

AADITYA PATIL

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QUALIFICATIONS

CAD & Design Software – SolidWorks, Siemens NX, AutoCAD, Onshape; experienced in mechanical design and assemblies.

Simulation & Analysis – ANSYS Workbench, Fluent, Mechanical, GT-SUITE ISE, MATLAB; exposure to CFD, FEA, thermodynamic modeling, and system-level simulation.

Programming & Technical Languages – C++, Python, MATLAB; working knowledge of Java and LaTeX; experience with engineering computation, data analysis, simulation, and application development.

Technical Tools – MS Excel, PowerPoint, and Word for engineering analysis, reporting, and technical presentations.

EDUCATION

The Ohio State University, College of Engineering

Columbus, OH

B.S. Mechanical Engineering

Expected Graduation: May 2027

– **Relevant Coursework:** Fluid Mechanics; Thermodynamics; System Dynamics and Vibrations; Kinematics and Mechanism Design; Mechanics of Materials; Measurement and Data Analysis; Linear Algebra and Differential Equations

EXPERIENCE

Copeland

Sidney, OH

Modeling & Simulation Engineering Intern

May 2026 – Present

- Performed vibro-acoustic simulation and postprocessing of compressor assembly using NX / Nastran / GT workflows.
- Redesigned and refined a GT-SUITE journal bearing model, developing updated groove geometry and mesh definitions for use in subsequent compressor simulations.

Definitive Motorwerk

Twinsburg, OH

Technical Intern (Shadowing-Based)

Aug. 2025

- Assisted technicians working on high-performance vehicles including Ferraris, Porsches, and other exotic brands.
- Gained exposure to carbon ceramic brake rotors, high-performance suspension systems, and advanced intercoolers to understand how engineering design principles translate into performance applications.

Rockwell Automation

Mayfield Heights, OH

Engineering Shadowing Project

May 2023 – Jun. 2023

- Partnered with a Senior Test Engineer on *Logix Designer* (C++): reproduced defects and validated fixes.
- Executed regression/functional test cases; documented results and anomalies; participated in review meetings.

EXTRACURRICULARS

Honda Mentorship Program

2024

- Completed semester-long mentorship with Honda engineers focused on automotive design and industry standards.
- Strengthened technical skills and professional development through workshops and guided sessions.

Pi Sigma Epsilon (Gamma Nu Chapter)

2024 – Present

- Selected as 1 of 14 students from a pool of 404 applicants for membership in this professional business fraternity specializing in sales, marketing, and management. Completed 3 marketing presentations for local business outreach.

Engineers Without Borders

2024 – 2025

- Collaborated on a humanitarian project in Gambia by researching federal grants totaling over \$7,500.
- Contributed to engineering solutions aimed at improving infrastructure and quality of life in underserved communities.

PROJECTS

Roots-Type Supercharger Design & CFD

2026

- Designed a complete Roots-type supercharger assembly in Onshape, including rotors, shafts, timing gears, bearings, seals, housing, snout, and pulley components.
- Created the internal fluid domain and performed CFD analysis in ANSYS Discovery and Fluent to evaluate pressure, velocity, and mass-flow behavior through the compressor.

Lightweight Automotive Wheel Redesign & FEA

2025 – 2026

- Designed and evaluated multiple automotive wheel geometries in OnShape and ANSYS Mechanical using fixed hub constraints and a distributed bearing load to represent tire loading.
- Reduced calculated wheel mass from 22.87 lb to 21.1 lb, a 7.0% reduction, while improving structural performance.
- Improved spoke geometry, barrel transitions, and fillets to reduce stress concentrations at critical spoke-to-rim interfaces.

Air Motor Engine Block

2025

- Manufactured a functional engine assembly using manual and CNC mills, lathes, and precision measurement equipment.
- Interpreted engineering drawings and machined mating components to dimensional tolerances on the order of 0.001 in.

Pushup Counter

2025

- Developed an Arduino-based exercise counter using infrared and ultrasonic sensors to detect and display completed repetitions.
- Programmed real-time sensor processing in C++ and calibrated detection thresholds to improve counting reliability.