Shrutika S. Mane

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PROFESSIONAL SUMMARY

Results-driven Mechanical Engineering graduate (CGPA 7.20) with hands-on experience in CAD design, multiphysics simulation (COMSOL Multiphysics), quality control, and advanced manufacturing. Completed internships with FORVIA Faurecia India (automotive sector) and DRDO (defence R&D;), gaining exposure to GD&T;, tolerance analysis, FDM 3D printing, and soft robotics actuator development. Proficient in SolidWorks, AutoCAD, and Creo. Strong communicator with demonstrated leadership across 4 years of academic and professional activities. Seeking a Mechanical / Design / Manufacturing Engineering role to deliver innovative, high-impact solutions.

TECHNICAL SKILLS

CAD & Design	SolidWorks, AutoCAD, Creo (Parametric), GD&T;, Tolerance Analysis
Simulation & FEA	COMSOL Multiphysics, Multiphysics Modelling, Finite Element Analysis (FEA)
Manufacturing	FDM 3D Printing, Cura Slicing, Prototype Development, Rapid Prototyping
Quality & Metrology	CMM (Coordinate Measuring Machine), FARO ARM, RPS Points, Deviation & Warpage Analysis, Pre-Acceptance Inspection, DFMEA
Programming & Tools	Python (Basic), C (Basic), MS Excel, MS Office
Languages	English (Fluent), Hindi (Fluent), Marathi (Fluent), German (A2; B1 in progress)

PROFESSIONAL EXPERIENCE

Project Intern | Defence Research & Development Organisation (DRDO), Pune *Sep 2024 – Mar 2025*

Project: Smart & Soft Actuators — Soft Robotics Technology (Government-funded R&D;)

- Developed and validated COMSOL Multiphysics simulation models for EAP/HASEL soft actuators, running 10+ parametric simulations to characterise actuator behaviour under varying electrical (0–5 kV) and mechanical loading conditions.
- Analysed displacement, stress, and strain outputs from FEA/multiphysics models; findings contributed directly to project technical reports submitted to DRDO.
- Applied computational modelling and materials research skills to evaluate performance trade-offs between Electro-Active Polymer (EAP) and HASEL actuator designs, supporting selection of optimal actuator configuration.
- Documented simulation methodology and results in structured technical reports, developing proficiency in research communication and problem-solving.

Engineering Intern | FORVIA Faurecia India, Pune *Jan 2024 – Feb 2024*

Global Tier-1 automotive technology and manufacturing supplier.

- Inspected 30+ automotive plastic components daily using CMM (Coordinate Measuring Machine) and FARO ARM, verifying dimensional accuracy against GD&T; specifications with deviations maintained within 0.3 mm tolerance.
- Applied RPS (Reference Point System) datum points for fixture setup; performed warpage, deviation, and pre-acceptance checks, reducing non-conformance risk during production runs.
- Supported quality control documentation and packaging/dispatch operations, gaining end-to-end exposure to automotive manufacturing quality workflows.

EDUCATION

Bachelor of Engineering — Mechanical Engineering *2021 – 2025*

PVG's College of Engineering & Technology, Pune | CGPA: 7.20 | Final Year SGPA: 7.95

1st, 3rd & 4th Year: First Class with Distinction | 2nd Year: First Class

HSC (12th Grade) — Science (PCM) *2021*

Maharashtra State Board | Percentage: 78.17%

SSC (10th Grade) *2019*

Maharashtra State Board | Percentage: 78.60%

PROJECTS

Pool Boiling Heat Transfer Experimental Setup | *Thermal Engineering* | *Heat Transfer* | *Experimental Design*

- Designed and fabricated a pool boiling apparatus for PVG's College of Engineering laboratory, enabling standardised heat flux experiments for undergraduate batches.
- Determined heat flux characteristics of a Nichrome wire heater across multiple power levels; experimental results showed less than 5% deviation from Churchill-Chu and Rohsenow theoretical correlations, confirming apparatus accuracy.
- Delivered a fully documented experimental procedure adopted as a standard lab session for the Mechanical Engineering department.

FDM 3D Printing & Rapid Prototyping | *Additive Manufacturing* | *Cura* | *FDM* | *Prototype Development*

- Executed 15+ end-to-end FDM 3D printing projects: CAD file preparation, slicing in Cura, printer calibration, multi-material printing, and post-processing.
- Optimised print parameters (layer height 0.1–0.3 mm, infill 15–60%, nozzle temperature) achieving up to 20% improvement in dimensional accuracy and surface finish compared to default settings.
- Worked with PLA, PETG, and flexible TPU materials; performed troubleshooting for warping, stringing, and layer adhesion defects.

CERTIFICATIONS

• **Advanced Robotics using Arduino**	*Spoken Tutorial Project, IIT Bombay*	*2023*
• **Robotics & IoT with Arduino**	*Spoken Tutorial Project, IIT Bombay*	*2023*
• **IC Engine Workshop**	*Dept. of Mechanical Engineering, PVG's CoET*	*2022*
• **3D Shikshan — 3D Printing & Modelling**	*PVG's College of Engineering*	*2023*
• **Debate Competition — Women Empowerment**	*College-level event*	*2022*

LEADERSHIP & ACTIVITIES

Ladies Representative (LR) — Mechanical Dept., PVG's CoET (2021–2025)
Represented 60+ female students; coordinated departmental events and welfare initiatives.

Vice Class Representative (Vice CR) — Mechanical Dept., PVG's CoET (2021–2025)
Assisted in coordinating academic schedules, student feedback, and faculty communication.

Outreach Secretary — American Society for Materials (ASM), Pune Chapter
Organised outreach programmes to promote materials science awareness among engineering students.

- Organised NEXA Industrial Visit for the Mechanical Department (50+ student participants).
- Volunteered at Paintathlon — Dr. Raghunath Mashelkar Foundation community event.
- Co-organised Science Day Quiz & Presentation event for the department.
- Volunteered at AICTE Universal Human Values (UHV) National Conference.

KEY ACHIEVEMENTS

- First Class with Distinction in 1st, 3rd, and 4th Year of B.E. Mechanical Engineering.
- First Class in 2nd Year of B.E. Mechanical Engineering.
- Second Runner-Up, Dodgeball (Women's Category) — RANASANGRAM '23 Inter-collegiate Sports Meet.