SUDARSAN SRINIVASAN

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SUMMARY

- Mechanical Design Engineer with 3.5+ years of experience in mechanical design, CAD modeling, quality, and manufacturing
- Proficient in product design optimization, GD&T, prototyping, and DFM/DFA for cost-effective, high-volume manufacturing
- Experienced in root cause analysis, failure investigation, FEA, and process refinement to enhance performance and quality
- Strong problem solving mindset with attention to detail and cross-functional collaboration to drive engineering solutions

EDUCATION

University of Washington, Seattle, WA *Expected Jun 2026*
Master of Science, Mechanical Engineering (Controls, Mechatronics & Robotics) *GPA: 3.93*

National Institute of Technology, Trichy, India *Graduated Jun 2020*
Bachelor of Technology in Mechanical Engineering (Minor: Electrical and Electronics)

EXPERIENCE

Mechanical Design Engineer | Bajaj Auto Limited, India *Jan 2021 - Jul 2024*

- Led design and development of aluminum castings, plastic covers, sheet metal brackets, and cylinder head gaskets for ICE and EV platforms, adhering to regulatory norms, styling, DFMEA, and production feasibility for high-volume production
- Developed detailed 3D CAD models and 2D drawings with GD&T using Siemens NX (Unigraphics), ensuring tight tolerance control and manufacturability; managed product lifecycle using Siemens Teamcenter
- Collaborated with validation teams to confirm structural, thermal, and fatigue performance pre-production
- Conducted 20+ FEA simulations using ANSYS to optimize structural and sealing performance, reinforcing design integrity
- Automated gasket CAD modeling and validation using NXOpen scripts, reducing design cycle time by 76%
- Achieved $15,000+ annual cost savings by initiating VAVE projects through material and design optimizations
- Facilitated 10+ DFMEA reviews and resolved 100+ failure issues using structured root cause analysis (8D), ensuring sustained product reliability

Manufacturing Engineer Intern | Ashok Leyland, India *Jun 2019 - Jul 2019*

- Revised SOPs for 20+ engine assembly stages to meet new emission standards, improving documentation clarity
- Investigated ABS defect trends in 150+ vehicles using Pareto analysis, identifying sensor integration issues and recommending early-stage testing in the assembly line to increase pass rates

Manufacturing Engineer Intern | **Rane - TRW Steering Systems, India** *Jun 2018 - Jul 2018*

- Streamlined the drop-arm painting process by eliminating non-value-adding activities, enhancing throughput through Lean Manufacturing principles and process optimization
- Designed and implemented a specialized oven trolley using SolidWorks, increasing production output by 61% per shift

PROJECTS

Autonomous Cleaning Robot, Boeing Advanced Research Collaboration, UW Seattle *Dec 2024 - Present*

- Leading mechanical design (SolidWorks) of an autonomous cleaning robot for NDI water cell maintenance, focusing on packaging, enclosure, and cleaning; prototyping and testing mechanical subsystems for performance validation
- Collaborating with electrical and software team members to integrate sensors, power systems, and control boards; supporting end-to-end testing and performance validation of electromechanical components

Safe End-Effector Trajectory Tracking for 2-DOF Robotic Arm, UW Seattle *Mar 2024 – Jun 2024*

- Designed and implemented a real-time controller for a 2-DOF robotic arm using Control Lyapunov and Barrier Functions (CLF-CBF), formulated as a Quadratic Program to ensure safe and stable trajectory tracking around obstacles
- Built a Python-based simulation framework and validated the controller across multiple trajectories

TECHNICAL SKILLS

CAD & Simulation: Siemens NX, SolidWorks, CATIA V5, AutoCAD, ANSYS Mechanical, HyperWorks
Design & Manufacturing: GD&T, Tolerance Analysis, DFM/DFA, 3D modeling, DFMEA, Design for Cost
Fabrication: Machining, 3D Printing (FDM), Prototyping, Die casting, Injection molding
Programming, Automation & Analysis: MATLAB, Simulink, Python, C++, ROS, PLC Programming, Tableau, Automation
Electrical & Controls: Sensor integration, Pneumatic systems, Microcontrollers (Raspberry Pi 5, Arduino Uno), Electronics
Software & Collaboration: Siemens Teamcenter PLM, Microsoft Office Suite

CERTIFICATIONS

Certified SolidWorks Professional (CSWP)