ANDREW ZHU

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EDUCATION

University of California, Berkeley   Expected May 2024
B.S. in Mechanical Engineering   GPA: 3.697
Minor in Electrical Engineering and Computer Science (EECS)   Generation Change Scholarship

EXPERIENCE

Solar Vehicle Racing (CalSol) @ Berkeley   *Fall 2021 – Ongoing*
- Ran collision impact tests using **ANSYS** by identifying material properties, creating rosettes and oriented selection sets, and formatting layup material for composite material simulations.
- Manufactured **carbon fiber aluminum honeycomb sandwich panels** using vacuum sealing technique.
- Designed and validated roll cage iterations using **6061-T6 aluminum** and **4130 steel** as strong material contenders to not only satisfy space constraints and competition specifications but also weight efficiency and **FOS**.
- Working with manufacturing companies for **rotary and roll tube bending**, welding, and **heat treatment**.

Space Technology and Rocketry (S.T.A.R) @ Berkeley   *Fall 2021 - Ongoing*
- Worked on a project that successfully **stage separated** a **multi stage rocket** midflight to achieve high altitudes.
- Performed **FEA analysis** on bulkhead and U-bolt components that passed **CDR** and **PRR** sessions.
- Engaged in design review discussions regarding material choice and design choices for different rocket sections.
- Modified existing **Avionics Bays** to be more user accessible and space efficient for electronic flight components.
- Helped design and manufacture pyro rings and pyro bolts for assembly of spring loaded separation mechanism.

Software Developer Intern @ Mariner Finance LLC   *Summer 2021*
- Focused on the Business Intelligence aspect by using **PowerBI** and **SSRS** for business analytics & reporting
- Worked on database management using **SQL** and maintained existing reports and relationships to the database
- Created a report pulling data from across databases to show usage rates and trends for all other company reports

PROJECTS

Introduction to Product Development Course Project – "G.A.R.B."   *Summer Semester 2022*
- Created a smart trashcan designed to automatically detect and seal full capacity trash bags for contactless disposal.
- Marketed a 25% less expensive product compared to leading brands by reducing **BOM** costs after carefully considering the relevant concept features using the **Analytical Hierarchical Process** and **Pugh matrices**.
- Used SolidWorks, GD&T, **laser cutting**, FDM, **sheet metal forming**, and a detailed **Gantt chart** to create over 50 custom and interdependent hardware components in a four week period for product development.

Electronics for the IoT Course Project – "Rider's Guard"   *Fall Semester 2021*
- Created a safety device for electric skateboards that incorporates a brake light and collision alert system.
- Designed a break light by collecting IMU data and using **PWM** and custom interrupts to reflect the speed changes.
- Tweaked the sensitivity of the break light by performing an **IMU** calibration to achieve a 90% breaking accuracy.
- Programmed the collision alert using **MicroPython** to detect an unusual period of inactivity and a cancellation grace period before initiating a GPS ping via text message using **MQTT/IFTTT**.

Man. and Design Communication Course Project – "Grabber Cane"   *Summer Semester 2021*
- Designed a height adjustable walking cane that also acts as an extended arm to grab small objects off from ground.
- Used **SolidWorks** and **FEA** to create and validate 15 custom or modified assembly components.
- Manufactured custom components in-house using **FDM rapid prototyping** and various slicing techniques.
- Incorporated **GD&T**, **table of fits**, and **CAD drawings** to facilitate component assembly and future up scaling.

SKILLS & INTERESTS & AWARDS

Designing:	SolidWorks • ANSYS • Autodesk Inventor & Fusion • MS Office Suite
Manufacturing:	Rapid Prototyping (FDM, SLA) • Laser Cutting • Soldering • GD&T • Tube Bending
Programming:	MATLAB • Java • Arduino • SQL • HTML/CSS • Git • VSCode • IntelliJ • Power BI
Interests:	Digital Photography • Electric Longboarding • Cooking • Soccer • Videography
Awards:	MIT BWSI 2019 Teamwork Award • VEX Robotics Division World Champions 2018