Kanaad Chaphekar

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Education

Texas A&M University, MS in Mechanical Engineering — Aug 2025 – May 2027

- Byron Anderson '54 Fellowship
- Junior Officer, Communications & Presidents team, Mechanical Engineering Graduate Student Organization
- Graduate Researcher, Design Innovation & Generative Intelligence (DIGIT) Lab

SRM Institute of Science & Technology, B.Tech in Mechanical Engineering — Aug 2021 – May 2025

- **GPA:** 9.25/10
- Best Major Project Award 2025 - Department of Mechanical Engineering, SRMIST

Experience

STEP Intern, Maruti Suzuki India Limited – Gurugram, India — Jan 2024 – Jul 2024

- Analyzed ETP (Effluent Treatment Plant) blower efficiency, achieving **46% power savings** with annual savings of ∼$60,000.
- Improved project tracking with **Gantt charts** and created **IRR analysis templates**, enhancing financial accuracy.
- Supported canteen renovation, ensuring **IS 1641 compliance**, creating **BoQs and BoMs** and improved QC Circle Competition presentations, gaining exposure to **industry QC tools**.

Summer Intern, Tata Passenger Electric Mobility – Pune, India — June 2023 – Jul 2023

- Applied **Random Forest Regression, MLPs, and PCA** for non-linear EV battery degradation modeling and state trend analysis.
- Gained hands-on expertise in **EV systems** and **ML algorithms** using real-world sensor data.
- Contributed to **battery health monitoring projects** for EVs based on the company's SUV platform.

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Postural Assessment and Prediction for Wheelchair users

- Conducted biomechanical and ergonomic assessments of wheelchair users to identify postural deviations and musculoskeletal risks.
- Developed a low-cost FSR-based pressure sensing mat, 75% cheaper than commercial alternatives, using optimized sensor placement from Linear and Logistic Regression on Indian anthropometric data.
- Implemented Gaussian interpolation to generate real-time pressure distribution maps and improve data accuracy.
- Applied a Random Forest model for posture classification to support evidence-based seating guidelines for comfort and alignment.

Automated Robotic Painting Optimization and Inspection System using CNN

- **Objective:** Enhanced precision and quality control in automated painting through AI and ML integration.
- Developed an Automated Robotic Painting and Inspection System using AI and ML, integrating a CNN-based fault detection system and Taguchi optimization to enhance painting precision and quality control.
- We utilized the IRB1410 robotic arm for high-accuracy applications and implemented real-time defect inspection, reducing errors and optimizing performance based on surface conditions.

Certifications & Achievements

- **CSWA -** CAD Design Associate, **Dassault Systems**
- **MATLAB** Fundamentals, Control Design with Simulink, **MATLAB**
- **Third prize -** National Level Competetion - FEA, **SAE India Southern Section**

Skills

Technical / Software	MS Excel (advanced), PowerPoint, CAD basics, Sensor instrumentation, MATLAB
Domain Knowledge	Energy efficiency concepts, Electric vehicle systems fundamentals, Ergonomics & biomechanics principles, Industrial standards (ISO standards)
Business / Management	Financial modeling, Project planning, Documentation & presentation skills