Sara Razavi

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EDUCATION

California Institute of Technology (Caltech) **Pasadena, CA**
Bachelor of Science, Major in Mechanical Engineering, Minor in Biology September 2021 – December 2025

Honors & Awards: Caltech Bill Gross Prize for Entrepreneurship Awardee; Caltech Inclusion, Diversity, & Equity Award; NASA Virginia Aerospace Science & Technology Scholar; QuestBridge National Scholarship; Johns Hopkins Global Health Leaders Conference Speaker

Relevant Coursework: Engineering Design Lab; Robotics; Programming; Prototyping; Fluid Dynamics; Mechanics; Experiments & Modeling; Dimensional & Data Analyses in Engineering; Neuroscience Lab; Space Engineering; Aerospace Control Systems

PROFESSIONAL EXPERIENCE

Caltech-CERN **Pasadena, CA**
Precision Detector Systems Engineering Research Assistant October 2025 – December 2025
- Engineered and validated precision detector modules for CERN's CMS Barrel Timing Layer upgrade, integrating LYSO: Ce crystal arrays with SiPM sensors to achieve ultra-fast 30–60 ps timing resolution for next-generation particle tracking
- Executed and optimized end-to-end QA/QC and system-level testing, calibrating bias voltages, verifying thermal stability, and troubleshooting DAQ performance, to ensure full compliance with CERN's high-reliability and performance standards

Northrop Grumman **Dulles, VA**
Mechanical Systems Integration & Testing Engineer Intern June 2025 – August 2025
- Enhanced mechanical integration and testing workflows for Cygnus and MRV by diagnosing design inefficiencies, refining assembly procedures, and implementing engineering solutions, reducing integration issues by 20% and accelerating testing timelines by 10%
- Synthesized complex mechanical and systems data into actionable insights for cross-functional stakeholders, informing technical and budgetary decisions that improved milestone alignment and reduced project delays by 15% across engineering, PM, and QA teams

Caltech - ME11C: Fluid Dynamics & ME 13/113: Mechanical Prototyping **Pasadena, CA**
Mechanical Engineering Teaching Assistant September 2023 – June 2025
- Mentored 60+ students in fluid dynamics, mechanical design, and prototyping, applying FEA principles and hands-on iteration to boost analytical problem-solving by 25%, enhance prototype performance by 15%, and cut failure rates by 10%

Cedars-Sinai **Los Angeles, CA**
Biomedical Device R&D Engineer Intern July 2024 – March 2025
- Designed and optimized over 20 novel electrode configurations for electrical impedance tomography (EIT)–based bone diagnostics, elevating hardware precision and boosting ML model accuracy by 30% to advance clinical feasibility assessments
- Architected and automated modular data preprocessing pipelines to transform raw experimental outputs into ML-ready datasets, cutting data processing time by 40% and accelerating model development and integration across research teams

Caltech - Advanced Mechanical Bipedal Experimental Robotics Lab **Pasadena, CA**
Robotics Systems Research Engineer Assistant October 2023 – January 2024
- Customized and validated Myo Suite biomechanical simulations to generate patient-specific rehabilitation models, enhancing adaptability and scalability across neuromuscular profiles and advancing data-driven personalized therapy design

PROJECTS

Melano Metrics (MedTech Venture) **Los Angeles, CA**
Co-Founder & Product Design Lead March 2025 – June 2025
- Directed product design cross-functionally for an ML-powered solution correcting known SpO_2 reading inaccuracies in pulse oximeters and wearables for high-melanin individuals (Fitzpatrick V–VI), delivering a validated early-stage proof-of-concept
- Developed and pitched investor deck, articulating product vision, technical milestones, and FDA Breakthrough Devices Program as part of GTM, successfully securing $5K in competitive non-dilutive prize funding to support R&D

Caltech Bot Hockey Team **Pasadena, CA**
Lead Systems & Strategy Engineer September 2024 – March 2025
- Spearheaded the design and integration of high-performance mechanical subsystems, refining torque-optimized drivetrains and precision shooting mechanisms through iterative, data-driven testing, resulting in a finalist placement with three robust robots

SKILLS & INTERESTS

Skills: CAD (SolidWorks, AutoCAD, Creo), 3D Printing, GD&T, CNC Machining, Ansys, ROS, MATLAB, C++, Java, Python, JavaScript, HTML/CSS, SQL, Microsoft 365 Suite (Excel, PowerPoint, Word, SharePoint, Power Apps), Adobe Creative Cloud, UI/UX Design
Interests: Philosophy, Slam Poetry, Escape Rooms, Storytelling, Taekwondo (Black Belt), Oil Painting, Pastel, Horseback Riding, National Parks