

Indian Institute of Science
Postdoctoral Researcher Position in Aerospace Engineering, IISc

Research area: Turbulence– numerical simulation and modelling

Job Description: Turbulence is observed in most flows around us and is of particular importance in Aerospace and other fields of engineering. Turbulence constitutes a strongly nonlinear, non-conservative, extremely high-dimensional complex system that has been a challenge to fully understand. The recent advancements in our computational capabilities and data-driven techniques now provide an excellent opportunity to establish a deeper physical understanding of turbulent flows and model such physics to make computations of a wide array of real-life turbulent flows possible.

Applications are invited for the position of a postdoctoral researcher interested to pursue research in numerically simulating, understanding, and modelling flow physics in turbulent flows using advanced data-driven techniques. The project will involve development of a DNS flow solver, large-scale numerical simulations of isotropic turbulent flows, theoretical and physical understanding of turbulence, and data-driven methods to infer and model turbulence physics.

Essential Qualifications: Candidates must have a PhD degree in Aerospace Engineering, Mechanical Engineering, Physics, or a related field.

Desired Qualifications: Candidates must have a strong background in fluid dynamics and turbulence, with a sound academic track record and the ability to do research independently. Those with prior experience in code development (FORTRAN/C/C++) and execution of Direct Numerical Simulations (DNS) and/or Large-Eddy Simulations (LES) of turbulent flows are preferred for this position. Candidates having experience in data-driven methods, particularly Information theory and Machine learning, are also encouraged to apply. Candidates must have good communication and writing skills and be able to mentor MTech/PhD students.

Preferred Skills (at least two): Turbulence theory/physics, Computational Fluid Dynamics, High-performance computing, Data science & Machine learning

Duration: 1 year with possible extension to one more year.

Salary & Fellowships: Salary will be as per IISc Fellowships norms. Applications will be primarily considered through the CV Raman Fellowship at IISc and/or IISc Institute of Eminence (IoE) Post-Doctoral Fellowship. Applicants may also apply to other external sources of funding.

Application procedure: To apply, please send an email to Prof. Rishita Das at rishitadas@iisc.ac.in with a *cover letter* expressing your research interests and experiences in this area, your latest *CV* including your *publication record* and names of *at least two references* for letters of recommendation, and University transcripts if available. Last date to send your application is 31-Oct-2023.

If you have any questions or need further information, please email Prof. Rishita Das.

Date of Announcement: 11-Sep-2023