Jacob Stutz

747-263-9108 • jacobwstutz@gmail.com • linkedin.com/in/jacob-stutz

Education

University of California, Berkeley | B.S. Mechanical Engineering *(Expected May 2028)*
Los Angeles Pierce College | A.S. Mathematics, A.A. STEM *(Conferred June 2026)*
Honors: Summa Cum Laude | GPA: 4.00

Skills & Certifications

Certifications: Certified SolidWorks Professional (CSWP), Certified SolidWorks Associate (CSWA)
CAD: SolidWorks, Fusion 360, AutoCAD | **Simulation:** SimScale | **Programming:** Python, MATLAB, Arduino
Manufacturing: GD&T, DFM/DFA, FDM 3D Printing

Projects

Bicycle CFD Analysis with SimScale February 2026 - Present
- Designed Kamm-tail bicycle fork fairings in SolidWorks, using SimScale CFD simulations to optimize airflow separation and predict a 16 W saving at 29 mph.
- Rapidly iterated prototypes with PETG 3D printing, conducted real-world roll-down/power testing to validate simulation models, validating CFD predictions with a measured 4-5 W drag reduction at 19 mph.

Crossbow Beanbag Launcher June 2026 - July 2026
- Engineered a 2-DOF pitch/yaw crossbow launching system mechanism in SolidWorks with a variable-trajectory system to repeatably shoot targets 20-25 ft away without moving the base.
- Fabricated with McMaster-Carr parts, 2020 T-slot aluminum extrusions, and 3D-printed parts made of Nylon, PETG, and PLA with different infill densities based on structural and stress requirements to achieve target accuracy.

600+ Part Assembly Model Steam Engine and Transmission in SolidWorks August 2025 - April 2026
- Interpreted complex 2D engineering drawings and bill of materials (BOM) to model 600+ individual components for a 1:16 steam engine assembly in SolidWorks, using advanced dynamic mates, and managed large-assembly performance.
- Optimized and added a custom 3-speed mechanical transmission, calculating gear ratios and incorporating COTS bearings and gears to provide power transmission across the gears.

Automated Data Acquisition & Environmental Monitoring System September 2024 - April 2025
- Integrated an Arduino microcontroller with temperature/humidity sensors to stream real-time data via serial communication to a custom MATLAB script.
- Analyzed sensor data in MATLAB, generating statistical analysis and time-series graphs, and exported data into Excel for reporting an HVAC outage to university faculty to justify building maintenance.

Work Experience

Wheel World Bicycles | *Technician* June 2021 - September 2026
- Diagnose and resolve issues in both e-bikes and traditional bicycles using manufacturer schematics, multimeters, bicycle-specific tools, and software (Shimano E-Tube, Specialized Turbo Studio, etc).
- Rebuild, repair, or replace components, including motors, batteries, control units, wiring harnesses, electronic/mechanical drivetrains, suspension, and hydraulic brakes.

Freelance CAD Designer | *Self-Employed* November 2025 - Present
- Developed custom mechanical components and rapid prototypes using SolidWorks and AutoCAD, converting client concepts into engineering design drawings following GD&T and functional 3D-printed parts (DFAM).
- Engineered a bottle filling system and mounting hardware components, improving production efficiency by up to 50% for a local car cleaning products company.

Extracurricular

Professional Cyclist | *U23 Life Time Grand Prix Athlete* January 2024 - Present
- Compete in elite national off-road cycling events, balancing high-volume endurance training and corporate sponsorships alongside being a full-time engineering student.

Youth Mountain Bike Coach | *Local After-School Club* August 2023 - Present
- Teaching and training middle and high school athletes fundamental mountain bike skills and bicycle maintenance.