Eshwar Pamula

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EDUCATION

The Ohio State University — **Columbus, OH**
Bachelor of Science in Mechanical Engineering with Honors Research Distinction — *Graduation: December 2025*
Minor: *Economics* — *GPA: 3.36/4.0*

PROFESSIONAL EXPERIENCE

Allegion Inc. — **Colorado Springs, CO**
R&D Mechanical Engineering Intern — *May 2024 - August 2024*

- Worked on new product development initiatives for two new electro-mechanical residential lock set designs.
- Engineered a new CAM assembly using PTC Creo for commercial Mortise locks, improving operational efficiency.
- Designed an interconnect assembly featuring two different CAMs and tested using ANSYS to adhere to BHMA standards
- Manufactured early prototypes (3D printing and CNC) of the lock system, ensuring feasibility for the 2025 product pipeline.

Ecosystem Energy — **Columbus, OH**
Mechanical Engineering Intern — *May 2023 - August 2023*

- Monitored and analyzed daily control data from heat exchangers across multiple buildings to enhance energy efficiency and system optimization.
- Led a $300K project to install occupancy sensors in a campus facility, integrating dynamic energy control via pneumatic valves and achieving a 27% reduction in energy consumption.

Engie North America — **Columbus, OH**
Project Engineering Intern — *October 2022 - May 2023*

- Conducted comprehensive engineering reviews of HVAC designs for Ohio State's Combined Heat and Power plant.
- Reviewed technical specifications and equipment requirements to verify full compliance with quality control standards.

RESEARCH & PROJECT EXPERIENCE

Multi-functional Materials and Intelligent Design Lab — **Columbus, OH**
Undergraduate Researcher — *May 2024 - Present*

- Awarded College of Engineering (Honors Distinction) grant for AI-driven geometric primitive-based topology optimization, creating a novel approach that extracts meaningful structural patterns from optimized designs.
- Developed a correlation-aware neural network with U-Net architecture, incorporating primitive importance weighting, reducing computational time by over 90% compared to traditional SIMP methods while maintaining structural integrity.
- Created a comprehensive primitive analysis framework that quantifies relationships between geometric features (T, L, Y junctions) and mechanical performance, generating actionable design guidelines for engineering applications.

Gear and Power Transmission Laboratory — **Columbus, OH**
Undergraduate Research Assistant — *April 2023 - May 2024*

- Conducted experimental analysis of polymer (Torlon) gear properties using Symbrium 3-shaft-bending machines.
- Monitored and controlled oil flow, temperature, and torque conditions to assess thermal performance of gear systems.

LEADERSHIP AND INVOLVEMENT

Formula Buckeyes FSAE — **Columbus, OH**
Suspension Engineer — *2022 - August 2024*

- Designed and manufactured uprights, mounts, and hard points using the mill and lathe for the control arms and sway bar.
- Conducted Finite Element Analysis (FEA) using ANSYS to validate suspension components for strength and performance.
- Helped manufacture in-house Billet 7075-T6 Uprights using Kia SKT25 CNC to reduce stiffness and complexity.
- Contributed to designing and manufacturing a rear Anti-Roll Bar (T-Bar setup) with SolidWorks and Huron Lathe CNC.
- Played a key role in the team's success, securing a 3rd-place finish in 2023 and a 1st-place finish in 2024 at Michigan FSAE.

Ohio State University: College of Mechanical and Aerospace Engineering — **Columbus, OH**
Undergraduate Teaching Assistant — *April 2023 - Present*

- Taught and mentored 400+ students over five semesters in Statics (ME2010) and Mechanics of Materials (ME2020), reinforcing fundamental engineering principles.
- Runner-Up for the Best MAE Undergraduate Teaching Assistant in 2025.

AWARDS, SKILLS, AND INTERESTS

- **Awards:** ShowOHIO 3rd place (‘23), Ohio State Fintech Pitch Competition Winner (‘23), OSHA 10 Certification
- **CAD & FEA:** SolidWorks, CATIA, CREO, AutoCAD, ANSYS
- **Skills & Tools:** CNC Machining, Finite Element Analysis (FEA), 3D Printing, Lathe, Mill
- **Programming Languages:** MATLAB, Python, Arduino IDE