

PRANAV P R

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Pranav P R

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Education

Indian Institute of Information Technology, Kancheepuram

B.Tech in Mechanical Engineering

Dec. 2021 – present

Chennai, Tamil Nadu.

Experiences

Indian Institute of Technology, Madras.

Research Intern

May 2024 - Present

Chennai, Tamil Nadu

- Conducted simulations of an inverted pendulum system using Python and MATLAB, including defining parameters, state space modeling, and solving differential equations.
- Performed stability analysis of the system using Routh-Hurwitz stability criteria to ensure that the system remains stable under different conditions.
- Developed and implemented a PID controller to stabilize the inverted pendulum, including tuning the proportional, integral, and derivative gains for optimal system performance.
- Skills: Solidworks . Fusion 360 . Matlab . Python . Simulink . Literature Review.**

Aerospace Division, Hindustan Aeronautics Limited.

Intern

Dec 2023 - Jan 2024

Bangalore

- Got a Real-time Exposure in Realization of Parts for Rocket Structures like PSLV, GSLV MKII, MKIII.
- Closely worked with Quality Control Manager (MKIII Department) to inspect the Strap on base Shroud Structures, Nose-cone Adaptor of GSLV MKIII as per the Engineering Drawings.
- Documented the errors present in the workings and submitted as a SNAG sheet to implement the process of rework.
- Skills: Quality Control . Engineering Drawing . AS9100D.**

Mars Research Station(MaRS), IIITDM Kancheepuram, Chennai

Mechanical Team Member

Aug 2022 – Aug 2023

Chennai, Tamil Nadu

- As team member, Designed the Robotic Gripper for the manipulation task, Wheels for Rover.
- Helped the team to complete the Autonomous Navigation Mars Rover Fabrication.
- Designed Rover's Wheel CAD Model with help of Generative Design in Fusion 360.
- Worked with the cross-functional teams to Manufacture Rover Parts through various Manufacturing Processes.
- Skills: Solidworks . Fusion 360 . 3D Printing . Computer Aided Design(CAD) Modelling . Teamwork**

Projects

CFD Analysis and Parameter Optimization of Convergent Divergent Nozzle | *CFD Analysis* May - July 2023

- Conducted a computational study of a two-dimensional converging-diverging (CD) supersonic nozzle with divergent angles of 5, 7, 10, 13, and 15 degrees.
- Simulated gases produced by liquid oxygen and liquid propane as the flow medium, with gas properties obtained using CANTERA software (Python scripting).
- Found that a divergent angle of 15 degrees showed good performance with the absence of shock wave occurrence in the nozzle.
- Generated various contour and plot results (pressure, velocity, Mach number, temperature) for all six different cases.
- Skills : Solidworks . Ansys Fluent . Ansys Workbench . ICEM CFD . Proptools(Python) . CANTERA.**

Position of Responsibility

Outreach Team Lead | *Alumni Affairs, IIITDM Kancheepuram*

July 2023 - Present

- Leading a team of 3 members for the effective relationship between the Alumni Affairs Team and Institute's Alumni.
- Contacted and helped in finalising 7 Office Bearers for the Institute's Alumni Association.
- Skills : Interpersonal Skills . Communication . Team Management.**

Technical Skills

Languages: Python, C, C++, Matlab

Developer Tools: VS Code, Google Colab, Jupyter Notebook

Modelling Software: AutoCAD, Fusion 360, Solidworks

Simulation Software: Ansys Workbench, Ansys Fluent, Altair.

Other Skills: L^AT_EX, Open Rocket

Certifications

Matlab Onramp, Mathworks, Mathworks Academy.

Simulink Onramp, Mathworks, Mathworks Academy.

Metal Additive Manufacturing (Elite + Silver), IIT Kanpur, NPTEL.

Introduction to Mechanical Engineering Design and Manufacturing with Fusion 360, Autodesk, Coursera.