

Himanshu Ashishkumar Desai

Phone: +91 9879584431 | Email: hadesai455@gmail.com | LinkedIn: Himanshu-Desai | Portfolio: github.io/myfolio

EDUCATION

Vellore Institute of Technology, Vellore Bachelor of Technology Mechanical Engineering CGPA – 9.08/10	September 2020 – August 2024
Delhi Pubic School Vadodara Higher Secondary Certificate (HSC) Class 12: PCM Percentage – 92.4/100	April 2018 – March 2020

RESEARCH INTERESTS

Propulsion and Combustion | Hypersonic flows and Turbulence Modelling | Aerospace Robotics

PROFESSIONAL EXPERIENCE

Reliance Industries Limited (Jamnagar, Gujarat, India) Pre-Placement Offer (PPO) Graduate Engineering Trainee (GET) <ul style="list-style-type: none">Received Pre-Placement Offer with a rating of 4.7/5 during the internshipPlaced at DTA – Captive Power Plant (CPP) – Mechanical OperationsResponsibility – Look after operation of Gas Turbines (GTs), Steam Turbine Generators (STGs), boilers and Heat Recovery Steam generators (HRSGs)In-charge of 4 out of 14 Frame 6B and Frame 9E GTs at CPP.Worked on modified GTs capable of running on synthetic gas with 17-stage compressor and 3-stage Turbine.Designed plot plan for commissioning of 2 new combined cycle GT-HRSG-STG systems at CPP.	August 2024 - Present
Internship Central Engineering Services (CES) <ul style="list-style-type: none">Challenge – Mechanical Component Failure Action – On-Site Inspection, Condition Monitoring & Vibration Analysis Results – Predictive along with Preventive Maintenance	May 2023 – July 2023
Associated Power Structures Limited (Vadodara, Gujarat, India) Internship Vocational Trainee <ul style="list-style-type: none">Challenge – Understanding lifecycle, installation, and load-bearing standards in transmission towers Action – Assisted in site surveys, structural design, welding, and galvanizing processes Results – Learned end-to-end workflows, quality control	June 2022 – July 2022
Shakun Polymers Limited Orbia Group (Halol, Gujarat, India) Internship Manufacturing <ul style="list-style-type: none">Challenge – Understand manufacturing polymer pallets as secondary products Actions – Site Visit, Study the working Bühler Palletizing System Results – Knowledge on Polymer Manufacturing Technology	May 2022 – June 2022
Kodacy SPACE (Remote) Internship Robotics <ul style="list-style-type: none">Challenges – Building 4 different Tasking Robots Action – Virtual Assembly Simulation of Components and Coding for Micro-controller Results – Created Signal Bot, Sound Sensor Bot, Path Following Bot, Motion Sensor Bot	December 2021 – January 2022
SAE Assailing Falcons VIT (Aerodesign Team) College Team Aircraft Design <ul style="list-style-type: none">Challenges – Designing aircraft components for SAE Advanced class aerodesign competition using SOLIDWORKSAction – Studied transonic aerodynamics, atmospheric variations, flight mechanics along with CAD/CAM.Results – 3rd prize for the designed aircraft Technical Report in the competition	January 2021 – August 2021

RESEARCH EXPERIENCE

Numerical Analysis on Scramjet Combustor (Sent for Review: IJHE) Dr. Padmanathan P. Vellore Institute of Technology, Vellore <ul style="list-style-type: none">Analysis of performance and combustion characteristics of a Scramjet Combustor with diamond strut-based injectors.Designed 14 combustor models on SOLIDWORKS along with Block Structured Meshing using ANSYS ICEMCFD.Carried out validation using Michael Oevermann's experimental research on triangular strut-based scramjet model.Improved combustion efficiency by 6.43% compared to baseline validation model.	January 2024 – August 2024
Ceramic Matrix Composites (CMC) (Sent for Review: MSE) Dr. S.K. Ariful Rahaman Vellore Institute of Technology, Vellore <ul style="list-style-type: none">Critiqued CMCs as a replacement for conventional materials used in Aerospace industry. Conducted research on a specific Combat Aircraft component (shroud).	November 2023 – August 2024

