



Indian Institute of Technology Jodhpur

Office of Research and Development

Advt. No.: IITJ/R&D(Advt.)/2024-25/064

09 December 2024

Project Recruitment

Applications are invited from the citizen of India for filling up the following temporary position in the Sponsored Research Project at this Institute. The position is purely temporary, initially for a period of 01 Year, and same extendable but co-terminus with the duration of the project, on a contractual basis with consolidated pay. The requisite qualification, experience and other details are given below:

1.	Project No.	S/DRDO/NPA/20240144
2.	Project Title	Development and testing of a bioinspired flapping wing model with morphing capability for aerial and aquatic locomotion
3.	Name of the Project Investigator	Dr. Nipun Arora
4.	Duration for initial appointment	01 Year
5.	Name of the Post	Junior Research Fellow
6.	Post	02
7.	Consolidate Pay	Rs. 37,000/-+HRA @18%
8.	Minimum Qualification and Experience	<p><u>Eligibility:</u> B. Tech/M. Tech/M.S./M.E. (Mechanical/Thermal/Thermofluids/Aerospace/Applied Mechanics or related field). Candidate with B. Tech degree only must have a valid GATE score.</p> <p><u>Desirable Qualification:</u></p> <p><u>JRF 1</u></p> <ul style="list-style-type: none">• Strong foundation in engineering mathematics, fluid mechanics, and aerodynamics• Proficiency in experimental fluid mechanics• Practical experience with wind and water tunnel testing• Expertise in flow visualization techniques (PIV, shadowgraphy, Schlieren, etc.) <p><u>JRF 2</u></p> <ul style="list-style-type: none">• Solid understanding of engineering mathematics, fluid mechanics, and aerodynamics.• Proficiency in numerical methods with a strong grasp of CFD and FEM principles.• Practical experience with ANSYS/COMSOL and

		<p>OpenFOAM or similar libraries.</p> <ul style="list-style-type: none"> • Knowledge of MATLAB and Python. • Preference will be given to candidates with strong programming skills in C/C++ and expertise in parallel computing.
09.	Job Description	<p><u>JRF 1</u></p> <ul style="list-style-type: none"> • Conduct experiments on a flapping wing setup in wind and water tunnels. • Measure aerodynamic and hydrodynamic forces, thrust, and power using force/torque sensors. • Perform flow visualization using a PIV-DIC setup to analyze vortex patterns. • Quantify structural deformation due to fluid-structure interaction (FSI). • Develop and validate scaling laws for various wing shapes and designs. <p><u>JRF 2</u></p> <ul style="list-style-type: none"> • Perform computational fluid dynamics (CFD) and fluid-structure interaction (FSI) simulations of the flapping wing model. • Analyze the forces and thrust generated by the flapping wing model in air and water environments. • Review and adapt existing reduced-order models (ROMs) for flapping aerodynamics from the literature. • Apply ROMs to model the wing's dynamics and kinematics efficiently.
10.	Brief description of Project	<p>This study explores bioinspired locomotion for next-generation unmanned vehicles. A morphing wing model will be fabricated and tested for aerodynamic and hydrodynamic performance in both wind and water tunnels. Experiments using force/torque sensors and PIV flow visualization will elucidate vortex dynamics, while CFD simulations and reduced-order models will predict thrust and power to support the experiments. This project requires 2 JRFs – one for conducting experiments and another for numerical investigation.</p>
11.	Maximum Age	35 Years
12.	Age Bar	Age will be calculated on the closing date of the online submission of the application. Relaxation in age for the category candidates only would be admissible as per Central Government Rules. Also kindly enclose the Caste Certificate along with the application.

The candidates possessing the requisite qualification and experience should apply through the **ONLINE process up to 31 December 2024.**

It is mandatory to send the soft copy of the application with all relevant documents to recruitment_rnd@iitj.ac.in (Please mention the advertisement number in the subject line of the email). Without documents, your application will not be considered. There is no need to send the hard copy.

General Instructions to Applicant(s)

1.	The post(s) is purely temporary and contractual for a period of 01 Year and extension based on satisfactory performance, but co-terminus with the duration of the project
2.	Application, which is incomplete, not in prescribed format, without photograph or unsigned will be summarily rejected.
3.	Certificate in support of experience should be in proper format i.e. it should be on the organizations letter head, bear the date of issue, specific period of work, name and designation of the issuing authority along with his signature.
4.	Institute reserves the right to: a. Fix, modify or revise the eligibility conditions, age and selection criteria as per its requirements, at any time. b. Fill up the post, not to fill up the post or cancel the advertisement in whole or partly without assigning any reason. c. Place a reasonable limit on the total number of candidates to be called for the Written Test and/or Skill Test, Interview.
5.	The Institute shall verify the antecedents or documents submitted by a candidate at the time of appointment or during the tenure of the service. In case, it is detected that the documents submitted by the candidates are fake or the candidate has a clandestine antecedents/background and has suppressed the said information, then his/her services shall be terminated.
6.	Higher initial pay may be given to exceptionally qualified/deserving candidate.
7.	No TA/DA shall be paid to the candidates for attending the interview.
8.	No correspondence will be entertained from candidates regarding interview and reasons for not being called for interview.
9.	Canvassing in any form will be a disqualification.
10.	No interim correspondence will be entertained.
11.	No need to send hard copy.

Officer In-charge
Research & Development