

RAHUL PATEKAR

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SUMMARY:

Innovative Mechanical Engineer with 6+ years of experience in Mechanical Design, R&D, and Cost Optimized product development in Medical, Semiconductor, and Automotive industries. Skilled in CAD, FEA, and Programming with a proven record of reducing costs by up to 66%, improving product performance by 30%+, and leading cross-functional teams. Patent contributor in scalable semiconductor product design, manufacturability improvements, and automation.

PATENTS:

Replaceable Insulator Collars for Semiconductor Test Systems

Patent filed Apr 2024

Fully Shielded and Replaceable Insulative Jackets for Coaxial Test Sockets

Patent filed Dec 2024

Led full concept-to-production development of insulators and insulative jackets of both the above patents including prototyping, validation testing, supplier engagement, and manufacturing release.

SKILLS:

CAD : Solidworks, ANSYS SpaceClaim, CATIA, PTC Creo, Unigraphics NX, Fusion 360

Programming & FEA : ANSYS Mechanical, Python, MATLAB, VBA, Abaqus, COMSOL Multiphysics, C, C++, HTML

WORK EXPERIENCE:

Mechanical Engineer II, Value Engineering | Danaher - Beckman Coulter Diagnostics | Chaska, MN **Mar 2025 - Present**

- Led cross-functional team of 15 across mechanical, electrical, EMC, quality, regulatory, and manufacturing departments to deliver production-ready electromechanical controllers, improving product performance by 21% and generating \$2M+ in annual cost savings.
- Reduced component cost by 66% of 10+ assemblies in a Class 2 medical instrument by redesigning parts for injection molding and metal casting, validating structural and thermal integrity using PPQ testing.
- Reduced electro-mechanical assembly lead times by 45% through material replacements and supplier engagement, improving instrument readiness while maintaining biocompatibility and regulatory compliance.
- Designed forced-air cooled electronics sheet metal enclosures integrating fans, RAM, SSDs, and power components, achieving EMC compliance and enabling deployment of lower-cost computing architectures.

Mechanical Engineer, Research and Development | Cohu, Inc | Saint Paul, MN

Sep 2021 - Feb 2025

- Led mechanical development of AI semiconductor sockets interfacing chip through system-level assemblies (10,000+ solder balls) achieving -10dB return loss at 40 GHz, reliable qualification of AI devices at -40 degC and 150 degC.
- Reduced package warpage by 30%; improving solder contact engagement on multiple pitch (0.2mm to 0.8mm) BGA devices by designing mechanically stiffened sockets with metal stiffeners and floating alignment plates.
- Reduced interface temperatures by 24% by developing natural air convected actuators for mechanically constrained socket architectures and airflow paths in socket assemblies, developed in ANSYS thermal and structural simulation.
- Delivered production-ready coaxial aluminum sockets using polymer micro-molding and photo-resin additive manufacturing, meeting customer requirements into scalable designs and generated \$120K in new business revenue.
- Planned and executed fit/function, force-displacement, thermal characterization, and reliability testing; correlated FEA with field results across 20+ experiments to improve new pogo pin designs.
- Mentored 3 junior engineers and streamlined design reviews, reducing iteration cycles by 27%.
- Automated mechanical test reports with Python to save 100+ engineering hours annually.

Product Development Intern, Research and Development | Cohu, Inc | Saint Paul, MN

Jan 2021 - Aug 2021

- Improved field socket reliability by 10% and reduced manufacturing time by 27% by redesigning alignment mechanisms and electromechanical fixtures using tolerance stack optimization.
- Correlated ANSYS FEA with RF and mechanical test data across 50+ pogo pin designs, strengthening simulation accuracy and guiding design refinement.
- Supported shock and vibration qualification for molded semiconductor components, contributing to improved packaging robustness and field performance.

Associate Software Engineer, Research and Development | Accenture | Pune, India

Nov 2018 - Jul 2019

- Supported Agile software development and test automation using Java & Selenium, for faster software release cycles.
- Developed automated test scripts reducing manual QA time and improving team sprint velocity.

Mechanical Design Intern, Production Engineering | Tata Motors | Pune, India

Dec 2017 - Mar 2018

- Designed jigs, fixtures, and automotive components in CATIA V5 contributing to measurable manufacturing quality improvements in stamping, welding & assembly operations.
- Applied GD&T and tolerance analysis to ensure fit within vehicle assembly tolerances.

EDUCATION:

MS in Mechanical Engineering | **Michigan Technological University** | Houghton, MI | GPA: 3.9

Sep 2019 - Aug 2021

BS in Mechanical Engineering | **Pune University** | Houghton, MI | GPA: 3.6

Jul 2014 - Jul 2018