- Fabricated Silicon Carbide (SiC) + Zirconia (ZrO₂) based Ceramic Matrix Composite (CMC) and performed various tests on produced samples to validate their possible use in the aerospace industry.
- Used Ball mill homogenizer for uniform mixing of SiC and ZrO₂, Compaction machine for physical compaction, and sintering furnace at 1100 °C for enhancing mechanical strength, density of the sample.
- Performed compressive, hardness and thermal tests on the produced samples.
- CMC withstood higher magnitude of stresses and temperature compared to current materials but at a slightly higher cost of production.

CONFERENCE PRESENTATIONS

Analysis of Inconel 718 based SLM printed Brake Disc (Presented at ICRETM)

April 2024

Dr. Oyyarevelu R. | Vellore Institute of Technology, Vellore

- Created a replica model of the available SS410 brake disc with Inconel 718 using SLM.
- Compared the conventional Stainless-Steel based brake disc with Inconel 718.
- Modelled a new slotted groove design for better heat dissipation and material cost cutting.
- Performed 2x2 matrix numerical analysis on both the discs for design and material.
- Conducted Static thermal, Static structural, Modal and Frictional Analysis on both the discs.

OTHER PROJECTS

Analysis of Cooling Systems for Battery Pack

January 2023 – April 2023

Dr. Padmanathan P. | Vellore Institute of Technology, Vellore

- Modelled the battery pack external and internal design using ANSYS 2022 R2 and performed transient thermal and fluent analysis to study the cooling properties of air, water, and Ethylene Glycol.

Modular Drone generative design

July 2023 – October 2023

Dr. S. Senthur Prabu | Vellore Institute of Technology, Vellore

- Designed a drone with detachable wing sections; Drone convertible from 6-axis to 4-axis and performed Transient Thermal, Static Structural, and Fluent analysis using ANSYS Workbench 2022 R2.

AWARDS AND CERTIFICATIONS

- **Transonic Aerodynamics and Aircraft Design** by Martin Yenev and Plamen Yenev September 2022
- **Autodesk CAD/CAM/CAE for Mechanical Engineering** by AUTODESK April 2023
- **MATLAB Programming Specialization** by Vanderbilt University May 2023
- **Six Sigma Green Belt Specialization** by University Systems of Georgia June 2023
- **Certified SOLIDWORKS Associate (CSWA)** by Dassault Systems August 2023

SKILLS AND COMPETENCIES

Technical Skills – CAD/CAM/CAE | Finite Element Analysis | Computational Fluid Dynamics | Fluid Mechanics and Thermal Systems | Manufacturing and Production | FDM, SLM 3D Printing | Materials and Testing | Lean Manufacturing Technology & Six Sigma

Software – AUTODESK AutoCAD | AUTODESK Fusion 360 | SOLIDWORKS | ADAMS | ANSYS Fluent, Thermal, Static Structural and modal | ANSYS ICEMCFD (Meshing Tool) | OpenFoam | MATLAB/SIMULINK

Management – Total Quality Management & Reliability | Industrial Engineering Management | Operations Research

Soft Skills – Problem Solving and Analytical Thinking | Communication Skills | Teamwork | Flexibility and Adaptability

Coding Languages – Java (OOP & DSA) | C++ (basics) | HTML/CSS/JS (Front End Dev.)

EXTRA-CURRICULAR ACTIVITIES

National Cadet Corps (NCC)

2015 – 2018

- Passed the Annual Examination with an A Grade
- Gold medal in Volleyball Tournament | Rank: Lance Corporal

Hearts NGO VIT

September 2022 – December 2022

- Worked as Event Management Coordinator
- Conducted 2 Fund Raising Events during my tenure

Youth Red Cross Club VIT (YRCC)

September 2023

- Coordinated 1 Blood Donation Camp held at VIT Vellore Campus
- Donated Blood