

Arturo Estrada

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EDUCATION

University of California, Berkeley

Graduation: May 2027

B.S. Mechanical Engineering

Technical GPA: 3.50

- **Relevant Coursework:** Heat Transfer, Fluid Mechanics, Thermodynamics, IOT Electronics, Solid Mechanics I & II, Mechatronics, Calculus, Physics (Mechanics and E&M), Linear Algebra, Manufacturing and Design Communication, Statistics and Data Science
- **Technical Skills:** CAD: (Fusion, SolidWorks), Simulation: (FEA, FEM tools, MATLAB), Programming: (Python, JavaScript), Machining: (Lathe, Mill, Turning, Injection molding), Testing: (Hardware/software debugging), Microsoft Office: (Excel, Word, PowerPoint), GD&T, Technical 2D Drawings

EXPERIENCE

VTOL at Berkeley - Berkeley, CA

Sept. 2024 - Dec 2025

Mechanical Engineer

- Participated in CAD modeling and structural optimization for the first undergraduate-built single-seater tilt-rotor aircraft.
- Gained hands-on experience in researching and designing lightweight and aerodynamic structures for VTOL applications.
- Collaborating closely with team leads to refine tilt-rotor concepts and ensure all design parameters align with performance goals.
- Engaging in continuous learning through direct mentorship, independent projects, and collaborative problem-solving.
- Strengthened teamwork, communication, and technical skills in a small, focused team environment with access to advanced materials and tools.

Space Technologies and Rocketry (STAR) - Berkeley, CA

Sept. 2023 - May 2024

Propulsion Team Member

- Worked firsthand on the engine, contributing to essential rocket-related tasks like creating a propulsive ejector for a quick disconnect.
- Because it is a liquid engine, we prioritized safety, running simulations until we were confident enough to test it in real time.
- Incorporated payload requirements in the design, balancing weight and aerodynamics of the rocket to maximize altitude while staying cost-conscious, and recovering our rockets with another subgroup called Team Recovery.

PROJECTS

Soda Can Prevention Device

Fall 25

- A device to dissuade users from drinking out of a can to prevent sugar/alcohol intake through noninvasive, annoying tactics. It forces users to wait and stay quiet or else time will be added before opening.
- Collaborated in the design, optimization, and manufacturing of multiple-part interaction systems using different types of fits and locking mechanisms.
- Led the software and hardware of circuit, incorporating 3 sensors and 3 actuators to track volume through a weight sensor, sound sensor to track decibels, and a touch sensor to activate circuit together simultaneously to limit battery depletion.

Phone Gimbal Stabilization Project

Spring 25

- Designed, iterated, and 3D printed 6 parts, including housing and arms, to balance and support moving mass.
- Built 3-axis phone stabilizer using ESP32, MPU6050 IMU, PCA9685, and MG996R servos.
- Programmed PID control loops for real-time stabilization; debugged jitter and power fluctuations.

Sparrow VTOL Training Aircraft Project

Fall 24

- Contributed to the assembly and setup of a VTOL plane (Sparrow) by optimizing weight parameters in AeroPla, sanding and assembling components, and soldering ECU pins.
- Gained hands-on experience with ECU integration, including configuring flight controllers and enabling communication between VTOL and fixed-wing motors.
- Trained in aircraft flight control through simulation software to improve piloting skills for real-world applications.
- Enhanced collaboration and communication in a small, focused team environment while engaging in multidisciplinary learning.

Animatronic Robot Head

Summer 2024

- Designed and built an animatronic head of Bonnie from Five Nights at Freddy's, incorporating 11 servo motors for dynamic movement of eyes, eyelids, ears, and jaw.
- Utilized Arduino board for precise control of animatronic functions, demonstrating strong knowledge of electronics and programming.
- Conducted research on existing animatronics, electronics, and materials to ensure optimal performance and durability.
- Integrated a soundboard to synchronize audio with eye movements, enhancing the animatronic's realism and creating an authentic jump scare effect.

ALULA (Liquid Engine Rocket)

Aug. 2023- May 2024

- Utilized simulation tools to model the engine's performance under various conditions, considering factors like thrust, efficiency, and safety.
- Researched different materials for engine performance, considering a limited budget to provide maximum efficiency for heat resistance and structural integrity.
- Developed prototypes for different components for ALULA for testing and iterated on designs based on test results.

LEADERSHIP

Vertical Flight Society at Berkeley

Fall 25

- Student led group promoting everything vertical flight, organizing events to cultivate interest and networking.

SKILLS

Languages: Fluent in English, Intermediate in Spanish

