Contact

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Top Skills

MicroStation

Tekla Structures

Mechanism Design

Languages

German (Limited Working)

Hindi (Native or Bilingual)

English (Professional Working)

Publications

Advanced Fabrication of Banana Fibre-Based Hybrid Composites

Plasma modification of natural fiber: A review

Mechanical behaviour of banana reinforced epoxy composite by finite element method

Mechanical Behavior Of Banana Reinforced Epoxy Composite By Finite Element Method

Tribological Characterization of Banana/ Sisal Composites and Hybrid Composites: A Review

Siddhartha Chaturvedi

Automotive Engineer | Mechanical Engineer | CAD Design | Test and Rig Design | EDU | EV Thermal Management | Product Design | Sustainable Design | Sheet Metal Fabrications | BEV / PHEV Battery Design

Indore, Madhya Pradesh, India

Summary

As a seasoned Mechanical Engineer with over 4 years of experience, I specialise in thermal system design, structural engineering, and cross-functional collaboration. My work portfolio includes redesigning water-glycol cooling systems using Computational Fluid Dynamics (CFD) to achieve 14% efficiency gains and conducting Finite Element Analysis (FEA) for electronics housings to validate tolerances and design principles.I've led Siemens NX / Solidworks assembly designs for driveline components, coordinated with suppliers for bill of materials accuracy, and optimised sheet metal brackets to reduce vibration in battery packs. My contributions have extended product lifecycle performance and ensured seamless integration with the cooling system for high-voltage automotive applications.I leveraged my skills in mechanical engineering to develop thermal management solutions for industrial equipment and design lightweight Steel/ aluminium housings with integrated cooling channels. These initiatives improved durability by 8% through material upgrades and weight reduction.My work has consistently resulted in enhanced reliability, operational efficiency, and significant cost savings. If you're looking for an experienced Mechanical Engineer who brings a blend of technical expertise and collaborative approach to your team, let's connect!

Experience

Switch Mobility

Mechanical Engineer (R&D - Driveline & Chassis Subsystems)
June 2024 - July 2025 (1 year 2 months)
Sherburn In Elmet, England, United Kingdom

- Directed the product ownership and architecture for Battery Thermal Management Systems and EDU components, utilizing agile skeleton models in

CATIA and Siemens NX to define architecture, ensure geometric compatibility, and meet all key R&D performance indicators (KPIs) and programme gateways.

- Achieved a 14% efficiency gain by redesigning water-glycol cooling systems using Ansys Fluent CFD analysis, optimizing fluid paths and seal designs with HAZOP risk mitigation, and validating performance through comprehensive thermal tests and physical validation protocols.

- Led the resolution of complex integration issues and managed the entire product design lifecycle through formal arbitration, technical design reviews, and JIRA backlog management, successfully achieving all design freezes and project milestones for prototype and final delivery.

- Ensured CAD maturity and seamless PLM integration by utilizing GD&T (BS8888/ASME Y14.5) to create and publish detailed assembly models and drawings for EDU, HV battery enclosures, cooling manifolds, and driveline components, coordinating with suppliers for BOM accuracy.

- Spearheaded FEA-driven structural analysis and durability validation to balance structural integration, weight optimization, NVH, and crash safety requirements for full homologation compliance.

- Supported prototype and virtual build events for customer applications to validate thermal design and ensure flawless integration with vehicle systems and test rigs, troubleshooting legacy cooling system issues to enhance reliability and extend product lifecycle.

- Contributed to modular ePowertrain packaging by designing optimized, liquid-cooled compressor housings and inverter plates, improving serviceability and meeting all commercial and passenger EV platform requirements through technical reviews and NVH optimization.

BJS Fabrications Ltd
Mechanical Design Engineer
January 2024 - June 2024 (6 months)
Leeds

- Designed and validate structural steel enclosures for industrial systems using SolidWorks / Tekla Structures / Microstation / AutoCAD, performing

FEA analysis for load capacity and thermal performance while ensuring GD&T compliance with ASME Y14.5, BS 8888, and ISO 9001 standards.

- Developed innovative thermal management and cooling solutions through R&D, utilizing hand calculations for heat dissipation, stress analysis, and static/dynamic loads to meet stringent operational requirements in high-temperature environments.

- Optimized fabrication processes and implemented DFM principles in close collaboration with workshop teams to reduce production costs and enhance the structural integrity of welded assemblies.

- Managed the entire project lifecycle from concept to delivery, creating detailed DVP plans for safety-critical components and ensuring compliance with industry standards through rigorous testing protocols and formal Design Reviews.

- Enhanced product durability by 20% by conducting root cause analysis on legacy failures and implementing design improvements, including material upgrades and weldment optimizations.

- Served as a key arbitration point between architectural and workshop teams, utilizing agile methodologies to swiftly resolve design incompatibilities, maintain project momentum, and achieve all key performance indicators.

University of Leeds
Test Engineer | Automotive Component Testing
January 2023 - December 2023 (1 year)
Leeds, England, United Kingdom

- Failure Mode Analysis: Evaluated ABS/ADAS systems for compliance with homologation and safety regulations (Euro NCAP).

- Subsystem Benchmarking: Calibrated pneumatic/hydraulic systems using MATLAB/Simulink to meet legislative standards.

- Risk Assessment: Documented validation processes for regulatory approval, focusing on crashworthiness and durability.

- Cross-functional Teams: Collaborated with R&D to refine sensor integration and dynamic load testing.

Gajra Gears Pvt. Ltd.
Mechanical Design Engineer | Component Testing | PTC Creo / Siemens NX | Structural Analysis
July 2019 - June 2021 (2 years)
Satara, Maharashtra, India

- Designed and optimized gearbox cooling systems and lightweight aluminum (A356-T6) housings in CATIA V5, utilizing topology optimization and FEA thermal analysis to achieve a 12% weight reduction while maintaining thermal stability and structural integrity under dynamic loading.

- Led comprehensive DFM reviews for machined and welded thermal components, collaborating directly with manufacturing teams to optimize production processes and ensure designs met strict performance, weight, and durability targets for automotive and motorsport applications.

- Conducted detailed tolerance stack-up analysis and implemented GD&T per ASME Y14.5 for gearbox assemblies, ensuring proper fitment and thermal expansion compatibility across the entire operating temperature range.

- Applied agile project management to orchestrate the complete engineering development and product delivery process, from advanced product design through validation, ensuring all key performance indicators and project milestones were achieved.

- Spearheaded research & development initiatives to analyze and resolve thermal management issues in existing transmissions, implementing material selection, cooling channel redesign, and self-cooling strategies that improved product durability by 15%.

- Validated component integrity through a comprehensive technical Design Review process, utilizing FEA to simulate heat generation, dissipation, and optimize load paths for extreme operating conditions and dynamic loads.

- Developed integrated cooling channels within housing designs, performing rigorous FEA validation to ensure optimal heat dissipation performance and structural integrity for high-performance drivetrains.

- Executed projects focused on solving thermal management challenges, utilizing Ansys simulations and hand calculations to implement key design

modifications that enhanced durability in high-temperature environments for industrial and automotive applications.

Education

University of Leeds

Master of Science - MS, Automotive Engineering · (September 2021 - December 2022)

Shri Vaishnav Vidyapeeth Vishwavidyalaya, Indore

Bachelor's degree, Mechanical Engineering · (July 2017 - May 2021)