

# BRENNAN PONGRATZ

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## *Summary*

Senior Mechanical Engineering student at Northern Arizona University (NAU) with CNC machining, mechanical design, and leadership experience. Team Lead for Society of Automotive Engineers (SAE) Baja capstone project, overseeing parts manufacturing, optimizing designs for manufacturability, and project management. Skilled in CAD, FEA simulations, and CNC programming. Seeking a mechanical engineering role to apply hands-on machining, design experience, project management, and leadership capabilities.

## *Relevant Professional Experience*

### **NAU Machine Shop Manager | Flagstaff, AZ | 01/2023 - Present**

- Manage daily operations of the NAU Machine Shop, ensuring safe and efficient usage of manual and CNC machines.
- Trained approximately 75 students in manual machining fundamentals, improving shop efficiency and safety compliance.
- Programmed and operated 3+1 axis CNC machines using Mastercam, reducing machining time for complex parts.
- Optimized design changes for senior capstone projects, enhancing manufacturability and reducing fabrication errors.
- CNC machined over 30 precision parts for engineering projects, including critical SAE Baja vehicle components.

### **NAU SAE Baja Team Lead | Flagstaff, AZ | 08/2024 - Present**

- Led the design and fabrication of an SAE Baja vehicle for the 2025 capstone project competition, directly overseeing drivetrain and suspension components.
- Managed the integration of drivetrain and suspension components into the frame with the goal of meeting deadlines earlier than previous years to ensure testing time.
- Designed a mechanical CVT system, conducting in-depth FEA simulations and CAD modeling before pivoting due to time constraints.
- Engineered and machined front steering knuckles, optimizing weight and structural integrity through iterative analysis.
- Implemented DFMA (Design for Manufacturing and Assembly) principles to streamline in-house part production.

- CNC-machined 20 drivetrain and suspension components, ensuring compliance with competition standards.

### *Education*

**Northern Arizona University | B.S. Mechanical Engineering | Expected May 2025**

- GPA: 3.68

### *Skills*

- **CAD & Simulation:** SolidWorks (4 years), FEA through Ansys (1 year)
- **Machining:** Manual Lathe (2 years), Manual Mill (2 years), CNC 3+1 axis using Mastercam (1.5 years)
- **Design:** DFMA for SAE Baja

### *Additional Work Experience*

- **Arizona Golf Association** | Scottsdale, AZ | Paid Intern | **05/2018 - 08/2018**
- **Levi Strauss & CO** | Phoenix, AZ | Seasonal Retailer | **10/2018 - 02/2019**
- **Pongratz Orthotics & Prosthetics** | Tempe, AZ | Delivery/ Lab Tech | **06/2019 - 08/2019**
- **Fry's Food & Drug** | Phoenix, AZ | Courtesy Clerk **04/2020 - 05/2021** | Gas Station Attendant **05/2021-08/2021**
- **Motorcycle Garage** | Phoenix, AZ | Mechanic Assistant | **06/2022 - 08/2022**

### *References*

- Bill Mikolajczyk | Owner and Head Mechanic, Motorcycle Garage | (480) 262-0039
- Perry Wood | Head Shop Manager, NAU Machine Shop | (928) 853-9142