

Logan Garby

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EDUCATION

California Polytechnic State University – San Luis Obispo

June 2021

Bachelor of Science Mechanical Engineering – Mechatronics Concentration

GPA: 3.6

Cum Laude • Dean's List: Fall 2016, Winter 2017, Fall 2017, Fall 2019

ENGINEERING PROJECTS

Cal Poly Solar Regatta - Solar Panel Tracking Mechanism

Apr 2020 – Mar 2021

- In charge of designing and building all mechatronics hardware, including an LDR feedback sensor array, autonomously controlled linear actuators, and an MCU-operated control system.
- Lead designer and manufacturer of the electro-mechanical system used to transfer power from the solar panels to the mechatronics hardware and actuators.
- Video demonstration: [YouTube link](#), Final Design Review: digitalcommons.calpoly.edu/mesp/576/

Mechatronic Balancing Board

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 of the final project [here](#)

Aircraft Fuel Tank Fixture Design

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 the material strength calibration to select final design.
- The manufactured design exceeded expectations, and the FoS, with a max load of 588.7 lbf.

WORK EXPERIENCE

Axion Health Inc. - Data Analysis Intern

Jun 2018 – Aug 2018

- Responsible for the data validation of extremely large health care 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.

City of Boulder – Assistant Trail Crew Leader/Crew Member

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.

LEADERSHIP EXPERIENCE

Theta Chi Fraternity Executive Board – Secretary

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.

Cal Poly Week of Welcome – Orientation Leader

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.

City of Boulder OSMP - Assistant Trail Crew Leader

May 2016 – Aug 2017

- Responsible for 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:

Computer Aided Design (CAD Modeling)

Finite Element Analysis (FEA)

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

Engineering Drawing (ASME Y14.100)

Fabrication/Machining (Lathe, Mill, Drill, CNC)

Design for Manufacturing/Assembly (DFM/DFA)

MATLAB/Simulink

SolidWorks

Python

Oracle SQL

Autodesk Fusion 360

Soldering/Circuit Design

Embedded Systems

Object-Oriented Programming

JIRA Project Tracking

Tableau

Adobe Photoshop/Premier Pro

MS Office (Excel, Word, PowerPoint)

Problem-Solving/Critical Thinking

Communication/Collaboration