Zachary Martino

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Education

University of California Berkeley **Sep. 2026 – Present**
B.S. Mechanical Engineering *Berkeley, CA*

Experience

Stanford Neuromuscular Biomechanics Lab **Sep 2025 – May 2026**
Intern and Undergraduate Researcher *Palo Alto, CA*

- Collaborated with a multidisciplinary research team to design, assemble, and test ultrasound-based systems for noninvasive blood pressure measurement.
- Assembled and tested custom printed circuit boards equipped with piezoelectric transducers for ultrasound applications.
- Designed mechanical components, device enclosures, and applied performance-driven material selection.
- Implemented digital signal processing techniques to decode ultrasound signals and extract data.
- Synthesized findings from scientific literature to guide design decisions and solve complex technical challenges.
- Developed and executed experimental protocols to test and validate system performance.

Underwater Robotics, MATE ROV Competition Mentor **Sep 2024 – May 2026**
Program Mentor *San Jose, CA*

- Instructed high school MATE ROV members in CAD, fabrication, and competition strategy, advising on design challenges and troubleshooting throughout the season.
- Leveraged four years of competition experience to strengthen students' technical skills and competition readiness.

Projects

Underwater Robotics, MATE ROV Competition | President | Mechanical Team **Sep 2020 - Aug 2024**

- Managed and coordinated an 8-member team, achieving 4th place at the international competition in Kingsport, TN.
- Iteratively designed, prototyped, and tested mechanical components to optimize functional performance
- Applied hydrostatics and buoyancy principles to design and develop submersible ROVs.
- Built and fabricated components using 3D printing, laser cutting, drilling, and milling.

GO-BGC Float "Geoff" **November 2020**

- Designed and built a buoyancy engine-driven profiling float using a syringe-based system to control ascent and descent through water intake.
- Integrated embedded electronics including an ESP8266 microcontroller, BarO2 depth sensor, H-bridge motor driver, and custom PCB for actuator control and data acquisition.
- Engineered a dual-enclosure pressure system with leak-tested housings and pressure equalization to ensure structural integrity at depth.
- Implemented safety features including fused battery protection, pressure relief mechanisms, and depth-tested components to prevent failure under load.

Technical Skills

CAD Programs: SolidWorks (modeling and technical drafting), Onshape, Autodesk Inventor, Fusion 360
Fabrication Tools: 3D printing, laser cutting, milling and drilling, band saw, 2.5-axis CNC routing
Programming Languages: MATLAB