Eric H. Balch

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EDUCATION

University of California, Los Angeles *Graduation June 2028*
Bachelor of Science in Mechanical Engineering GPA 4.0/4.0

- *Coursework:* Fluid Mechanics, Statics & Strength of Materials, Thermodynamics, Physics Mechanics, Oscillations/Waves/E&M, Optics & Special Relativity, Chemical Structure & Energetics, Differential Equations, Integral/Multivariable Calculus, Linear Algebra

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

WORK 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
- Teach swimming skills, both water safety and stroke mechanics, for all ages children to adults
- Certified to perform emergency medical care, including CPR and water rescues

RELEVANT PROJECTS

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

- Design (SolidWorks) front/rear sprockets and mount to transmit power to vehicle wheels
- Iteratively FEA-test (ANSYS Workbench) part geometry to optimize slotting & reduce weight

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

- Designed (SolidWorks) assembly to stress test motor-to-sprocket power transmission chain
- 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 AND EXTRACURRICULARS

- Bruin Formula Racing Team leadership team, Formula SAE competition (2024–present)
- Silicon Valley Bike Exchange bike mechanic, repairing used bicycles for donation (2018–2024)
- Teaching Assistant for AP US History (2023–2024); assist with grading and classroom tasks
- Varsity water polo (2021–2024) and Varsity track & field hurdler (2022–2024)

SKILLS

- **Software:** SolidWorks, ANSYS, MATLAB, Fusion 360, Paraview, MS Office, Java & Python coding
- **Machines:** Drill Press, Band Saw, 3D Printer, Lathe, Mill
- **Certifications:** Festo NC3 Mechatronics, OSHA 10