

# Prashant Bhattarai

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## Summary

Mechanical Engineering undergraduate with hands-on research experience in experimental design, advanced manufacturing, and product prototyping. Experienced in translating theoretical concepts into validated physical systems through CAD, additive manufacturing, and structured testing. Brings a methodical, data-driven approach to engineering problems and collaborates effectively in interdisciplinary research environments.

## Education

**Mississippi State University**, Starkville, MS **Class of 2028 (Sophomore)**  
Bachelor of Science in Mechanical Engineering  
**GPA:** 4.00 / 4.00  
Judy and Bobby Shackouls Honors College; President's List

## Technical Skills

**Design & Manufacturing:** SolidWorks, Fusion 360, Additive Manufacturing (FDM, Resin, Metal), CAM/CNC fundamentals

**Programming & Computation:** Python, C, C++, Excel (data recording and basic analysis), XFOIL

**Research & Experimental:** Experimental setup, data collection and cleaning, technical documentation, research presentations, interdisciplinary collaboration

## Experience

### Product Design Research Intern

*USDA REEU – AI2F Summer Research Program, Mississippi State University*  
Starkville, MS

Jun 2025 – Aug 2025

- Led end-to-end design and prototyping of a portable, modular AI-enabled field device, serving as the sole mechanical designer on an interdisciplinary research team
- Developed and fabricated multiple iterations using CAD (SolidWorks, Fusion 360), design-for-manufacturing principles, and additive manufacturing, integrating embedded hardware for field deployment
- Authored technical documentation and final research report; presented results at a university research symposium, with the prototype supporting downstream PhD-level research

### Undergraduate Research Assistant

*Industrial & Systems Engineering, Mississippi State University*  
Starkville, MS

Aug 2025 – Nov 2025

- Supported additive manufacturing research on ceramic nanocomposites, contributing to process development for improving fracture toughness and density using the Buried Combustion Method (BCM)
- Designed and fabricated components using FDM, resin, and metal additive manufacturing, including lattice structures and functional lab replacements; performed parameter selection, post-processing, and print failure analysis
- Maintained and repaired lab equipment, assisted PhD-led experiments and microhardness testing, managed equipment procurement and safety documentation (MSDS), and supported instructional additive manufacturing workshops

### Undergraduate Research Assistant

*ISTVS Student Chapter, Mississippi State University*  
Starkville, MS

Feb 2025 – Apr 2025

- Investigated localization methods for autonomous vehicles, evaluating GPS-only navigation versus GPS/IMU sensor fusion in off-road environments
- Collected and analyzed vehicle localization data from a Polaris MRZR, validating improvements in positioning accuracy through multi-sensor integration under PhD mentorship
- Presented research findings at the Spring Undergraduate Research Symposium, representing the ISTVS Student Chapter

## Leadership & Activities

### Vice President

*International Society for Terrain-Vehicle Systems (ISTVS) Student Chapter*

Apr 2025 – Present

- Lead student engagement initiatives to expand membership, connect undergraduates with faculty research opportunities, and collaborate with Virginia Tech and the University of Pretoria on development of an international student competition in wheel and tracked vehicle design

### Member

*Advanced Manufacturing Society*

Feb 2025 – Present

- Participate in hands-on workshops covering additive manufacturing, CNC machining, and SolidWorks design; earned CSWA and CSWA-Additive Manufacturing certifications

### Freshman Representative (Executive Board)

*Nepalese Student Association, Mississippi State University*

Apr 2025 – Present

- Helped first-year international students adjust to campus life through peer support and mentorship; organized five to six community events and monthly meetings