

Jacob Bridenbecker



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Education

UNIVERSITY OF WASHINGTON BOTHELL

- Bachelor of Science – BS, Mechanical Engineering
- GPA: 3.46, Dean's List last 4 consecutive quarters

MECHANICAL ENGINEERING CAPSTONE, UNIVERSITY OF WASHINGTON, SEP 2020 – JUN 2021

- Designed and built multiple prototypes of a gearbox + winch for an ingress/egress system for a lunar lander to augment a traditional ladder. System was designed to safely raise and lower astronauts from the lunar surface while reducing weight. Five person team.
- 3D printed prototype successfully lifted 5lbs.

Relevant Skills

- **Technical:** SolidWorks CSWA Certification, DataQ, Fusion 360, Matlab, CAD, Microsoft Office
- **Classes:** Heat Transfer, Thermal Fluids, FEA Ansys, TOP-TRIZ, Machine Design, Materials Science, Thermal Dynamics, Electric Power, Machine Shop
- **Manufacturing Tools:** lathe, vertical mill, drill press, angle grinder, soldering iron, 3D Printer

Work Experience

MECHANICAL ENGINEERING INTERN, TETHERS UNLIMITED INC - BOTHELL WA, JUN 2020 - SEP 2020

- *Design Work:* Created 3D model of custom in house tool using Solidworks to document the construction and specifications of the device for upgrades and repair.
- *Test Engineering:* Aided in the construction/data collection/data analysis for high energy tests. Wired and calibrated load cell and pressure transducer, and recorded data using DataQ and high speed cameras. Successfully delivered working test setup and preliminary data under tight schedule.
- *Marketing:* Created spreadsheet with Excel to track product dispensation status and compare test results between serial numbers to help management and marketing steer customers to off-the-shelf items

VR OPERATOR, ODYSSEY VIRTUAL REALITY – REDMOND WA, JUN 2017 - JUN 2020

- Brought company to 5-star average on yelp. Received seven 5-star reviews on Yelp mentioning my name
- Introduced customers to VR headset and taught how to play VR games and apps, provided on the spot tech and customer support. Worked solo for 10 months. Trained new employees.

ENGINEERING INTERN, CONUNDRUM – REDMOND WA, JUN 2019 - SEP 2019

- Designed and 3D printed adjustable mounts for laser diodes to fix puzzle.
- Programmed and installed animated lighting decoration using Arduino and LED strips.
- Helped rebuild a puzzle to be easier to repair with woodworking and basic circuits.

Projects

WRENCH CUTOUT ANALYSIS, FINITE ELEMENT ANALYSIS, FEB 2021

- Used ANSYS to determine stress concentration magnitude and location, as well as strength difference if the wrench has a material saving cutout. Two person team.

CROSS FLOW HEAT EXCHANGER ANALYSIS, THERMAL FLUIDS LAB, OCT 2020

- Find theoretical and actual efficiency and heat transfer of cross flow heat exchanger. 98.8% efficiency with 0.254% difference from theoretical. Three person team.

FIREPROOF BOX DESIGN, HEAT TRANSFER, JUN 2020

- Designed a multilayer fireproof box to resist transferring extreme heat from a fire to flammable materials stored inside. Four person team.

ELECTRIC BIKE GEARBOX DESIGN, MACHINE DESIGN II, JUN 2020

- Designed a low mass gearbox to drive a bike. Calculated and selected gears, bearings, and shafts for the proper ratio and torque. Three person team.