

Logan Garby

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WORK EXPERIENCE

Mechanical Engineer, High Voltage Battery – Lucid Motors

Oct 2021 – Present

- Part design and release for current and upcoming products, ensuring excellence at a system and component level by enhancing performance, reducing size/weight, improving durability, and reducing cost.
- Applying expertise in complex part ownership, manufacturing, and material selection.
- Working with vendors to ensure high production quality and effective design implementation.
- Utilizing first-principle engineering and creative design for effective problem-solving.

Thermal Runaway Detection Project Owner and Design Engineer

Jan 2022 – Present

- Optimizing battery pack thermal runaway detection strategy for mass production.
- Designed, validated, and currently implementing a system to comply with novel R100.03 battery safety regulations.
- Leading software, systems, hardware, and test team members to deliver a functional system to the Lucid Gravity vehicle program.

HV Busbar Resource and Redesign Lead Design Engineer

Aug 2022 – Mar 2023

- Redesigned battery pack busbar for cost, durability, and mass saving up to \$91 per vehicle (est. ~\$5 M/year savings).
- Ramped up new supplier, performed DFM, executed design validation testing, oversaw \$679K in tooling and fixture development, and supported the production part approval process (PPAP).
- Released 12 new busbar part numbers including a custom-designed, double-SEMS fastener, powder-coated busbars, and injection molded plastics.

Cost Reduction Project Lead

May 2022 – Present

- Created a 3 step process to down-select cost reduction projects and quantify their business cases.
- Holding weekly 1:1 meetings with the engineers assigned to each project, tracking progress, reporting to leadership, and providing technical, engineering guidance on design projects.

Battery Disconnect Unit (BDU) Technical Lead

Sep 2022 – Present

- Leading the BDU simultaneous engineer team (SET) to sustain current products while developing the next generation of BDUs optimized for cost, manufacturability, and reliability.
- Coordinating with electrical, harness, layout, software, manufacturing, quality, and test engineers to evaluate design options, select components, and create packaging proposals.

Data Engineering Intern – Axion Health Inc.

Jun 2018 – Aug 2018

- Responsible for the data validation of extremely large healthcare network employee data
- Developed SQL queries, drastically improving the process from 3 days per client to 30 min.
- Used Agile software development lifecycle management and JIRA for project tracking.

Assistant Trail Crew Leader & Crew Member – City of Boulder, CO

Jun 2013 – Aug 2017

- As a crew leader, taught, empowered, and mentored a supportive and productive team to accomplish project goals and sustainability goals for the City of Boulder Open Space.
- As a team crewmember, performed open space trail maintenance, including building wooden or stone steps, setting rocks for erosion and hiker guidance, and creating drainage features.

EDUCATION

California Polytechnic State University (Cal Poly) – San Luis Obispo

June 2021

Bachelor of Science: Mechanical Engineering

GPA: 3.6

Concentration: Mechatronics

Cum Laude

ACADEMIC PROJECTS

Solar Panel Tracking Mechanism – Cal Poly Solar Regatta Team **Apr 2020 – Jun 2021**

- Lead Mechatronics Engineer in charge of designing and building all mechatronics hardware, including an LDR feedback sensor array, linear actuators, and an MCU-operated control system.
- Designed and manufactured the electro-mechanical system used to transfer power from the solar panels to the mechatronics hardware and actuators.
- Links to visual examples: [YouTube Video Demonstration](#), [Final Design Review Report](#)

Mechatronic Balancing Board – Cal Poly College of Engineering **Nov 2020 – Mar 2021**

- Programmed and built a mechanical system that balances a ball on an elevated platform.
- Controlled by a Nucleo STM32 microcontroller running MicroPython on a custom-made PCB.
- Utilized classical control theory with encoder sensors and a resistive touch sensor for feedback.
- Used bitbucket for version control and created a webpage with documentation, detailing this project (Labs 5-9) and more at: lgarby.bitbucket.io; [YouTube Video Demonstration](#)

Aircraft Fuel Tank Fixture Design – Cal Poly College of Engineering **Sep 2019 – Dec 2019**

- Designed the lightest possible 3D printed PLA component capable of handling a 250 lbf max load with less than 1/8-in tip deflection for a specific fixture geometry and load conditions.
- Performed tensile strength testing (ASTM D638) to determine the PLA material properties.
- Used SolidWorks FEM analysis with material strength calibration to select the final design.
- The manufactured design exceeded the target FoS, with a max load of 588.7 lbf.

ACADEMIC LEADERSHIP EXPERIENCE

Executive Board, Secretary – Theta Chi Fraternity **Oct 2017 – Oct 2018**

- Youngest member elected to the Executive Board for the Cal Poly chapter of Theta Chi.
- Showed initiative by redesigning the point system designed to motivate member participation.

Orientation Leader – Cal Poly New Student & Transition Programs **Apr 2017 – Sep 2017**

- Formed an inclusive environment that encouraged communication, respect, and personal growth.
- Responsible for a week of presentations, activities, discussions, meals, and transportation.

Assistant Trail Crew Leader – City of Boulder OSMP **May 2016 – Aug 2017**

- Responsible for a 12-member crew, teaching job responsibilities, teamwork, and collaboration.
- Ensured project goals were met on time with exceptional attention to detail and functionality.

Technical Skills:

3DExperience (Similar to Catia V6)

High Voltage Mechanical Design (IEC-60664-1)

2D and 3D Computer-Aided Design (CAD Modeling)

Design Failure Modes and Effects Analysis (DFMEA)

Geometric Dimensioning & Tolerancing (ASME Y14.5 GD&T)

Engineering Drawing Creation (ASME Y14.100)

Design for Manufacturing/Assembly (DFM/DFA)

Fabrication Knowledge (Lathe, Mill, Drill, CNC)

Product Lifecycle Management (PLM)

Sheet Metal Stamping Design

Injection Molding Design

Finite Element Analysis (FEA)

SolidWorks

MATLAB/Simulink

MS Office (Excel, Word, PowerPoint, OneDrive)

Jira (Atlassian Project Management Tool)

Smartsheet Gantt Chart Software

Technical Product and Project Management

Soldering/Circuit Design

PCBA/Harness Design

Object-Oriented Programming

Python

SQL (Redshift/Oracle)

Tableau

Confluence (Atlassian)

Adobe Photoshop/Premier Pro

Problem-Solving/Critical Thinking

Communication/Collaboration