Aeden Gasser-Brennan

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Education

- **University of California, Berkeley** — Berkeley, CA
  BS, Mechanical Engineering, GPA 3.96, Regents Scholar (top 2% of applicants) — Graduation Date: Spring 2023
  - ME132 (Controls & Dynamics), ENG25 (Drafting), ENG7 (MATLAB), PHYS7B (Thermodynamics + E&M), CHEM1A (General Chem), MATH 53 (Multivariable Calculus), MATH 54 (Lin. Alg, Differential Equations)
- **Harvard-Westlake High School** — Los Angeles, CA
  High School Diploma; GPA: 4.45 — Class of 2019

Experience

- **UC Berkeley Formula SAE Subteam Lead** — Aug 2019 - Current
  - Responsible for managing vehicle dynamics subteam, as well as running all testing on the car, designing suspension geometry and improvement of team lap-simulation software. Vehicle assembly, and composite manufacturing.
- **Wave Power Generation; UC Berkeley Mechanical Engineering** — Aug 2019 - Current
  - Undergraduate research assistant in laboratory of Reza Alam. Working on US Department of Energy Waves to Water Prize. Wrote time domain simulator for wave power-take-off system to optimize system parameters for energy absorption. Currently working on adjustable displacement pump to match hydrodynamic damping with pump impedance for max energy absorption.
- **Custom Electric Ultralight Aircraft Development** — January 2020 - Current
  - Assembled air frame, and control surfaces. Installed flight propulsion system. Designed, prototyped, and tested mounting hardware for avionics. Built custom tools and methods to improve assembly efficiency. Collaborated with avionics engineers to improve design.
- **High Performance 3D-Printed Harmonic Drive Creation** — May 2020 - Current
  - Designed fully 3D printed harmonic drive actuator, with 1:60 gear reduction. 3D printed ball bearings, and custom gear tooth profile. Ideal tooth profile mathematically designed using fundamental law of gearing and computed deflection of strain wave gear. CAD is entirely parametric and can be used for all sizes of harmonic drive.
- **Freelance CAD Designer** — Jun 2019 - Current
  - Contracted to do design and product development work for small businesses and individuals. Work with manufacturers and company leaders to arrive at a design. 10+ satisfied corporate clients in accessories, plumbing, outdoors, and healthcare industries.
- **Battlebots®Robotics Team Shellshock** — May 2019 - Jul 2019
  - Helped design solid parts for chassis, weapon, shell, and drivetrain for Battlebots team Shellshock. Manufactured 3-axis milled parts and worked with machine shops to produce complex 5-axis mill and CNC lathe parts.
- **Quadruped Prosthetics; CSU Fullerton Mechanical Engineering** — Jun 2018 - Aug 2018
  - Summer intern in the laboratory of Dr. Nina Robson, Dept. of Mechanical Engineering, California State University, Fullerton. Worked on CAD modeling, 3D printing, and testing of a customized prosthetic for paraplegic dogs.
  - Co-author on 2 posters at CSU Fullerton Science and Engineering Summer Research Symposium:
    - Lopez, Gasser-Brennan, Chen, Robson, "Supporting Orthotic Wheelchair for Disabled Quadrupeds"
    - Nguyen, Gasser-Brennan, Robson, "Performance Evaluation of a Human Upper-Extremity Prosthetic Device"
- **Anechoic Wind Tunnel; CSU Fullerton Mechanical Engineering** — Jun 2017 - Aug 2017
  - Designed sensor arrays to test the acoustic damping properties of supersonic wing vortices in lab of Salvador Mayoral. Motorized gantry system to move sensors in wind tunnel during operation.
- **Wind Tunnel Control Systems; CSU Fullerton Mechanical Engineering** — Jun 2016 - Aug 2016
  - Made circuit diagrams and built custom control system for laboratory wind tunnel in lab of Salvador Mayoral. Control system incorporated pressure transducers to monitor wind tunnel, motor controllers to control sensor array from year before, and relays to control main compressor.
- **FRC Robotics Team 3328** — Sep 2017 - Jun 2019
  - Lead designer and programmer, First Robotics Team 3328. Designed team's first ever custom gearboxes, and over one thousand machined parts overall. Worked with local machine shops and material suppliers for sponsorship.
- **VEX Robotics Team 6007X** — Jan 2013 - Apr 2018
  - 6 years as captain and founder of Vex Robotics Team 6007; was main designer, builder, and programmer of team robots. Pioneered use of CNC manufactured parts in competition that is traditionally mostly off-the-shelf. Top 1% of competitors internationally (see below). 6007x.us

Skills

- **CAD Software:** Solidworks (CSWA Certified), Autodesk Inventor, Fusion 360
- **Machining Experience:** 3, 5-axis CNC Mill, Laser Cutter, Waterjet, 3D Printer, CNC Lathe, CNC Brake Press
- **Programming/Markup Languages:** MATLAB, Python, Java, JS, HTML/CSS, LaTeX, github.com/AedenGB

Awards

- **UC Berkeley Regents Scholar:** Top 2% of admitted class. — Mar 2019 - Current
- **Caroline D. Bradley Scholar:** Four years private high school tuition paid. — 2015 - 2019
- **Vex Robotics** — 2013 - 2018
  - 2017 High School Division Champion, World Championships.
  - 2014-2018 World Championship Competitor
  - 2017, 2016, 2014 State Champion, CA State Championships.