Lakshya Tiwari

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Professional Summary

With expertise in advanced materials, mechanical design, and simulations, I excel in product innovation, research, and development. Skilled in CAD, FEA tools, and programming (Python, MATLAB), I specialize in designing, testing, and optimizing complex systems. Proficient in material analysis, regulatory compliance, and manufacturing process improvements, I consistently enhance product reliability, efficiency, and performance.

Experience

BCVS Group Inc. (Contract) **Round Lake, IL**
Principal Engineer **Sept 2023-Present**

- Applied advanced technical principles to oversee design, testing, and quality assurance activities, streamlining processes to enhance product quality, reliability, and regulatory compliance.
- Led 10+ test protocols and method validations for mechanical devices, ensuring robust and precise testing accuracy for fixtures, gauges, and assemblies to meet quality standards.
- Managed comprehensive Design History File (DHF) documentation using PLM software, ensuring full compliance with 21 CFR 820, ISO 13485, ISO 14971, and other quality management standards for regulatory audits.
- Supported DFMEA, PFMEA, IQ, OQ, PQ, Risk Management, and NPI processes to ensure product safety, risk mitigation, and adherence to quality and regulatory requirements.
- Created 10+ detailed design drawings in Creo and developed fully functional prototypes, driving innovation and advancing product development through various critical stages.
- Implemented advanced quality initiatives such as GD&T, SPC, and Six Sigma methodologies to optimize manufacturing processes, reduce defects, and improve overall product performance.

Solinst Canada Ltd. **Tempe, AZ**
Mechanical Engineer **June 2023-August 2023**

- Designed and validated mechanical packer components in SolidWorks, ensuring form, fit, and function through iterative modeling and testing.
- Developed 3D models and prototypes in SolidWorks, ensuring design accuracy and meeting project timelines.
- Performed advanced CFD simulations in ANSYS to optimize design performance, enhancing efficiency, structural integrity, and overall product reliability.

Manufacturing Innovation Lab **Tempe, AZ**
Research Assistant **Oct 2021-May 2023**

- Designed thermoelectric Molds using Aqua Gray 4K resin and Sonic Mini 4K printer, processing Sb_2Te_3 material through grinding and filtration for optimized performance.
- Increased material density by heat pressing at 100°C/200°C with 500N/1000N pressures, followed by sintering at 400°C and TGA testing for precise evaluation.
- Optimized resin curing with 0-3% PEDOT: PSS, performing 10 iterations and microscopic scanning to enhance conductivity and resin properties.
- Simulated copper deposition on 3D-printed conductive films using COMSOL, conducting SEM and EDS analysis to improve fabrication and ensure consistent material properties.

Air India Ltd. **Mumbai, IN**
Intern **May 2018-July 2018**

- Overhauled PW4056 compressor modules and enhanced CFM56 combustion chambers, significantly improving operational efficiency, performance, and reliability of critical engine components.
- Conducted detailed inspections of GE-90 engines using advanced NDT techniques and collaborated with AMEs on overhauls, ensuring compliance, safety, and comprehensive maintenance documentation.

Technical Skills

- **Languages**: MATLAB, Python
- **Design & Analysis Tools**: AutoCAD, SOLIDWORKS, CATIA V5, Fusion 360, Revit, Creo, Siemens NX, ANSYS, COMSOL, Abaqus, GD&T, Origin, EndNote, CHITUBOX, JMP, Minitab, PTC Windchill, LabView, GD&T
- **Certification**: **Autodesk CAD/CAM/CAE for Mechanical Engineer, Six Sigma Green Belt, Robotics, Digital Manufacturing & Design Technology, Autodesk Generative Design, CAD and Digital Manufacturing**

Education

Arizona State University, Tempe, AZ
Master of Science: Aerospace Engineering **Aug 2021-May 2023**

- Relevant Graduate Coursework in Linear Algebra in Engineering, Polymers & Composites, Modern Manufacturing Methods, Applied CFD, Design Optimization, Probability & Reliability, Thesis.

SRM Institute of Science & Technology (KTR), Chennai, India
Bachelor of Science: Aerospace Engineering **August 2016-May 2020**

- Relevant Undergraduate Coursework in Applied Structural Mechanics, Vibrations & Elements of Aeroelasticity, Applied Solid Mechanics, Material Science, Flow Visualization Techniques, Thermodynamics, Applied Engineering Mechanics.