Aditya Jaiswal

Bachelors in Mechanical Engineering
Birla Institute Of Technology and Science Pilani, Pilani

+91-9022577870
f20212201@pilani.bits-pilani.ac.in
adi1709.jaiswal@gmail.com
GitHub Profile

Education

•Birla Institute Of Technology and Science Pilani, Pilani *2021-2025*

Bachelors in Mechanical Engineering

Experience

•Indian Institute of Science, IISc *August 2024 - January 2025*

Undergraduate Thesis

- Conducted research under the supervision of Dr. Aravind Baland at the Indian Institute of Science (IISc).
- Designed and implemented algorithms for mesh **recombination** into quadrilateral and mixed quad-tri meshes.
- Focused on applications in fluid mechanics, specifically in compressible flow simulations and resolving boundary layers utilizing computational tools such as **NETGEN** and **gmsh** for mesh generation, adaptation, and analysis.
- Also designed a mesh file format converter to convert from **.su2** extension to **.vol** extension to test the algorithm for various test cases.

•Indian Space Research Organization, ISRO *May 2024 - July 2024*

Summer Intern

- Novel Conceptualization and Design of the Mechanism for the **Roll-Out Solar Array** for future missions.
- Designed the mechanism using Siemens NX CAD software and calculated the motor torque requirements by modeling the problem using Matlab to reduce the "blossoming" effect during retraction of the Solar Array.

•Indian Institute Of Technology Bombay, IITB *May 2023 - August 2023*

Summer Research Intern

- Formulated an improved Surface Tension forcing scheme to reduce the errors in multi-phase fluid simulations when using a continuum surface tension force model by performing perturbation analysis on Allen-Cahn equation.
- All simulations were performed using Lattice Boltzmann Method & **Publication manuscript is under preparation.**

Conference papers, Poster presentation & Publication

• Malyadeep Bhattacharya, **Aditya Jaiswal**, Amol Subhedar, Improved surface tension force scheme for two-phase flow in diffuse interface framework, **COMPFLU-2023**, 18th-20th Dec 2023, IIT Madras.

Projects

•aerFoLaB *July 2024 - Current*

Personal project.

- Working on developing Lattice Boltzmann Solver for simulating low Mach number flows past NACA Airfoils.
- Developing in C++ with openMP implementation. Plan to integrate it with MPI post-development of the solver.

•Analysis of flow past blunt bodies *August 2023 - October 2023*

Project done as a part of Gas Dynamics (MEF415) course.

- Simulated and analyzed the pressure, velocity, and the vortices developed in the flows varying Reynolds number, B and L/D ratio for low mach flows. Simulation performed and Written using Lattice Boltzmann Method.

Technical Skills and Interests

Languages: C, C++, Python, BASH (shell), MATLAB
Softwares: OpenFOAM, Ansys Fluent, Siemens NX, Mathematica, MATLAB, gnuplot, Netgen, gmsh
Areas of Interest: Aerodynamics, CFD, High performance computing

Positions of Responsibility

•Core Member, Student Faculty Council (SFC) *September 2022 - May 2023*
A team of 9 students representing mechanical department batch.

•Mentor, Peer Mentorship Program. *September 2022 - August 2023*

•Team Lead, Sally Robotics (Autonomous Car Development Team). *August 2022 - July 2024*

•Joint Coordinator, Photog (Photography club). *July 2023 - July 2024*

Achievements

•JEE Mains Rank: Top 1% amongst the candidates who took this exam. *2021*

•JEE Advanced Rank: Top 5% amongst the candidates who took this exam. *2021*

•INSPIRE-SHE Scholarship: Scholarship awarded to students scoring in top 1% of board exams. *2021*

•AP Calculus BC: grade 5 in the advanced placement exam which is the highest grade. *2021*