

# Brandon Lim

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## Education

### University of Utah

August 2021 – May 2025

- B.S. Mechanical Engineering | Emphasis in Aerospace Engineering
- GPA: 3.722 | Deans List Fall 2021, Fall 2023, Spring 2021, Spring 2023

## Skills

- **Programming/Applications:** MATLAB, Arduino C, Arduino, SolidWorks CSWA 2021, CAD, Cura
- **Fabrication:** 3D Printing, Green Sand Molding, Shell Core Manufacturing, Silica Sand Core Manufacturing, Lathe, Milling, Drilling, Stick Welding, Proficient with Common Hand Tools.

## Experience

### 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.

### University of Utah Mech. Eng. Research Lab | Undergraduate Research

August 2023 – Present

- Worked with professor A.K Balaji as an undergraduate research assistant to investigate the effects of automated surgical cutting techniques.
- Designed a testing machine to research the effects of cutting angles and speeds on 3D printed organic tissue.
- Used the CAD software SolidWorks alongside engineering design process to create a testing machine model and communicated design decisions with Professor Balaji weekly as checkpoints for success.

## Projects

### Concrete Cutting Blade

May 2022 – August 2022

- Project was to design a concrete cutting blade to be laser cut from steel.
  - Using calipers and protractors, I independently dimensioned and modeled pre-existing tungsten carbide teeth to be used in the blade design.
  - Designed and developed 3 variations of a concrete cutting blade that would foster pre-existing tungsten carbide teeth as an assembly piece.

### Research Testing Machine

August 2023 - Present

- Project was to design and build a testing machine that would be responsible for studying the differences in various cutting angles on organic tissue for surgical robots.
  - Used an engineering design process to address a research concern of surgical robots and their most optimal cutting angles.
  - Designed a cutting tool mechanism that could alter its rake angle and edge cutting angle.
  - Managed the design independently and created a full SolidWorks assembly of an operable testing machine as a final step before building a prototype.

## Leadership Experience

### Captain | Hunter High School Varsity Soccer Team

March 2018 – May 2021

- Captained the boys' varsity soccer team for the 2020 and 2021 season. Captained the boys' junior varsity soccer team for the 2018 and 2019 season.
- Led the 2021 varsity team to its first 6A regional championship in 5 years.

### Captain | UDA 2002 Team

March 2019 – May 2021

- Captained the UDA 2002 Boys Soccer Team for the 2019, 2020, and 2021 seasons.
- Led the 2021 team to the quarterfinals in the most competitive state tournament in Utah.