

## Larry Bermudez

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### EDUCATION

#### University of California, Berkeley

Berkeley, CA ♦ Expected Graduation May 2026

- B.S. Mechanical Engineering, GPA 3.6
- Awards: The Gates Scholarship '22, Hispanic Scholarship Fund Scholar '22, '23

### ENGINEERING EXPERIENCE

#### Space Enterprise at Berkeley, Team Member

January 2024 - Present

- Developed MATLAB Project to find compressive failure loads for carbon fiber tanks using Tsai-Wu criterion
- Conducting thermal, bending, and dynamic loading MATLAB Simulations for carbon fiber tanks for Critical Design Review
- Machined crucial airframe components such as fins, nose cone mold, and several bulkheads within tolerance of 0.001 in
- Assisted with both liquid and solid motor rocket hot fires as well as liquid rocket cold flow acceptance tests
- Designed and machined stainless steel rods that improved gaseous nitrous measurement by 20% via capacitance
- Led fiberglass composite layups for nose cone and sububes for Prospect, a solid rocket demonstrator

#### Open Source DIY 3D Binder Jet Printer for Composites, *Gu Research Group*

February 2025 - Present

- Machined and built frame and build surface of the printer using laser and water jet cutter.
- Designed and 3D Printed the gantry system and mounts
- Aiming to print lattice structures using metal powders to conduct material and lattice failure testing
- Assisting with development of machine learning algorithms to tune printing parameters in real time
- Contributed to open source project implementing a low cost alternative to industrial binder jet printers

#### Integrated Procurement Technologies, *Quality Inspector*

June 2023 - August 2023

- Performed comprehensive visual inspections of materials and components, including military and OEM parts, ensuring compliance with AS9120 regulations.
- Addressed Quality Assurance issues such as paperwork discrepancies and component defects for orders exceeding \$500,000 by coordinating with manufacturing partners.
- Enhanced existing quality assurance processes, resulting in a 15% reduction in issue resolution and order completion

### PROJECTS

#### Smart Bicycle IoT Integration Project

November 2024 - December 2024

- Used MicroPython to control the gear shifter based off incline angle data measurement from LSM6DS0 accelerometer
- Designed and 3D-Printed locking mechanism using a DC Motor and lead screw to convert rotational motion
- Implemented a GPS Module on the OLED UI using MicroPython to accurately track location

#### ML Model To Determine Alzheimer's Diagnosis

October 2024 - December 2024

- Created logistic regression models using Python to evaluate Alzheimer Diagnosis
- Used LASSO model to perform feature selection, identifying most important dataset variables
- Obtained 84% accuracy with confusion matrix showing 70% true positive rate and 91% true negative rate

#### 3D-Printed Wind Turbine Project

October 2022- December. 2022

- Conducted multiple static FEA analysis to optimize the tower structure, reducing deflection by 20% near the motor housing compartment.
- Iterated turbine blade design through 3 prototypes to maximize lift and overall performance.
- Organized and led group meetings, facilitating discussions and ensuring project milestones were met on schedule.

### LEADERSHIP EXPERIENCE

#### Mission Scholars, Member & Volunteer

December 2020 - Present

- Served as a recurring panelist, sharing personal experiences and providing guidance to first-generation students, helping foster donor relationships and supporting college preparation efforts.
- Volunteered at workshops focused on college budgeting, professional communication, networking, personal finance, and scholarship acquisitions

#### HSF Youth Leadership Institute, *HSF Scholar*

July 2021

- Selected for a competitive leadership program for Latino students, which enhanced leadership skills through workshops.
- Built a professional network by interacting with mentors, including college students and industry professionals, gaining valuable insights for academic and career success.

### SKILLS AND INTERESTS

**Technical Skills:** SolidWorks, MATLAB, GD&T, Python, Arduino, IoT, Machine Shop Trained

**Language:** Spanish & English (Native Reading & Writing)