

- **Objective:** Designed an automated device to simulate prebiotic wet-dry cycling, aiding RNA/DNA polymerization research and enabling cost-effective RNA synthesis for pharmaceutical applications (e.g., siRNA production)
- **Technical Expertise:** Microcontroller programming, feedback control, fluid dynamics, thermal systems, and mechanical design
- **Software Proficiency:** GUI development, automation control, and real-time data analysis
- Collaborated with biomolecular researchers to advance RNA transcription and polymerization, with potential applications in RNA-based therapies such as siRNA

### Professor Piano - [\[Project Drive\]](#)

March, 2025

- Designed and developed a wearable piano teaching glove featuring piezoelectric sensors, real-time peak detection, and personalized calibration
- Integrated inertial measurement units (accelerometers and gyroscopes) to capture and analyze user movement, utilizing Euler angles for precise orientation tracking
- Led the integration of I2S audio playback for high-quality sound feedback, enhancing the user experience with immersive, real-time audio feedback

### Mechatronics Robot Competition - [\[Github + Technical Report\]](#)

June, 2024

- Directed a team to integrate an embedded state machine design with custom electrical circuits and analog filters to develop a functional robot prototype
- Utilized advanced SolidWorks design techniques to create precise mechanical components and ensure seamless system integration
- Designed, built, and tested the robot under a five-week deadline before competing against 20 teams

### Palos Verdes Summer Tech Internship - [\[PvNet Website\]](#)

June, 2022 – August, 2022

Project Lead - Canine Medical Analysis Sensor

- Designed and developed a medical device to diagnose future mobility issues in dogs by measuring gait variances
- Applied machine learning algorithms to 9-axis IMU telemetry and developed sensor code for efficient data collection and analysis
- Assembled electronics, soldered components, designed in AutoCAD for 3D printed housing, and tested circuitry and software
- Led a team to develop a fully functional prototype