

Gaurav Gupta

SENIOR UNDERGRADUATE, AEROSPACE ENGINEERING

Indian Institute of Space Science and Technology, Thiruvananthapuram

☎ (+91) 9083722796 | ✉ gauravxpgupta@gmail.com | 🏠 airwarriorg91.github.io | 📷 airwarriorg91 | 📺 gauravgupta030

Summary

A senior undergraduate student majoring in aerospace engineering at IIST, I'm focused on bio-inspired flight, aerodynamics, and control systems. My research blends nature's ingenuity with cutting-edge aerospace technologies. Motivated to learn new skills and take on challenges, I have strong expertise in aerodynamics, computational fluid dynamics, programming, and aircraft design. Additionally, I excel in leadership, teamwork, and management, driving innovative and collaborative project outcomes.

Education

Indian Institute of Space Science and Technology

Thiruvananthapuram, India

B.TECH. IN AEROSPACE ENGINEERING

Dec. 2021 - Present

- Current Cumulative Grade Point Average (CGPA): 8.07/10
- Relevant coursework: Aerodynamics, Computational Fluid Dynamics, Aircraft Design, Flight Dynamics & Control, Optimization Techniques, Astrobiology
- Relevant Labs: Aerodynamics Lab, Modelling and Simulation Lab, Flight Mechanics Lab, Propulsion Lab, and Programming
- Extracurricular Activities: Aeroclub, Conscientia and Basketball

Engineering Research Experience

Incompact3D

GitHub

OPEN-SOURCE CONTRIBUTOR

Jul. 2024 - Present

- Developed a fortran subroutine to calculate lift and drag forces for a 3D immersed body simulations using Incompact3D.
- Working on improving the performance of importing STL files for high-fidelity simulations using Incompact3D.

Indian Institute of Technology, Kharagpur

Kharagpur, India

RESEARCH INTERN

Mar. 2023 - Present

- Investigating the aerodynamics of birds through computational methods with implementation in aircraft design.
- Conducted high-fidelity DNS on HPC (Paramshakti and Virgo) using Incompact3D and NEK5000.
- Pursued under the guidance of Dr. Sandeep Saha, IIT KGP and Dr. Manu KV, IIST.

Skills

Modelling and Computer Aided Design

DS Solidworks, DS Catia, Autodesk Fusion 360, Autodesk Autocad, Blender

Computational Fluid Dynamics

Incompact3D, NEK5000, Ansys Fluent, XFLR5, GMSH, Coreform Cubit, Paraview, HPC

Programming

Python, MATLAB, FreeFEM++, Fortran, Julia, C++, LaTeX, Linux, GitHub

Creative

Adobe Illustrator, Inkscape and Powerpoint

Soft Skills

Passionate, Hardworking, Determined, Motivated, Punctual, Organized, Focused

Language

English, Hindi, Bengali

Projects

Design and development of a Loitering Munition

Aircraft Design, Python

AE412: AEROSPACE VEHICLE DESIGN

Aug 2024 - Present

- A low-cost loitering munition with a payload capacity of 2 KG is being designed and developed.
- Undertaken conceptual and preliminary design of the loitering munition.

Aerodynamics of Avian Tails

CFD, Fortran, Python, FreeFEM++

RESEARCH INTERNSHIP

Mar 2023 - Present

- High-fidelity simulations were conducted to understand the role of avian tail in gliding flight.
- The Common Swift was modelled and DNS simulations were conducted using NEK5000.
- Developed a FreeFEM++ based Euler equation solver to study the inviscid flow around birds.

Certificates

Oct, 2022 **Design of Fixed Wing Unmanned Aerial Vehicle (Topper)**, IIT Kanpur and NPTEL

Nov, 2022 **Aircraft Design**, IIT Bombay and NPTEL