

ANDREW ZHU

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EDUCATION

University of California, Berkeley

Expected Fall 2024

B.S. in Mechanical Engineering

Minor in Electrical Engineering and Computer Science (EECS)

Generation Change Scholarship

EXPERIENCE

RIVIAN Automotive | DFMA (LVE) Manufacturing Engineer Co-Op

Summer 2023 – Present

- Supported and advanced the Low Voltage Electrical ME subteam by developing DFMA guidelines, validating new program BOP, documenting subsystem content, representing cross-functionally, and owning value-add projects.
- Supported Design and Manufacturing Validation Builds for EDV and R1 programs by creating process sheets, troubleshooting new traveler software, maintaining MPL and BOP, and leading new equipment and process trials.
- Improved harness process granularity by incorporating DELMIA consumption strategy for clips and connectors.
- Mitigate assembly-related harness damage by defining hanking, stowing, clipping, and poka-yoke strategies.
- Improved GA DFMA guidelines by creating minimum bend radii, clearance, and clip and connector standards.
- Eliminated 12V battery risks by cross-collaborating upstream and downstream, using PFMEA and 5-Why for root cause analysis, outlining a solutions matrix, and implementing a cost-effective and reliable corrective action.
- Performed cycle time, sequencing, shingling, tool clearance, jig and fixture tooling, conveyance equipment clearance, ergonomic/safety, part dimensional accuracy, CLL, and packaging validation for 16 LVE components.

Berkeley | Solar Vehicle Racing (CalSol)

Fall 2021 - Summer 2023

- Simulated impact tests using ANSYS to successfully validate the composite monocoque catamaran chassis design.
- Manufactured carbon fiber aluminum honeycomb composite panels in house using vacuum bagging technique.
- Designed and validated a 13% lighter aluminum roll cage while satisfying space and strength (FOS) regulations.
- Manufactured the roll cage in house using rotary and roll bending, welding, and heat treatment techniques.

TECHNICAL PROJECTS

Mechatronics Design Course Project – “Porter” (Link)

Fall Semester 2022

- Created a suitcase carrying wheeled robot service that visually tracks and auto follows a user around in an airport.
- Calculated metrics for motor and load cell selection, axle and wheel sizing, and chain and bearing tensioning.
- Sourced materials across multiple vendors with lean manufacturing ideas to reduce projected costs by 12%.
- Custom designed a 100% reliable, passive-powered, lightweight, compliant suitcase gripping mechanism.
- Designed and validated a compact tank-drive chassis using SolidWorks FEA to reduce robot size by ~25%.

Science and Engineering of Cooking Course Project – “Shaker”

Fall Semester 2022

- Created a toaster-sized, voice activated, liquid emulsion shaker kitchen appliance for professional chefs.
- Designed a compact linkage system using planar mechanics to accurately emulate shaking motion and forces.
- Designed intuitively using living hinges, LCD screens, pushbuttons and rotary encoders to impress users.

Introduction to Product Development Course Project – “G.A.R.B.”

Summer Semester 2022

- Created a smart trashcan that automatically detected and sealed full capacity trash bags for contactless disposal.
- Analyzed BOM costs using Analytical Hierarchical Process and Pugh matrices to market a 25% cheaper product.
- Designed and manufactured 50+ components using CAD, GD&T, laser cutting, FDM, sheet metal forming, and a detailed and adaptive 4-week Gantt Chart to manage lead time and successfully produce a design prototype.

Electronics for the IoT Course Project – “Rider’s Guard” (Link)

Fall Semester 2021

- Created a safety device for electric skateboards that incorporates a brake light and collision alert system.
- Programmed the brake light using IMU data, PWM, and custom interrupts to detect slowing speeds or braking.
- Adjusted the sensitivity of the brake light by performing an IMU calibration to achieve a 90% braking accuracy.
- Programmed the collision alert using MicroPython and IMU to detect “unusual inactivity” with 100% accuracy.

Man. and Design Communication Course Project – “Grabber Cane” (Link)

Summer Semester 2021

- Created a height adjustable walking cane that also acts as an extended arm to grab small items off the ground.
- Designed, validated, and manufactured 15 components with 100% design for reliability using CAD, FEA, and FDM.
- Incorporated GD&T, table of fits, and design drawings to promote DFMA and reduce overall lead time.

SKILLS

Theory:	Calculus • Lin. Algebra • IoT • Dynamics • Mechatronics • Material Failure • Root Cause • PLM • Poka-Yoke
Design:	SolidWorks • CATIA • ANSYS • MS Office Suite • FEA • DFMA • DFMEA • EBOM • GD&T
MFG:	DELMIA • ENOVIA • FDM/SLA • Lathe & Mill • PFMEA • MBOM • BOP • RULA • MODAPTS • MES
Programming:	MATLAB • Java • Arduino • SQL • Git • VSCode • IntelliJ • Power BI • LabView