Himanshu Ashishkumar Desai

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

EDUCATION

Vellore Institute of Technology, Vellore **September 2020 – August 2024**
Bachelor of Technology | Mechanical Engineering **| CGPA** – 9.08/10

Delhi Pubic School Vadodara **April 2018 – March 2020**
Higher Secondary Certificate (HSC) | Class 12: PCM **| Percentage** – 92.4/100

RESEARCH INTERESTS

Propulsion and Combustion **|** Hypersonic flows and Turbulence Modelling **|** Aerospace Materials and Structures

WORK/INTERNSHIP EXPERIENCE

Reliance Industries Limited (Jamnagar, Gujarat, India)
Pre-Placement Offer (PPO) | Graduate Engineering Trainee (GET) **August 2024 - Present**

- Received Pre-Placement Offer with a rating of 4.7/5 during the internship
- Placed at DTA – Captive Power Plant (CPP) – Mechanical Operations
- Responsibility – Look after operation of Gas Turbines (GTs), Steam turbines, 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 systems at CPP.

Internship | Central Engineering Services (CES) **May 2023 – July 2023**

- Challenge – Mechanical Component Failure
  Action – On-Site Inspection, Condition Monitoring & Vibration Analysis
  Results – Predictive along with Preventive Maintenance

Associated Power Structures Limited (Vadodara, Gujarat, India)
Internship | Vocational Trainee **June 2022 – July 2022**

- 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

Shakun Polymers Limited | Orbia Group (Halol, Gujarat, India)
Internship | Manufacturing **May 2022 – June 2022**

- Challenge – Understand manufacturing polymer pallets as secondary products
  Actions – Site Visit, Study the working Bühler Palletizing System
  Results – Knowledge on Polymer Manufacturing Technology

Kodacy | SPACE (Remote)
Internship | Robotics **December 2021 – January 2022**

- 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

RESEARCH EXPERIENCE

Numerical Analysis on Scramjet Combustor (Under Review: IJHE) **January 2024 – August 2024**
Dr. Padmanathan P. | Vellore Institute of Technology, Vellore

- Analysed performance and combustion characteristics of a Scramjet Combustor with diamond strut-based injectors.
- Designed 14 combustor models on SOLIDWORKS and created detailed block structured mesh 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.

Ceramic Matrix Composites (CMC) (Under Review: MSE) **November 2023 – August 2024**
Dr. S.K. Ariful Rahaman | Vellore Institute of Technology, Vellore

- Critiqued CMCs as a replacement for conventional materials used in Aerospace industry.
- Conducted research on a specific Combat Aircraft component (shroud).
- 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 ZrO_2, 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.

CONFERENCE PRESENTATIONS

Simulative Investigation on SLM printed Break Disc **April 2024**
Dr. Oyyaravelu 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

REFERENCES

Dr. Padmanathan P. (Assistant Professor Senior**)**
School of Mechanical Engineering
Vellore Institute of Technology, Vellore
+91 81228 35576, padmanathan.p@vit.ac.in

Dr. Vinoth Jebaraj A. (Associate Professor Grade 1**)**
School of Mechanical Engineering
Vellore Institute of Technology, Vellore
+91 94439 01928, vinothjebaraj.a@vit.ac.in