UDAYKUMAR

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SUMMARY

Experienced Mechanical Design and Simulation Engineer specializing in advanced 3D modelling, simulation, and comprehensive product development. Proficient in industry-standard tools such as CATIA, SolidWorks, Solid Edge, PTC Creo, Siemens NX, ANSYS, Abaqus, Hyper Mesh, ANSA, and MATLAB. Skilled in utilizing PLM/PDM systems to streamline design workflows and ensure efficient project management. Dedicated to delivering innovative, optimized, and reliable engineering solutions through a combination of analytical expertise and practical design experience

EDUCATION

Bangalore Institute of Technology, Bengaluru DCE 2022-2025

B.E. in Mechanical Engineering **CGPA- 8.5**

Jawaharlal Nehru Polytechnic (AIDED), Thana Kushnoor, Bidar 2018-2021

Mechanical Engineering **PERCENTAGE-72%**

SKILLS

- Proficient in 3D Modeling: CATIA, SolidWorks, Solid Edge, PTC Creo, Siemens NX
- Simulation Software: ANSYS, Abaqus, Hyper Mesh, ANSA, and MATLAB
- Product Design & Development: Concept to prototype, design optimization
- Bill of Materials (BOM) Management
- Basic Microsoft Office Suite: Excel, PowerPoint, Word
- Soft Skills: Problem-solving, teamwork, technical documentation, time management

WORK EXPERIENCE

1. Chropynska India Private Ltd Oct 2025 – Present

R&D Engineer – Powertrain & BIW Design

Leading end-to-end design and development of Powertrain and Body-in-White (BIW) systems, delivering robust, efficient, and globally compliant automotive solutions. Spearheading heavy machinery and advanced manufacturing projects through automation and precision engineering. Proficient in Autodesk Inventor, NX, AutoCAD, and CATIA for advanced 3D modeling, simulation, and design optimization.

- Optimized Powertrain and BIW components for enhanced performance, durability, and manufacturability
- Contributed to innovative, high-quality automotive products aligning with global standards

- Advanced engineering excellence by integrating automation-driven design solutions

2. Jk Fenner India ltd patancheru 2021-2022

Quality and Product Design Engineer

Supported product design initiatives by creating detailed 3D models and simulations, contributing to the overall design quality and innovative solutions.

- Assisted in quality assurance processes to ensure compliance with industry standards and specifications, enhancing product reliability.
- Collaborated with cross-functional teams to gather requirements and feedback, leading to continuous improvements in design methodologies

PROJECTS

1. Studies on Free Convection in a Trapezoidal Cavity with Porous Media AUG-DEC 2024

Analysed heat and fluid flow within a porous cavity using Finite Element Method (FEM)-based numerical simulation. Investigated effects of different boundary conditions, Rayleigh numbers, and cavity geometries on natural convection and heat transfer efficiency. Simulations developed and validated using MATLAB to understand thermal and flow behaviour inside the cavity.

- Utilized MATLAB for the simulation of free convection phenomena, analyzing the impact of various parameters on fluid flow behavior.
- Interpreted and presented results, contributing to the understanding of thermal management in engineering applications.
- Investigated the effects of porosity and internal heat generation.
- Analysed temperature and flow characteristics under different conditions.
- Summarized key findings and potential applications in thermal management

2. Modeling and Analysis of Vertical Axis Wind Turbine Blade APR-JUL 2024

Designed and analysed a Savonius-type Vertical Axis Wind Turbine (VAWT) to convert wind energy into mechanical power using Finite Element Analysis (FEA) in ANSYS. Focused on understanding aerodynamic forces, deformation, and stress distribution under different wind conditions. Demonstrated that VAWT blades made of aluminium alloy exhibit minimal deformation and safe stress levels.

- Developed comprehensive 3D models using CATIA V5 and SolidWorks, focusing on aerodynamic efficiency and structural integrity.
- Conducted simulations to analyze performance metrics, leveraging results to propose design optimizations.
- Used Q Blade and ANSYS for simulations.

  Focused on Darrieus or H-rotor blade designs with composite materials.
- Evaluated aerodynamic performance and optimization techniques.

- Summarized key findings and suggested future improvements.

INTERNSHIP EXPERIENCE

1. Bajaj Engineering & Skills Training (BEST), PES University, Bangalore FEB – Jul 2025

Mechatronics & Automation Trainee

I completed a six-month fully residential, hands-on training program focused on real-world industrial applications in mechatronics and automation. I specialized in motion control, sensor technology, robotics, and Industry 4.0, with 70% of the curriculum dedicated to practical, project-based learning.

I gained extensive experience in industrial automation systems, modern manufacturing tools, and world-class industrial equipment. Worked on system integration, troubleshooting, and process optimization, applying engineering principles to develop efficient automation solutions.

Key Skills: Mechatronics & Industrial Automation, Robotics Design, Implementation & Motion Control, Sensor Technology & Instrumentation Systems, PLC Programming & Industrial Equipment Operation, Industry 4.0 Technologies & Smart Manufacturing Solutions,

2. CONCEPTIA KONNECT - Industry Leading Simulation Solutions FEB-MAY 2025

I have successfully completed an intensive training at Prime Tooling's, where I specialize in design and structural analysis, applying industry-standard tools like ANSYS, SolidWorks, and PTC Creo to develop optimized engineering solutions. My role involves simulation, design refinement, and efficiency improvements to enhance product performance. While my official certification reflects one year, my ongoing experience continues to deepen my expertise in precision engineering and problem-solving.

Skills: Bill of Materials (BOM) Management, CAE, CAD/CAM, simulation, PLM Tools, SolidWorks

3. PRIME TOOLING MAR-FEB 2025

I have successfully completed an intensive training at Prime Tooling's, where I specialize in design and structural analysis, applying industry-standard tools like ANSYS, SolidWorks, and PTC Creo to develop optimized engineering solutions. My role involves simulation, design refinement, and efficiency improvements to enhance product performance. While my official certification reflects one year, my ongoing experience continues to deepen my expertise in precision engineering and problem-solving.

Skills: PTC Creo · CATIA · Ansys Mechanical · SolidWorks simulation · SOLIDWORKS

4. CNC Machines and Manufacturing Bharat Fritz Werner Limited OCT-NOV 2023

Completed an internship focused on CNC machining processes and manufacturing techniques, gaining practical knowledge applicable to mechanical design and production.

5. BELATHUR INDUSTRIES MAY-JUNE 2023

Focused on machining operations using CATIA V5

During my internship, I worked on machining operations using CATIA V5, creating 3D models and technical drawings, assisting in process optimization, and collaborating with engineering teams on implementation

and troubleshooting. I gained hands-on experience with CAD/CAM software and developed a solid understanding of the machining workflow from design to final product.

6. Bosch – Intern

Feb – Mar 2023

I worked as an intern at Bosch Diesel Services, gaining hands-on experience in fluid flow simulation using ANSYS Fluent and SolidWorks Flow Simulation. My work involved analysing diesel injection systems, optimizing flow characteristics, and contributing to performance improvements through CFD simulations. This internship strengthened my skills in computational fluid dynamics (CFD), thermal analysis, and design validation, preparing me for real-world engineering challenges in automotive and fluid systems.

Skills: SolidWorks Simulation · ANSYS Fluent

CERTIFICATIONS

- CATIA V5 Certification, Solid works, Ansys workbench
- Basic Python Programming Certification

PERSONAL INTERESTS / HOBBIES

- Reading, Traveling, Music listening, playing carrom, playing cricket

LANGUAGES

- English, Kannada, Hindi, Marathi