



Malhar Rishikesh Patil
UG (III Year II Semester)
B.Tech. (Production and Industrial Engineering)
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Registration No: 23119019/2026



Area of Interest

Automotive engineering, CAD, FEA, Automotive journalism

Education

Year	Degree/Examination	Institution/Board	CGPA/Percentage
2026	B.Tech. 3rd Year	Indian Institute of Technology, Roorkee	7.853
2023	Intermediate (Class XII)	Matoshree Junior College, Nashik	80.67 %
2021	Matriculate (Class X)	Ashoka Universal School Nashik	98.67 %

Projects

Design of Formula Style Go-Kart | SAE-IIT ROORKEE CHAPTER February 2025 - Present

- Designed a lightweight space-frame chassis in SolidWorks; validated under crash, cornering, and braking loads using FEA.
- Integrated a 125cc 4-stroke engine with custom mounting to ensure optimal weight distribution and structural support.
- Engineered the complete powertrain and braking systems for performance and reliability.

Design of Epicyclic Gearbox | SAE-IIT ROORKEE CHAPTER January 2025 - April 2025

- Engineered a high-efficiency epicyclic gearbox optimized for torque multiplication in constrained spaces.
- Calculated gear ratios, contact stresses, and load paths; validated design through FEA in ANSYS.
- Modeled precision components in CAD with emphasis on weight reduction and structural integrity.

Design of Floating Brake Disc | SAE-IIT ROORKEE CHAPTER June 2025 - July 2025

- Designed a floating-type brake disc system to enhance thermal expansion handling and braking efficiency during prolonged use.
- Optimized the rotor-hub interface for effective heat dissipation and reduced brake fade under repeated load cycles.
- Performed CAD modeling and structural FEA to validate mechanical performance and ensure durability.

Design and Transient analysis of 2-cylinder engine | SAE-IIT ROORKEE CHAPTER October 2024 - December 2024

- Modeled a 2-cylinder internal combustion engine using advanced CAD tools.
- Performed transient structural analysis in ANSYS to assess dynamic forces, stress propagation, and deformation.
- Optimized thermal and mechanical performance under varying load cycles.

Using Auxetic Material in Impact Structure of FSAE Vehicle | MIED, IIT ROORKEE January 2025 - Present

- Investigated the use of auxetic materials to improve impact absorption in FSAE vehicle structures.
- Analyzed material behavior under dynamic loads to enhance crashworthiness and structural integrity.
- Focused on integrating auxetics to boost overall safety and performance in high-impact zones.

Awards / Scholarships / Academic Achievements

- Secured a rank of 12687 in JEE Advanced amongst 1.5 lakh students
- Scored 97.70 percentile in JEE Mains
- Scored 97.78 percentile in Maharashtra Common Entrance Test (MHT-CET)

Positions of Responsibility & Extra Curriculars

Secretary | SAE-IIT ROORKEE CHAPTER April 2025 - Present

- Led coordination of technical sessions, workshops, and intercollegiate events focused on automotive design and engineering. Managed team communication, documentation, and logistics, contributing to successful project execution.

Manager | COMET (Career Development Cell, IIT ROORKEE) November 2024 - February 2025

- Planned and executed career-oriented events, including speaker sessions, workshops, and competitions. Coordinated with industry professionals and student teams to ensure smooth logistics, high participation, and impactful learning experiences.

Member | ASHRAE IITR November 2024 - Present

- Contributed to technical projects and knowledge sessions focused on HVAC systems and sustainable building technologies.