Himanshu Ashish Desai

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Portfolio: Himanshu-myfolio

Portfolio

EDUCATION

Georgia Institute of Technology **Expected May 2027**
Master of Science | Aerospace Engineering

Vellore Institute of Technology, Vellore **Awarded August 2024**
Bachelor of Technology | Mechanical Engineering **| CGPA** – 3.880/4.0

WORK/INTERNSHIP EXPERIENCE

Reliance Industries Limited (RIL) (Jamnagar, Gujarat, India)
Assistant Manager (Shift Field Engineer) | JMD DTA – CPP **August 2024 – May 2025**

- **Placed** at Domestic Tariff Area (DTA) – **Captive Power Plant** (CPP) – **Mechanical Operations**
- Oversaw safe and reliable operation of **Gas Turbines** (GTs), **Steam turbines**, boilers, and Heat Recovery Steam Generators (HRSGs).
- Was in charge of **4 out of 14 Frame 6B and Frame 9E GTs** (Manufactured by GE Vernova) at CPP.
- Worked on modified GTs capable of running on synthetic gas with **17-stage compressor** and **3-stage Turbine**.
- Participated in **3 projects** of **planned maintenance** of GTs and **1 Major Inspection** (MI) project on GE Frame 9E GT.
- Performed **day-to-day** activities of collecting **oil samples**, steam & water analysis, on-field **equipment observation**
- **Designed plot plan** for commissioning of **2 new combined cycle GT-HRSG systems** at CPP.
- Managed **5 field engineers** and **3 contractor teams** working on rotary components of the plant
- Assured **continuous supply** of **Power, Steam,** and **Boiler Feed Water** (BFW) to downstream plants.

Shutdown Maintenance Engineer | JMD DTA – CDU-1 **March 2025 – April 2025**

- Worked at the DTA – Crude Distillation Unit – 1 (**CDU-1**) under the **Heater** and **Heat Exchangers team**.
- Executed maintenance work for **3 crude heaters** and **90 shell & tube heat exchangers** and related equipment.
- Formulated **rigging plan** for heat exchanger tube **bundle extraction**.
- Managed the operating team of the **Sarens Liebherr LR1300** Crawler Crane, working on crude heater maintenance.
- Supervised **12 hotwork contractor teams** for cutting, grinding, and welding jobs on heat exchangers and heaters.
- Ensured **timely completion** of maintenance and charging of equipment, **maximizing equipment uptime** and operational readiness.

Summer Intern | JMD DTA – Central Engineering Services (CES) **May 2023 – July 2023**

- Performed **condition monitoring** on a **2.5 MW blower**, diagnosing root cause of frequent trips and **>90 dB noise** levels.
- Pinpointed faulty drive-end bearing, suggested **corrective actions**, extending bearing life, and **reducing maintenance downtime**.

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

- Assisted in surveys and design of **2 transmission towers**, covering **welding** and **galvanizing** processes, ensuring safety standards.
- Learned full tower lifecycle, quality control measures, and compliance with 765 kV load-bearing standards.

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

- Analysed the **Bühler palletizing system** in a high-volume polymer plant producing over **50 metric tons per day**.
- Gained technical expertise in compounding workflows, material evaluation techniques, and cable-grade polymer technology.

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

- Developed functional prototypes of **4 sensor-based robots** (Signal, Sound, Path-Following, & Motion).
- Executed virtual **assembly simulations** and **programmed microcontrollers** to control robot behaviour and task execution.

RESEARCH EXPERIENCE

Numerical Analysis on Scramjet Combustor (Published in Elsevier) **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 Momposites (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 the **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 (Presented at ICRETM 2024) **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 Workbench 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 **May 2023**
Certified SOLIDWORKS Associate (CSWA) by Dassault Systems **August 2023**

SKILLS AND COMPETENCIES

Technical Skills – CAD/CAM/CAE, Finite Element Analysis, Computational Fluid Dynamics, Thermal Fluid Systems, Mechanical Maintenance and operations**,** Manufacturing Production**,** FDM, SLM 3D Printing, Materials Testing, Lean Six Sigma
Software – AUTODESK AutoCAD, AUTODESK Fusion 360, SOLIDWORKS, ADAMS, ANSYS Fluent, Thermal, Static Structural and modal, ANSYS ICEMCFD (Meshing Tool), OpenFoam, MATLAB/SIMULINK, Microsoft Suite (Word, Excel, Power Point, Visio, Project)
Management Courses Taken – Total Quality Management & Reliability, Industrial Engineering Management, Supply Chain 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.)