Aditya Aher

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Professional Summary

Mechanical Design Engineer with 3 years of industry experience in 3D CAD, FEA validation, and DFM, and 2 years of research in structural topology optimization. Led Siemens NX lattice AM and validation projects, strong in GD&T, cross-functional teamwork, and technical documentation.

Education

University of Wisconsin-Madison Madison, WI

Master of Science in Mechanical Engineering - GPA: 3.5/4.0 *Dec 2025*

Work Experience

Engineering Representations and Simulation Lab (ERSL), UW-Madison Madison, WI

Graduate Research Assistant - Topology Optimization *Aug 2024 - Dec 2025*

- Developed python framework for topology optimization and implemented 3D neural networks generating results under 10s, optimized for mass, stiffness, cost, and manufacturing.
- Developed an open source 3D Python Topology Optimization software, research paper under preparation.
- Integrated SolidWorks COM Interface and STL to STEP B-rep feature-extraction script for CAD geometry workflows.

Siemens PLM Pune, India

Associate Application Engineer - (CAD/CAE) *Mar 2021 - Aug 2023*

- Led the NX CAD Lattice Additive Manufacturing and Performance Predictor FEA projects, building multiphysics models and benchmarking against Simcenter 3D/Nastran solver to improve project reliability by 25%.
- Conducted FEA on complex geometries, resolving 20+ critical issues and improving component reliability by 25%.
- Designed an aluminum ECU housing, battery housing and validated it with structural/thermal FEA, reducing peak components temperature by 18%.
- Automated FEA pre-processing in NX by scripting, cutting manual model setup time by 40% per design loop.
- Developed ECOs, assembly drawings, and BOMs with GD&T specifications, reducing model preparation time by 40% through standardized workflows.
- Collaborated with cross-functional teams using Teamcenter PLM to ensure design feasibility, traceability, and on-time delivery.
- Provided technical support to field teams for installation and troubleshooting, resolving design-related issues and implementing corrective actions.

Department of Mechanical Engineering, UW-Madison Madison, WI

Graduate Teaching Assistant - Product Design *Aug 2025 - Dec 2025*

- Trained 36 students in turning 2D perspective sketches into manufacturable 3D CAD models, strengthening spatial visualization and real-world design accuracy.

Department of Engineering Physics, UW-Madison Madison, WI

Graduate Project Assistant – Control Systems *Jan 2024 – Aug 2024*

- Integrated sensors, actuators, electronics, and wiring into a space efficient DAQ package and built LabVIEW set up for data acquisition/analysis and automated ON/OFF safety shutdown for the power supply in a high-pressure heat flux experiment, improving test safety and reducing manual monitoring by 30%.

Academic Projects

All-Terrain Vehicle - SAE BAJA Pune, India

- Led an 8-member drivetrain team to develop a 2-stage constant mesh gearbox in NX CAD, delivering detailed, load calculations, GD&T-compliant parts and sub-assemblies, conducive for assembly and serviceability.
- Performed structural and thermal FEA on the gearbox and brake system components to keep combined stresses 20% below yield under worst-case torque and temperature.
- Designed fixtures, optimized brake pedal and pocketed gearbox gears, cutting pedal mass 29% and rotational inertia 26% while meeting stiffness/load targets.
- Coordinated manufacturing, rapid prototyping and track testing of the gearbox, with the finalized drivetrain package supporting SAE BAJA results of 3rd in design and 2nd in rock climb.

Technical Skills

Portfolio: https://aadi1307.github.io/
Software: Siemens NX, Teamcenter, SolidWorks, Hypermesh, ANSYS, NI LabVIEW, MS Office.
Methodologies: DFMA, Additive Manufacturing, Product Lifecycle Analysis.
Certifications: NX CAD, NX CAM, Teamcenter PLM, BAJA India, BAJA International.
Programming: C/C++, Python, CUDA, MATLAB and Simulink.