Alexander Carlson

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Objective

I am a highly motivated and creative mechanical engineer, with experience in mechanical and electro-mechanical design. I use engineering first-principles and a hands on approach to break down problems and design products that fulfill the needs of the end user.

Education

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

Bachelor of Science in Mechanical Engineering, Engineering Honors Program
Minor in Computer Science

Work Experience

Mechanical Design Engineer, Shield AI **August 2024 - Present**

- Delivered novel solutions for ground support equipment to refine an operator's user experience. Owned multiple projects from conceptual design through release to manufacturing in an ultra-fast paced, startup environment
- Designed an integrated power supply solution to increase available power to the aircraft and other ground support equipment by 200% while improving operator ergonomics and manufacturability. Ensured the product maintained an IP67 rating and could operate in temperatures up to 55 °C
- Designed, built, and programmed a test stand for load and cycle testing carbon fiber aircraft ducts. Created a guide for its use by manufacturing technicians
- Led electrical harness design for ground support equipment, modeling harnesses in CAD and creating manufacturing drawings using RapidHarness
- Worked directly with manufacturing engineers and technicians to create repeatable manufacturing processes
- Rapidly prototyped and built a pneumatic launcher to enable aircraft launch at max gross takeoff weight

Mechanical Design Technician, Applied Research Laboratories: UT **November 2023 - June 2024**

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

Equipment Engineering Intern, Texas Instruments **May 2023 - August 2023**

- 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 **June 2022 - December 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.

Engineering Projects and Leadership

Texas Combat Robotics, Mechanical Design Lead

- Led rapid design process and SolidWorks modeling to construct a 15lb combat robot in a 5 week span
- Utilized engineering analysis and DFM principles to design a robust and maintainable robot

Corporate Affairs Officer, UT American Society of Mechanical

- Managed and grew the corporate support network for UT ASME with proactive communication and outreach

Skills

3D Modeling: SolidWorks, Siemens NX, Fusion360, OnShape
Design for Manufacturability: 3D printing, CNC machining, laser cutting and etching, sheet metal design
Programming: Python, Java, Matlab, Swift