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

Formula SAE (Bulldog Motorsports) — Aerodynamics Team Jan 2025 – Present

- Contributed to aerodynamic design and analysis using XFOIL and SolidWorks.

Nepalese Student Association — Leadership Role Apr 2025 – Present

- Organized large-scale cultural and community events, improving student engagement and participation.