Sakshi Shah

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EDUCATION

Master of Science in Mechanical Engineering — Aug 2023 – May 2025
North Carolina State University || CGPA 4/4 — Raleigh, United States
Relevant Courses: Vibrations, Design of Electromechanical Systems, Industrial Automation, Optimization, Advanced Dynamics

Bachelor of Technology (B.Tech.) in Mechanical Engineering — Aug 2017 – Jun 2021
MKSSS's Cummins College of Engineering for Women || CGPA 8.5/10 — Pune, Maharashtra, India
Relevant Courses: Engineering Mathematics, Rigid Body Dynamics, Automation and Control Engineering, Avionics, Numerical Methods

SKILLS

Modelling and Analysis: SOLIDWORKS | AutoCAD | Autodesk Inventor | ANSYS (Mechanical, Electronics) | Creo

Planning and Manufacturing: SAP PLM | Excel VBA | Power Apps | PreForm | UltiMaker Cura | Sheet Metal

Programming: MATLAB | Simulink | Python | Connected Components Workbench | ROS | PostgreSQL

PROJECTS

Visual Servo Control Using a 7-Link Kinova Gen 3 Robot Arm — Jan 2025 – May 2025
- Developed a **closed-loop control** system to track dynamic objects in **real-time** using an **eye-in-hand** camera, leveraging **Simulink**, **ROS**, and **OpenCV**. Integrated **forward and inverse kinematics** to compute real-time joint trajectories and incorporated dynamic modeling for accurate motion prediction.
- **Designed** and **fabricated** custom **End-of-Arm Tooling (EOAT)** in SolidWorks to stabilize the ultrasound probe and support a monocular camera.
- Implemented real-time **image processing** and **control algorithms (PID, MPC)** using **MATLAB** and **GStreamer**, reducing system latency and enhancing tracking precision.

System Integration and Control of an Autonomous Conveyor System — Sep 2024 – Dec 2024
- Developed a **Flask/PostgreSQL web application** enabling remote access via **Modbus TCP/IP** and **MQTT,** for a **Micro800 PLC**-based color sorting system.
- **Integrated sensors and actuators**, reducing manual intervention by 50%.

2-Pole Electro-Permanent Magnet Clamp for Workpiece Holding — Sep 2024 – Nov 2024
- **Optimized** the design of an Electro-Permanent Magnetic Clamp using Magnetic Circuit Analysis (MCA) and Finite Element Method Magnetics (FEMM), **achieving a vertical reluctance force of 1460.1 lbf.**
- **Validated** FEMM data through 3D analysis in Ansys Electronics Desktop, **ensuring accurate force calculations and identifying potential saturation effects within the EPMC design.**

PROFESSIONAL EXPERIENCE

Research Assistant — Jan 2025 – May 2025
Neuromuscular Controls and Rehabilitation Lab, North Carolina State University — Raleigh, United States
- **Designed mechanical linkages in SOLIDWORKS** to enable lateral movement in a wearable exoskeleton.
- **Prototyped and 3D printed components** using Ultimaker for rapid iteration and testing.
- **Selected and integrated motors** to achieve smooth, precise actuation and enhanced user control.

Process Development Intern — May 2024 – Aug 2024
Tioga Cardiovascular — Los Gatos, United States
- **Supported process development and R&D** to optimize manufacturing of the Luna TMVR product.
- **Designed SLA-printed fixtures** in SolidWorks and PreForm to improve vibration damping and validate the delivery system, incorporating Design for Manufacturing (DFM) principles.
- **Created detailed engineering drawings with GD&T** and authored controlled documents for testing and quality inspections. Participated in design reviews to ensure cross-functional alignment.

Associate Engineer — Aug 2021 – Jun 2023 | Pune, India
Eaton
- **Managed 250+ customer orders** and streamlined the Engineering-to-Order (**ETO**) process, improving efficiency by **34%** using Continuous Improvement (**DMAIC Six Sigma** Certified) and automation tools (Python, VBA, Power Apps).
- **Executed Engineering Change Requests** (**ECRs**) and Sustaining Engineering projects, reducing labor hours and part variations by **96%** through drawing revisions, **BOM** standardization in **SAP PLM**, and improved documentation for medium-voltage regulators.
- **Realized $100K in cost savings** through Design for Assembly (**DFA**) and Value Engineering (**VAVE**) initiatives.