

Sakshi Shah

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EDUCATION

Master's in Mechanical Engineering

North Carolina State University || CGPA 4/4

Aug 2023 – May 2025

Raleigh, North Carolina, United States

Relevant Courses: Vibrations, System Controls, Design of Electromechanical Systems, Advance Dynamics, Movement Biomechanics, Advance Vehicle Dynamics, Nonlinear Controls, Industrial Automation, Engineering Design Optimization

B.Tech. Mechanical Engineering

MKSSS's Cummins College of Engineering for Women || CGPA 8.5/10

Aug 2017 – Jun 2021 | Pune, Maharashtra, India

Relevant Courses: Engineering Mathematics, Rigid Body Dynamics, Automation and Control Engineering, Machine Design, Avionics, Transmission System Design, Manufacturing Processes

SOFTWARE SKILLS

SOLIDWORKS | AutoCAD | Autodesk Fusion 360 | Autodesk Inventor | ANSYS Mechanical | OpenSim | MATLAB | Simulink | Wolfram Mathematica | Python | Connected Components Workbench | SAP | ROS | PostgreSQL | Excel Visual Basics | Power Apps | Latex | PreForm

PROFESSIONAL EXPERIENCE

Research Assistant

NCRL, North Carolina State University

Jan 2025 – present | Raleigh, United States

- Designing and fabricating key components using CAD tools, ensuring an ergonomic fit and structural integrity.
- Selecting and integrated motors and control systems for smooth and precise actuation.

Process Development Intern

Tioga Cardiovascular

May 2024 – Aug 2024 | Los Gatos, United States

- Supported **process development**/R&D in optimizing the manufacturing process of the Transcatheter Mitral Valve replacement product by understanding and solving product assembly and packaging requirements in the clean room.
- Designed SLA printed **fixtures** using SolidWorks and Preform for vibration damping and testing the delivery system.
- Refined engineering drawings for **GD&T** specifications and integrated **quality checks** for injection-molded supplier components, enhancing precision and production consistency and reducing defects.
- Generated approval requests for **controlled documents** of new and revised parts. Created equipment and tooling specifications and established procedures and the required quality inspection criteria.

Associate Engineer

Eaton

Aug 2021 – Jun 2023 | Pune, India

- Optimized the Engineering-to-Order (ETO) process, increasing efficiency by 34% . Certified in **DMAIC six sigma**.
- Acted as a special point of contact for **Python and Excel-VBA based automation**.
- Supported plant by executing *Engineering Change Requests* (ECRs) and **Sustaining Engineering projects** for regulators team, **standardizing processes** and reducing labor hours, through *Part Drawing revisions*, *bill of materials* standardization in *SAP*, and **documentation**.
- Executed *Design for Manufacturing (DFA)*, *Continuous Improvement (CI)* and *Design for Manufacturing (DFM)* projects.
- Reduced costs through **VAVE projects**. Minimized material wastage by identifying overdesigned elements, reducing part variations by 56%, improving *inventory management*, and mitigating *part shortages*.
- Utilized **supplier and stakeholder** inputs to create *ramp-up and ramp-down* plans for project implementation.

PROJECTS

Testing and Control of a 7-Link Kinova Gen3 Robot Arm

Nov 2024 – present

- Developing a visual servo control system using an eye-in-hand camera configuration for real-time object tracking.
- Implementing nonlinear control algorithms for precise motion control and stability in dynamic environments.
- Designing and manufacturing end-of-arm tooling (EOAT) to ensure camera stability and support additional equipment.
- Integrating hardware and software for robot path planning, sensor feedback, and closed-loop control.

Design and Validation of Nonlinear Controllers for a Two-Link Robot Arm

Sep 2024 – Dec 2024

- Simulated and tested adaptive, robust, and model-based controllers to ensure stability and optimal system performance.
- Performed dynamic modeling and stability analysis to enhance motion precision and reliability.

System Integration and Control for an Autonomous Conveyor System

Sep 2024 – Nov 2024

- Programmed PLC-based control using Allen-Bradley Micro 800 and used Modbus/MQTT communication for real-time data monitoring.
- Developed a remote control system for automation, integrating low-level hardware communication protocols.
- Designed and optimized sensor-based feedback mechanisms to ensure system stability and fault detection.

2 Pole Electro-Permanent Magnet Clamp for Workpiece holding during machining

Jan 2024 – May 2024

- Optimized clamp design using Magnetic Circuit Analysis (MCA) to identify key design dependencies and performance trends.
- Conducted 2D simulations in FEMM using the octaveFEMM toolbox in MATLAB and refined the design using parametric sweeps in ANSYS Maxwell.