Harshal Tingre

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Education

Masters of Science in Mechanical Engineering Aug 2022 - May 2024
Arizona State University, Tempe, Arizona GPA: 3.35/4.0
{Relevant Coursework: Air Conditioning & Refrigeration, Electron Microscopy I, Finite Elements in Engineering, Autonomous Vehicle Engineering, Design Engineering Experiments, Applied Machine Learning, Computational Fluid Dynamics, Renewable Energy}

Bachelor of Engineering in Mechanical Engineering Aug 2019 - July 2022
Savitribai Phule Pune University, Pune, India GPA: 9.04/10.0

Technical Skills

- **Software:** ABAQUS, AutoCAD, SolidWorks, ANSYS, CATIA, PTC Creo
- **Technical Equipment:** Conveyorized OD spray machine Flat type,ID-OD Spray Machine, CNCs, Lathe Machine, Angle Grinder, Plasma Cutters, Oxy-acetylene Torches, mills, Drill press, Vertical machining centers, Horizontal Machining centers, Hobbing Machine Programming, Heat treatment, Laser Treatment machines
- **Programming:** MATLAB, C++
- **Miscellaneous:** Quality Control, Dispatching,Production Planning, Project Management

Experience

Shireen Auto Pvt. Ltd. Sep 2021 - Oct 2021
In Plant Trainee Nashik, India

- Collaborated with the Deputy General Manager at Mahindra & Mahindra Ltd., along with the Production and Exporting teams, to compile and analyze data on CNC, VMC, and Hobbing Machine Programming. This initiative enhanced the automotive spare parts creation process, leading to a 15% increase in production efficiency.
- Boosted plant efficiency by conducting diagnostic checks and preventive maintenance on machinery, leading to a reduction in machine downtime by 20%. Authored detailed technical reports that guided the implementation of effective maintenance strategies.
- Acquired practical skills in operating CNC machine tools, performing tasks such as monitoring hydraulic pressure (maintained at 4.5 MPa) and aligning spindle and tailstock, which contributed to maintaining high precision in machine operations.

Sansun Industries Pvt Ltd Dec 2018 - Jan 2019
Industrial Trainee Nashik, India

- Designed and manufactured welding fixtures for environment-friendly gym products, including Jigs and Fixtures for seated puller handle bar assembly welding, using Auto-CAD and mild steel materials.
- Conducted background research and prototype construction to analyze the potential of the final design concept, which satisfied functional requirements and design parameters;reduced material costs by 10% and enhanced design accuracy by 22%.
- Gained hands-on experience in a comprehensive range of mechanical engineering tasks, including powder coating and buffing of parts, and welding using CO2/TIG welding processes.

Projects

Design Optimization and FEM Analysis for Stress Minimization 2023
Arizona State University

- Engineered modifications in geometry using SolidWorks to minimize stress around the bolt cutout.
- Refined the FEM model by incorporating pressure loads, refined material properties, and quadratic elements in ABAQUS.
- Achieved a remarkable 92.92% increase in breaking force prediction through precise design adjustments and advanced FEM.

Evaluation of Screw-In Geothermal Heat Exchanger 2022
Arizona State University

- Leveraged SolidWorks and ANSYS to design and execute analysis on two tube geometries, namely U-tube and Helical, followed by a comparative evaluation.
- Established that the Heat Transfer of the Helical Tube surpassed the conventional U-tube by 115.63 W/m2, demonstrating a significant improvement in thermal performance and efficiency.
- Performed comprehensive calculations of carbon emissions and implementation costs for both systems, revealing a potential material cost reduction of up to 34.1% by transitioning from U-tube to Helical tube.

Producer Gas Filtration from Fluidized Bed Gasifiers 2022
Sandip Foundation, India

- Developed a filtration unit for producer gases from a fluidized bed gasifier, utilizing sawdust as a filter medium. Achieved over 70% removal of particulate matter, significantly enhancing gas purity for downstream applications.
- Implemented a heat exchanger technique that effectively removed up to 90% of tar from producer gas, facilitating engine use and reducing maintenance needs due to lower tar deposits.
- Under the guidance of a professor from IIT Guwahati, investigated tar production and harmful emissions (CO2, NOx, SOx, unburnt residue) in the gasification process, proposing enhancements that improved overall efficiency by 20%.