Eric H. Balch

Mountain View, CA | *Email:* erichbalch@gmail.com | *Cell:* (650) 447-9086
***LinkedIn:* www.linkedin.com/in/eric-balch | *Portfolio:* ericbalch.github.io**

EDUCATION

University of California, Los Angeles — *Graduation June 2027*
Bachelor of Science in Mechanical Engineering — GPA 3.98/4.0

Mountain View High School, Mountain View, CA — *Graduation June 2024*
Honors Diploma — GPA 4.7/4.0

PROFESSIONAL EXPERIENCE

Bioengineering Intern, Stanford University — *June—Sept 2023*
Cardiovascular Biomechanics Computation Lab

- Conduct modeling (segmentation, model building, meshing) for computational fluid dynamics (CFD) simulations to understand coronary artery disease and physiology
- Model pipeline for cardiovascular anatomic models of patient-specific coronary bypass procedures (e.g., grafts) to analyze changing hemodynamics of different attachment locations
- Create all segmentations and run CFD simulations to evaluate standard graft with resistor and complex boundary conditions (e.g., coronary BCs) to consider the effects of multiple stenoses

Lifeguard and Swim Instructor, City of Mountain View — *June 2021–Sept 2025*

- Head Guard leadership role supervising a staff of up to 5 lifeguards, CPR & water rescue certified
- Teach swimming skills, both water safety and stroke mechanics, for all ages children to adults

RELEVANT PROJECTS

Undergraduate Researcher in UCLA Bionics Laboratory — *November 2025–present*

- Design (SolidWorks) endoscope with independently controlled camera and surgical accessories to improve polyp resection and ease of use
- Focus on the proximal component of the project, creating the housing and operational mechanism for the accessory attachment point

Responsible Engineer for Bruin Formula SAE Racing Drivetrain Team — *June 2025–present*

- Design (SolidWorks) front/rear sprockets and motor shaft w/ Design-for-Manufacture (DFM) emphasis
- Iteratively FEA-test (ANSYS Workbench) part geometry to optimize slotting & reduce weight by >10% while withstanding extreme mechanical stress
- Develop GD&T drawings for outsourcing component manufacturing to local sponsors
- Create and execute (F360 CAM) CNC toolpaths for manufacturing of motor shaft and motor mounts, reducing manufacturing costs by >25%

Responsible Engineer for Bruin Formula SAE Racing New Member Project — *Sept 2024–June 2025*

- Designed (SolidWorks) assembly to stress test motor-to-sprocket chain (Up to 4500 N)
- FEA-tested (ANSYS Workbench) hook geometry strength; confirmed with manual calculations

Team Lead & Lead Designer of complex projects for Engineering Lab course — *Sept 2022–June 2024*

- Designed and built winning wireless car parking lot sensors & display for CTE Capstone project
- Designed and built winning robots for two Vex Robotics timed competitive challenges
- Designed and built hydraulic arm to perform timed competitive precision challenges
- Coordinated team member contributions and presented product design results to class

LEADERSHIP & EXTRACURRICULARS

- Bruin Formula Racing Team leadership team, Formula SAE competition (2024–present)
- Tau Beta Pi honor society tutor (2025 – Present)
- Silicon Valley Bike Exchange bike mechanic, repairing used bicycles for donation (2018–2024)

SKILLS

- **Software:** SolidWorks, Fusion 360, ANSYS, MATLAB, MS Office, Gemini, Java, Python
- **Machines:** Drill Press, Band Saw, 3D Printer, Lathe, Mill (CNC & manual)