

# Zac Gwennap

zacgwennap@gmail.com | Portfolio: zacgwennap.github.io | github.com/zacgwennap

## Education

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University of California, Berkeley – Graduated with BS in Mechanical Engineering

Dec 2024

## Skills

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**CAD & Design:** SolidWorks (CSWP Certified), Fusion 360, Onshape, AutoCAD, Autodesk Eagle

**Manufacturing:** FDM/Resin 3D Printing, Manual Mill and Lathe, Soldering, Wiring and Assembly

**Programming:** MATLAB, Python, C++, Git, LaTeX, Linux, Simulink, LabVIEW, GCODE, C/Arduino

## Work Experience

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**Mechanical Engineer - Temporary**, Fierro Fab – Long Beach, CA

March 2025 – Present

- Engineered jigs and fixtures for sheet metal forming processes including stamping, alignment, and die creation.
- Created 3D scans of vehicles and components to reverse-engineer legacy parts and design new mechanisms.
- Developed and 3D printed functional seals and gaskets for complex geometries for low-volume production.

**Ugrad Researcher**, Additive Manufacturing and Metamaterials Lab – Berkeley, CA

May 2023 – Dec 2024

- Designed and built a multi-material printer prototype that consisted of CAD design, custom software in LabVIEW and Arduino, and a novel resin swapping method.
- Created a MATLAB script to automate the detection and replacement of faulty image projections found in slicing software, a task that was done manually for each model.
- Developed a small scale piezoelectric actuator for use in haptic devices that amplified displacement by 100x.
- In the process for getting published in a paper investigating printing defects in large area 3D printing.

**Engineering Intern**, NASA – Virtual

June 2021 – Aug 2021

- Modified CAD files of the X-59 aircraft aimed at improving 3D print quality of thin features.
- 3D printed and revised models based off input from the NASA model shop.
- Created a paper model kit of the X-59 aircraft used for STEM education.
- Designed a prototype vehicle in SolidWorks to carry an incapacitated astronaut back to a lunar base.

## Projects

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**High Speed 3D Printer**

github.com/zacgwennap/MoXY-3D-Printer

- Designed and built a custom 3D printer capable of achieving accelerations 3x faster than commercial printers.
- Collaborated with CNC services to meet strict GD&T requirements for precision components.
- Engineered and manufactured a metal 3D printed worm gear extruder for high extrusion rates.
- Integrated mixed AC and DC systems in a custom-designed electronics enclosure.

**Thrust Vector Controlled Model Rocket**

github.com/zacgwennap/Model-Rocket-Flight-Simulation

- Constructed a servo actuated thrust vectoring mechanism with  $\pm 5^\circ$  of travel.
- Developed and soldered a custom PCB to process data from multiple sensors and control servos.
- Performed parachute ejection tests with a spring-loaded piston, enhancing deployment reliability.
- Simulated flight paths using dynamic mass calculations and rocket angle.

**Engineering Club President, SPACE Club Vice President**

- Oversaw club activities including events and outreach, increasing club member count by over 100%.
- Organized field trips to VEX robotics matches, planning around budgets and safety.
- Managed interdisciplinary meetings between electronics, software, and mechanical teams to streamline build process under tight deadlines.