Alexander Carlson

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Objective

I am a highly motivated and creative mechanical engineer with a passion for mechanical design and automation. I am looking to work in a creative and team oriented environment to create solutions that drive product development.

Education

The University of Texas at Austin - 3.91 GPA **May 2024**

Bachelor of Science in Mechanical Engineering, Engineering Honors Program
Elements of Computing Certificate

Work Experience

Mechanical Design Student Technician, Applied Research Laboratories: UT **Fall 2023 - Present**

- Designed essential tooling, jigs, and fixtures utilizing SolidWorks, optimizing the assembly process for acoustic projector assemblies used in underwater vehicles
- Employed GD&T principles to draft engineering drawings, ensuring precision and adherence to quality standards

Equipment Engineering Intern, Texas Instruments **Summer 2023**

- Completed projects that improved statistical process control on semiconductor production tools
- Designed fiber optic sensor mount for use in harsh chemical environments and replacing a discontinued part
- Programmed dynamic models to monitor tool conditions, preventing thousands of dollars in product scrap

Honors Summer Internship, Applied Research Laboratories: UT **Summer 2022 - Fall 2022**

- Developed an autonomous unmanned surface vessel (USV) for testing marine autonomy engines
- Utilized skills in mechanical design, SolidWorks modeling, electrical wiring, and software to create mounting solutions, integrate navigation controllers, and tune PID loops for improved response.
- Iterated on design with a second version, achieving an IP67 waterproof rating, 20% higher top speed, increased wireless range, and improved thermal regulation.

Senior Instructor and FTC Development Coach, Kids Robotics Academy **Summer 2021**

- Developed and taught a robotics curriculum for a high school level robotics program
- Demonstrated concepts of strategic design, prototypes, and CAD modeling to prepare students for robotics season

Engineering Projects and Leadership

Texas Combat Robotics, Mechanical Design Lead **Spring 2024**

- Led design process and SolidWorks modeling to construct a 15lb combat robot
- Utilized engineering analysis and DFM principles to design a robust and maintainable robot
- Competed at the first ever SXSW Battle Bots Metal Mayhem event and finished second in group

Corporate Affairs Officer, UT American Society of Mechanical **Fall 2022-Spring 2023**

- Planned and hosted events for 100+ attendees to connect members with various industry professionals
- Managed and grew the corporate support network for UT ASME with proactive communication and outreach

First Robotics Competition: Team 3847, Mechanical Design Lead **Fall 2017-Spring 2020**

- Served as mechanical lead for 2 years, leading the development of competitive robots by leveraging advanced skills in SolidWorks, rapid prototyping, and design optimization.
- Integrated CNC, laser cutting, sheet metal design, and 3D printing techniques to enhance robot functionality and reliability, resulting in a top 18 performance at worlds

Skills

3D Modeling: SolidWorks, Fusion360, OnShape
Design for Manufacturing: 3D printing, CNC routing, milling, laser cutting, sheet metal design
Programming: Python, Java, Matlab, Swift