

ARUSHI PATEL

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EDUCATION

Purdue University - West Lafayette

Bachelor of Science in Mechanical Engineering | GPA: 3.99/4.0

West Lafayette, IN

Aug. 2024 – May 2028

- **Relevant Coursework:** Engineering Graphics (CAD and GD&T), FEA, Manufacturing, Fluid Mechanics, Dynamics, Thermodynamics, Mechanics of Materials, Partial Diff. Eq., C programming, Analog Circuit Design

- **Leadership & Teaching:**

- * Treasurer, Purdue Swim Club

Dec. 2024 – Present

- * Teaching Assistant, CS 159 (Fundamentals of C Programming)

Jan. 2025 – Dec. 2025

EXPERIENCE

Structures Lead

Aug. 2025 – Present

IEEE ROV (Remotely Operated Underwater Vehicle) team

Purdue University, IN

- Facilitate and support the structural design, manufacturing, and integration of the ROV frame and electronics enclosure for the MATE ROV World Championship
- Perform finite element analyses to evaluate stiffness, deflection, and sealing performance under hydrostatic loading conditions up to 7.5 m
- Implement design changes to maintain a high Factor of Safety and low theoretical material deformation
- Design and fabricate aluminum and SLA-printed components, incorporating DFM and DFA

Undergraduate Researcher

Dec. 2025 – Present

MARS LAB

Purdue University, IN

- Engineered and optimized a spherical four-bar linkage for the wing-folding mechanism of a tri-modal underwater robot developed for ice cavity exploration
- Designed and conducted pool tests up to 6 m to validate robot trajectory, wing deployment and waterproofing
- Strengthened design to include elastic elements and refined joint tolerances, linkage geometry, and additive manufacturing parameters to reduce load on the servo motor
- Co-authored an ASME conference paper, currently under review, on the design and development of the underwater robotic platform

Mechanical Intern

May 2025 – Aug. 2025

Ati Motors

Bengaluru, India

- Conceptualized and prototyped an independent fork for an autonomous pallet mover, achieving accurate turning of $\pm 0.1^\circ$, as a recommendation for the company's upcoming robot range
- Developed 3D CAD models of the drive units and frame taking into consideration the electronic stack and wiring
- Validated the design using 3D-printed and laser cut parts; Upgraded the design to be laser-cut and CNC manufactured out of metal, taking into account manufacturability and assembly considerations
- Programmed Wi-Fi-based communication over a Flask server for PID position control using Arduino

Design Lead

Aug. 2024 – May 2025

Purdue EPICS (Engineering Projects in Community Service)

Purdue University, IN

- Led design reviews and coordinated project milestones to ensure successful delivery of a sensory game for children with special needs.

PROJECTS

Desk Organizer | CAD, GD&T, DFM, DFA, Woodworking, Metalworking

Fall 2025

- Developed a Purdue-themed desk organizer to hold loose leaf paper and memo pads incorporating Aluminum, Wood, and Acrylic elements; Gained expertise in the Manual Mill, Manual Lathe, Laser Cutter, and Woodworking
- Generated 2D Drawings using GD&T as per ASME Y14.5 to ensure proper fits and suitable tolerances

TECHNICAL SKILLS

Design: NX, Fusion, Onshape, FEA, Hand Sketching, Engineering Drawings, GD&T, DFA, DFM

Manufacturing: 3D printing, Laser Cutting, Woodworking, Rapid Prototyping, Plate Mill, Manual Mill & Lathe

Hardware: Arduino, ESP32, Sensor Input Devices (Encoders, Load cells, IMU), IC Chips, Soldering

Software: C/C++, Python, MATLAB, Arduino IDE, LTSpice, MS Office, PDM, PLM

SCHOLARSHIPS AND AWARDS

John M. Bruce Memorial Scholarship in Mechanical Engineering

Jun. 2026

Purdue Women in Engineering Scholarship

Apr. 2025

Dean's List and Semester Honors

Fall 2024 – Spring 2026