Andrew Amkreutz

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Objective

Highly motivated mechanical engineer with experience in: research, the design process, and development of projects into real world applications. Looking for a summer 2024 internship / permanent employment to expand my design, prototyping and implementation knowledge, while being an energetic, fast learning asset to the company.

Education

Worcester Polytechnic Institute | Worcester, MA *August 2020 – Present*
BS/MS Program Mechanical Engineering, GPA 3.67 Expected Graduation, Summer 2024

Skills

IISE LEAN | Green Belt
Programming: Python, MATLAB, Java, C, Arduino
Hardware: Raspberry Pi, Arduino, Oscilloscope
Machinery: Haas CNC lathe and Mini Mill, Hand and Power tools
Software: SolidWorks, ESPRIT, Adobe Suite, MS Office Suite, ANSYS
Communication: Research papers, Design proposals, Presentations (small audiences), Interpersonal skills

Experience

IPG Photonics | Oxford, Massachusetts *May 2023 – August 2023*
Laser Beam Delivery Engineering Intern

- Created fixtures to aid in the manufacturing process of laser beam delivery mechanisms which were designed to utilize an in-house machine shop, FormLabs resin printer, FormLabs nylon printer, and conventional 3D printers.
- Designed and manufactured a tool to consistently and accurately spread the convolutions of a bellow to allow for proper adhesion into its subassembly. This tool Is currently being used in the production line at this company.
- Designed and produced a prototype optics cover which is set to be manufactured out of Delrin and be shipped to the end user. This cover is used to protect this optic during transportation and storage.

Lowes Hotel | Miami Beach, Florida *June 2021 – August 2022*
Guest Services Management (Bell desk and Valet)

Projects

Creation and Testing of Metallic Foam *Semester 1, 2023-2024*
Design Engineer, Major Qualifying Project
A team project focusing in developing on creating and testing metallic foams for energy absorption applications

- Developing fixtures for impact and general structural testing for metallic foams.
- Testing various metallic materials for the foam structure and various liquids to imbue into the foam which allow for more favorable results for energy absorption applications.

Autonomous Vacuum Robot Cleaning Mechanism Semester 2, *2022-2023*
Project Lead, Advanced Engineering Design
A four-person group working with a major New England robotics company to develop systems to autonomously clean the wheels of the robot from any debris only using water, compressed air, and bristles

- Using additive manufacturing techniques (3D printing) and laser cutting, 3D models, created in SolidWorks, were printed to create a platform which automatically cleans the wheels of the autonomous vacuum cleaning robot in 2-5 minutes.

Subsonic Wind Tunnel Semester 1, *2022-2023*
Project Engineer Lead, Project Based Engineering Experimentation
A partner project which required the use of a thermal imaging sensor, pressure sensors, a motor, and temperature and humidity sensors to correctly monitor and control air flow over a test model

- Utilized Arduino to control sensors mounted in the wind tunnel. Assembled the inlet and outlet out of ¼ inch plywood which contracts to a testing region primarily made of a transparent acrylic.

Takase River Restoration Proposal | Kyoto, Japan Semester 1, *2022-2023*
Design Engineer, Interactive Qualifying Project
A four-person group which stayed in Kyoto to examine the Takase river whilst talking with locals to propose a plan to balance vegetation growth and canal erosion while assessing tourism growth, increased housing prices and other effects when finished

- Conducted research on possible materials and engineering techniques to repair canals to slow erosion and root damage whilst still allowing for vegetation to grow alongside the canal.