

DIKSHANT

Mechanical & Electro-Mechanical Design Engineer • M.Tech, CAD/CAM

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| Faridabad, Haryana • open to relocate (Bangalore / pan-India)

SUMMARY

Mechanical design engineer (M.Tech, CAD/CAM) who supports the full life cycle of mechanical and electro-mechanical systems — from concept and 3D CAD modeling with GD&T through FEA, thermal, structural and vibration validation to manufacturable drawings, BOMs and design reviews. Hands-on experience designing retrofit/upgrade kits and adapter hardware, running design-optimization and feasibility studies, and turning analysis results into clear technical reports. Recently completed an EV body and chassis R&D internship at OLA Electric.

CORE SKILLS

- **3D CAD & GD&T:** Siemens NX, SolidWorks, CATIA, AutoCAD; parametric, sheet-metal & assembly design; geometric dimensioning & tolerancing (GD&T - certified); manufacturable 2D drawings & Bills of Materials (BOM)
- **Analysis & CAE:** ANSYS Workbench, COMSOL Multiphysics; finite element analysis (FEA) — structural, stress, thermal/heat-transfer, vibration; fatigue life (Miner's rule); meshing; multibody dynamics (PyChrono)
- **Design Methods:** Topology & design optimization, Design of Experiments (DoE), CMA-ES / PSO optimizers; feasibility studies, test & validation planning; design reviews and technical presentations
- **Materials & Manufacturing:** Metals, sheet metal, plastics; design-for-manufacturability (DFM) screening; tolerance stack-up; fabrication & assembly coordination; quality-control inspection
- **Programming:** Python, MATLAB — analysis automation, FEA-to-surrogate modeling pipelines, and simulation tooling (FastAPI, PyTorch)

EXPERIENCE

Vehicle Engineering Intern — OLA Electric, Bengaluru, Karnataka **Jan 2026 - Jul 2026**

- Supported EV body and chassis R&D through 3D CAD design and engineering revisions, aligning components with safety and packaging requirements and reducing design-iteration time.
- Reviewed transmission and drivetrain components and fed FEA structural-analysis results and prototyping feedback back into designs to improve validation readiness.
- Documented design intent and changes in line with engineering standards to support design reviews and downstream procurement/assembly.

Mechanical Engineering Trainee — V.L. Impex Pvt. Ltd., Faridabad **Jan 2023 - Jun 2023**

- Applied core mechanical principles on the shop floor and supported quality-control and routine-inspection checks to improve compliance.
- Built structured task and reporting protocols that improved workflow efficiency and documentation.

PROJECTS

Structural Optimization with a Hybrid PSO Algorithm (2025) — [project report](#)

- Cut a mechanical component's cost by 25% by reproducing and extending a published optimization method, combining Design of Experiments with ANSYS and SolidWorks structural modeling in MATLAB.

Chassis Workbench — Motorcycle Chassis Design Platform — github.com/dikshant1103-beep/chassis-workbench

- Built a 32-tab desktop workbench (React/Electron + Python FastAPI) for motorcycle chassis design: real-time geometry, suspension kinematics, anti-squat/anti-dive, load cases and stiffness targets, with every result traceable to Foale/Cossalter textbook equations.
- Implemented a multibody-dynamics engine (generalized-alpha solver, Newton iteration) and cross-validated TypeScript and Python physics implementations (32/32 solver tests).

moto_sim — Motorcycle Multibody Simulator — github.com/dikshant1103-beep/moto-sim

- Developed a PyChrono multibody motorcycle simulator with physics-informed neural-network (PINN) tire models and a real-time Electron dashboard; validated against the published Whipple bicycle benchmark to 0.02% eigenvalue error.

MambaRUL Studio / BatteryOS — Battery Intelligence Platform — github.com/dikshant1103-beep/mambarul-studio

- Built a battery RUL/SoH prediction platform: Mamba state-space model (–60% RMSE vs MIT benchmark) with conformal uncertainty, plus a DeepONet thermal digital twin estimating internal cell core temperature from standard BMS signals (RMSE 1.24 °C) — trained on 1.07M rows of PyBaMM electrochemical-thermal simulation.

WarrantyLens — AI EV Warranty Inspection Assistant — github.com/dikshant1103-beep/warrantylen

- Built an advisory, human-in-the-loop EV warranty inspection platform (FastAPI, Next.js, Celery): fine-tuned YOLOv11 damage detection (mAP50 0.68 on CarDD), VLM keyframe analysis, serial-number lifecycle tracking, and a unified defect-vs-misuse verdict fusing inspection, battery and telemetry evidence.

Reverse Engineering of a Human Hand — [project report](#)

- Created a high-accuracy digital twin of a human hand via 3D scanning and surface reconstruction (MeshLab, SolidWorks).

Stair-Climbing Mechanism

- Designed and fabricated a higher-payload stair-climbing load mechanism; led the project as coordinator from concept through fabrication.

EDUCATION

M.Tech, CAD/CAM — MNNIT Allahabad (NIT), Prayagraj 2024 - 2026 • SGPA 8/10

B.Tech, Mechanical Engineering — B.S. Anangpuria Institute of Technology, Faridabad
2019 - 2023 • CGPA 8.21/10

CERTIFICATIONS & ACTIVITIES

- **Certifications:** GD&T (Certified), SolidWorks, AutoCAD, Siemens NX, COMSOL, MATLAB, Applied Ergonomics, Noise Management & Control, Welding Process.
- **Leadership:** Training & Placement Representative, MNNIT Allahabad (2024-present); Project Coordinator, Stair-Climbing Mechanism.
- **Awards:** Winner, NASA Astronomy Olympiad (2015).