Prashant Kumar

Roll No.: 22201264
PhD Student, AE, IIT Kanpur

+91-6204758429
kumarp22@iitk.ac.in
LinkedIn Profile

Education

- **Indian Institute of Technology, Kanpur** — *Jan 2023- Exp. Dec 2027*
  PhD in Aerospace Engineering — CGPA: 9.25
- **National Institute of Technology, Goa** — *2018-2022*
  B.Tech in Mechanical Engineering — CGPA: 8.55
- **St. John.s Academy, Mahua Vaishali, Bihar** — *2018*
  Higher Secondary School (PCM) — Percentage: 78.8
- **St. John.s Academy, Mahua Vaishali, Bihar** — *2016*
  Senior Secondary School — CGPA: 10

Publications

- Prashant Kumar, Murali Damodaran, Rajesh Ranjan, **Evaluation of Physics-informed Machine Learning Approach for Computation of Fluid Flows.** Submitted in 10th International and 50th National Conference on Fluid Mechanics and Fluid Power (FMFP), 2023
- Prashant Kumar, Saurabh Singh Chauhan, Prasenjit Dey, **Effect of Corner Curvature of Square Cylinder on Flow Transition and Heat Transfer.** Proceedings of the 1st International Conference in Fluid Thermal and Energy Systems, (ICFTES2022)

Projects

- **RMML lab, IIT Ropar** — *Ansys Fluent, CFD, CFX, MATLAB* — Non 2022 - Dec 2022

  DESIGN OF GAS TURBINE FOR ENERGY STORAGE
  – Design of Radial Gas turbine for High Temperature and Pressure (Numerical CFD Simulation in ANSYS Fluent).
  – Studied the effect of supercritical CO_2 on critical flow of Turbine.

- **Major Project (B.Tech)** — *Ansys Fluent, Tecplot, CFD, MATLAB* — Aug 2021 - May 2022

  UNIQUE SHEAR LAYER TOPOLOGY EVALUATION DICTATING FLOW TRANSITION OVER A SQUARE CYLINDER WITH ROUNDED CORNERS.
  – Studied dependency of Lift & Drag Coefficient and Nusselt Number on shape of the bluff body.
  – Found Critical Reynolds Number for Creep flow Transition, 2-D steady to unsteady transition, 2-D unsteady to 3-D unsteady transition.

Work Experience

- **Graduate Engineer Trainee At Larsen & Toubro** — *July - Oct 2022*
  Worked in Plant and Machinery Department in Construction of Nuclear Power Plant, Kudankulam, Tamilnadu

Technical Skills and Interests

Languages: C/C++, Fortran, MATLAB, Python
Machine Learning Libraries : DeepXDE, TensorFlow, PyTorch
CFD Software: OpenFOAM, Ansys Fluent, Tecplot
Others: Autodesk Fusion 360, Microsoft Office, Latex
Relevent Coursework: Instabilities of Fluid Flows(ME698W), Turbulence(AE621A), Applied Computational Fluid Dynamics(AE661A)
Current Relevent Coursework: Introduction to Machine Learning(CS771A), High Performance Computing and it's Application(IDC606A)
Areas of Interest: Scientific Machine Learning,Turbomachinery Flows, Aerodynamics, Instability

Extracurricular Activities

- **NSM Workshop for training in CFD, IIT Hyderabad** — *June 2023*
  Learned Parallel Computing using OpenMP, MPI, and OpenACC for CPU and GPU parallelism.

References

- **PhD Supervisor** Dr. Rajesh Ranjan, rajeshr@iitk.ac.in, IIT Kanpur