

# Brandon Lim

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## Education

### University of Utah

August 2021 – May 2025

- B.S. Mechanical Engineering | Emphasis in Aerospace Engineering
- GPA: 3.753 | Dean's List Fall 2021, Spring 2022, Spring 2023, Fall 2023, Spring 2024

## Skills

- **Programming:** MATLAB, Simulink, Arduino C
- **CAD/Design:** SolidWorks - Certified SolidWorks Associate 2021, GD&T
- **Manufacturing:** Mill Certified, Lathe Certified, Basic Hand Tool and Machining Certified, 3D Printing, Green Sand Molding, Shell Core Manufacturing, Silica Sand Core Manufacturing

## Experience

### Department of Defense | Process Engineering Intern

May 2024 – August 2024

- Worked for the United States Air Force as a process engineering intern supporting the overhaul and maintenance of the F-16 weapons system
- Designed and developed 2 custom ratchets that improved the time efficiency of the F-16 leading edge taper lock nut removal process by over 50%
- Designed and implemented a custom press-fit bushing to repair an oversized and damaged hole in a custom lathe tool, resolving a work stoppage issue by restoring secure, concentric alignment for precise machining operations
- Digitized over 50 engineering files containing processes, documentation, and designs for custom tools, streamlining access to information by uploading them to a digital repository and organizing them with Excel spreadsheets.

### Valley Machine and Manufacturing Inc. | Freelance Engineering Drafter

May 2022 – August 2022

- Led the design and development of 3 variations of concrete cutting blades using the CAD software SolidWorks
- Implemented metrology practices and design tolerances to accurately incorporate existing tungsten carbide teeth into the design of concrete cutting blades
- Drafted blueprints for pre-existing aluminum cast parts used in the mining industry for machinists and customers to utilize

### TSB Foundry | Manufacturer

May 2017 – August 2023

- Molded closed green sand molds on patterns for the manufacturing of aluminum cast parts
- Operated permanent closed molds for the manufacturing of aluminum cast parts
- Operated shell mold machines and expandable silica sand molds to create cores used in the casting process
- Cut and grind aluminum cast parts as a finishing step in the aluminum casting process

## Projects

### F16 Tie-Bar Taper Lock Nut Custom Ratchet

May 2024 – August 2024

- Project was to design and develop a custom ratchetting tool, using the CAD software SolidWorks, to remove taper lock nuts from the leading edge of the F-16 wings more efficiently
  - Performed tolerance stack-ups and stress analysis in the design process to ensure the designs met the product requirements
  - Sourced materials and designed the tools to meet a budget of \$100 while still meeting quality standards
  - Prototyped each iteration of the tool using FDM 3D printing and conducted design reviews with a team of process engineers by presenting my designs and decisions via Power Point
  - Created official Air Force engineering drawings using geometric dimensioning and tolerancing to ensure accurate manufacturing for assembly

## **Mechatronics Robot Competition**

**January 2024 – May 2024**

- Robotics competition to engineer an autonomous robot that could collect various colored blocks from a dispenser, navigate to a chassis, and magnetically fuse each block to the chassis in various patterns to earn points
  - Worked with a four-man team to design, build and code an autonomous robot that won 1st place out of 30 teams
  - Designed and built a robot chassis using the CAD software SolidWorks and implemented various electrical actuators into the design to accomplish competition task
  - Designed and built multiple electrical components such as sensor breakout boards, power distribution boards, various sensors, and electrical wiring
  - Coded the robot using Arduino C and implemented PID classical control to accomplish competition tasks accurately

## **Concrete Cutting Blade**

**May 2022 – August 2022**

- Project was to design a concrete cutting blade to be laser cut from steel
  - Designed and developed 3 variations of a concrete cutting blade using the CAD software SolidWorks while communicating with machinist on the tolerancing requirements of assembly surfaces
  - Using various metrology tools like calipers, micrometers and protractors, I dimensioned and modeled pre-existing tungsten carbide teeth to be used in the blade design as an assembly piece
  - Created professional engineering drawings for manufacturing and engineering reference