**Molly Bowers**

mollyhb0@gmail.com (224) 508-5596

Determined and committed individual pursuing position in a progressive and dynamic opportunity to benefit company by applying acquired skills and to induce continuous mutual growth.

**Education\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Master of Science in Engineering**

Purdue University, West Lafayette, IN Start: August 2022

Electrical and Computer Engineering

**Bachelor of Science in Engineering** Graduation: May 2019

Western Michigan University, Kalamazoo, MI Cumulative GPA: 3.30 Major: Mechanical Engineering Minor: Mathematics

**Software**

* Python, Javascript, HTML, CSS, Flask, Git, Github, SQL
* Certifications from freeCodeCamp in Python and HTML/CSS
* Pandas, Numpy libraries
* Certification from freeCodeCamp and CodeCademy in Javascript
* Github: https://github.com/mhb143/portfolio

**Work Experience\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Exterior Lighting Design Release Engineer** April 2021- April 2023

General Motors, Warren, MI

* Hold two weekly Product Development Team meetings with internal and external groups, and as a result saved company $93,000 for a taillight technical solution by negotiating with supplier about past design responsibility
* Improve process, quality, and design of headlights and taillights using recommendations from lighting suppliers and assembly plant, and warranty reviews, through online problem tracking and work order systems
* Coordinate cross-functionally with purchasing, validation, specifications analysts, technical specialists, and program managers to confirm costs, testing requirements, builds, accuracy of models and GD&T, and timing
* Met with Vehicle Chief Engineer to propose a customer-facing cost savings idea of $0.74 per vehicle
* Measured lighting homogeneity and uniformity with computer program and held clinic with 20 people to rate homogeneous appearance of 12 headlights and taillights

**Mechanical Design Engineer** January 2020-August 2020

Gearbox3D LLC, Grand Rapids, MI

* Managed team of three associates in thermal analysis testing of entire printer by leading team through finishing assembly of printer, determining and testing components with temperature limits, calculating timing of subtasks, and compiling data into graphs to present before CEO, manager, and associates
* Collaborated with multiple suppliers to determine and confirm manageable specifications and sizing, conceptual designs, and quoting in order to create two different mica heaters for a desiccant wheel dryer
* Designed brush system with tight constraints using Autodesk Fusion 360 to be used in purge chute of printer, searched for multiple suppliers for brushes, and presented design and quotations to manager and technician
* Performed theoretical calculations for humidity, temperature, velocity, pressure, and heat to aid in design of a desiccant wheel dryer used to dehumidify enclosure and create an arid environment for filament
* Conducted research through scientific articles to determine design guidelines for dryer including rate of rotation, desiccant material, shape of channels, and velocity of airflow for efficient drying of enclosure

**Technical Co-Op** May 2017-September 2018

DENSO Manufacturing Michigan, Inc., Battle Creek, MI

* Carried out various tests on company product from raw material to completion to improve quality or process
* Worked on a team of two to five associates or individually to create technical jigs and systems using Solidworks and Excel for fulfilling customer or company requests
* Observed room for improvement in productivity, technology, and functionality and implemented a proposed solution to apply continuous growth throughout plant

**Design Intern** May 2016-September 2016

W. Soule and Co. Sheet Metal Contractor, Kalamazoo, MI

* Produced consistent Solidworks models and drawings with ease of manufacturing in mind to provide client with envisioned solution by following predetermined constraints and safety regulations
* Drafted industrial parts and structures made in shop to comply with customer requirements
* Communicated with fabrication team to ensure quality and precision of products in accordance with drawings

**Extracurricular Activities\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Mechanical Team Lead; Member** September 2017-September 2018; August 2015-May 2019

Sunseeker Solar Racecar Team, WMU

* Extensively aided team in the process of making certain car components on the 2016 car, such as chassis and body exterior, to ensure successful performance in competitions
* Managed diversions from original designs to more fitting approaches resulting in easier manufacturability, a shorter lead time, or to be more economically feasible
* Guided about ten members through two weekly meetings, providing projects to small groups or individuals, such as designing steering wheel or array latches, from prototype proposal to final result to satisfy regulations
* Enhanced and altered car at three races to account for scrutineering decisions and drove car for five total hours at Formula Sun Grand Prix 2018

**Senior Design Project: Wind Tunnel for Noise Reduced Wind Turbine Blade**

* Conducted simulations in ANSYS and Solidworks CFD to measure velocity, volumetric flow rate, and pressure drops across blower, flow straightener, and nozzle, and compared this to obtained theoretical and experimental values
* Measured wind turbine blade prototypes using a microphone, with different channels through them and at different velocities, with wind tunnel, and recorded decibel against frequency data in quiet room
* Researched and implemented design considerations of creating wind tunnel including size of tunnel, rating of blower, flow straightener geometry, and nozzle profile

**Design of Thermal Systems**

* Conducted simulations in ANSYS FLUENT for a parallel and a counter flow double pipe heat exchanger and compared obtained values with experimental and theoretical values
* Measured temperature in a wire as current increased and compared this to conducted simulations in ANSYS and calculated theoretical values
* Simulated static temperature, velocity, pressure, and radiation in heated wire and surrounding air

**Technical Skills\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

* Software: Microsoft Office, Solidworks, Fusion 360, Inventor, AutoCAD, FEA, CFD, ANSYS, MATLAB, LabVIEW, NX, Teamcenter, Python, Javascript, HTML and CSS