

PRANAV MADHAVAN

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EDUCATION

Purdue University

Master of Science in Mechanical Engineering

Expected Grad. **Dec 2025**

Bachelor of Science in Mechanical Engineering

Dec 2024

Minors in Business Economics and Organizational Leadership

GPA: 3.47

- **Outstanding Junior Award Finalist** for leadership, impact, and academic excellence (1 of 3 out of ~400 Mechanical Engineering students)

Relevant Skills: SolidWorks, NX, Ansys (FEA & CFD), MATLAB, Python, Electrical Design, Machine Shop Operations, 3D Printing, LabView

PROFESSIONAL EXPERIENCE

Tesla

May 2024-Aug 2024

Process Engineering Intern

Buffalo, NY

- Spearheaded improvements for First-Pass Yield (FPY), Scrap reduction, Last-Pass Yield (LPY), etc. on Supercharger and Power Electronics Lines
- **Saved \$189,000/year** performing Root Cause Analysis on defected NACS adapters with DMAIC and Ishikawa (Fishbone Diagram) methodologies
- Designed rework procedure and part reintroduction plan to **save \$142,000/year** on defected over molded PCBAs with 11% LPY increase
- **Redesigned Production Line** for V4 Magic Dock Top-Level-Assembly (TLA), leading trial and process changes to balance station cycle times
- Developed sub-assembly line, leading process implementation for High-Voltage Junction Boxes, **balancing cycle time** and preventing bottlenecks
- Utilized SQL Queries to allow big-picture analysis of part failures using parameters including part number, serial number, date, failure type, etc.

Kohler Co.

May-Aug 2022 | May-Dec 2023

New Product Integration (NPI) Co-Op (3 Terms)

Kohler, WI

- New Product Integration lead for 4 projects in retail, wholesale, and commercial markets, leading cross-functional manufacturing operations teams
- Drove ramp readiness to ramp up production from testing phases to mass production, ensuring end-to-end achievement of quality & safety metrics
- Led 2 VAVE Projects, driving annual cost savings of \$2,000,000+ through changes in material selection and manufacturing/fabrication process
- Saved \$110,000 by analyzing risk to rework project timeline, and freight methods from suppliers to prevent delays to project launch date
- Utilized SAP for Materials Resource Planning (MRP), Enterprise Resource Planning (ERP), and Manufacturing Bill of Materials (MBOMs)

RESEARCH + ANALYSIS EXPERIENCE

Composite Analysis and Manufacturing of Generative Designs for Olympic Bicycles

Jan 2024-Dec 2024

Undergraduate Researcher

West Lafayette, IN

- Developed performance bicycle for the International Olympic Committee to prove the capability of Artificial Intelligence (AI) in mechanical design
- **Designed negative molds** for Carbon Fiber Wet layups and **Computer-Aided Manufacturing (CAM)** with Fusion 360 for CNC Gantry Router
- Conducted **Finite Element Analysis (FEA) with Ansys Composite PrepPost (ACP)** for **static loading, fatigue analysis, and transient drop tests**
- Performed Carbon Fiber Wet Layups using custom mold and vacuum bagging techniques successfully for highly organic generative geometry

Thermal Analysis of Critical Insulation Thickness for Home Insulation

March 2024-May 2024

Heat and Mass Transfer Project

West Lafayette, IN

- Investigated the effect of compression on thermal conductivity of Fiberglass, Cellulose, and Spray Foam insulation at ¼, ½, and 1-inch thicknesses
- Designed experimental setup from scratch with surrounding insulation for isolation, thermocouples, and aluminum plates to prevent free convection
- Performed analysis with Fourier's Law and Transient Energy Balance in MATLAB to determine relationship between thickness and conductivity

LEADERSHIP AND INVOLVEMENT

American Society of Mechanical Engineers (ASME)

Sep 2021-Dec 2024

Internal Vice President, Design Team Lead, Chairman of the Board

West Lafayette, IN

- Managed 7 technical design teams with 500+ members, overseeing progress, driving short-term project goals and long-term strategic initiatives
- Oversaw 8 sub-teams in designing, testing, and manufacturing using rapid prototyping for remote-controlled water vehicles and ATVs
- Raised over \$30,000 in grant money for design teams use, project development, and outreach while managing spending, and allocating budgets

Global Engineering Seminar (ME 290) | *Peer Mentor*

Jan 2023-May 2024

- Mentor 5 sophomore Mechanical Engineering students on classes, leadership/club involvement, technical development, and professional aspirations

Purdue Student Government (PSG) | *Board of Directors on Programming Committee*

Sep 2021-May 2022

- Organized bi-monthly events for members of PSG BOD & Senate within a given budget and coordinating with other campus organizations

Engineering Projects in Community Service (EPICS) | *Project Partner Liaison and Team Member*

Aug 2020-May 2021

- Spearheaded program to interest 700 middle schoolers to pursue engineering, responsible for all communication with project stakeholders