Indian Institute of Technology Jodhpur
Office of Research and Development

Advt. No.: IITJ/R&D/2021-22/54 18 January 2022

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 extendable but co-terminus with the duration of the project, on contractual basis with consolidated pay. The requisite qualification, experience and others details are given below:

1.	Project No.	S/SERB/RJM/20210074
2.	Project Title	Dynamic Traffic Assignment Model for Multi-Class Traffic Lacking Lane Discipline
3.	Name of the Project Investigator	Dr. Ranju Mohan
4.	Duration for initial appointment	01 Year
5.	Name of the Post	Junior Research Fellow
6.	Post	01
7.	Consolidate Pay	Rs. 31,000/-+ HRA (As per institute norms)
8.	Minimum Qualification and Experience	Essential Qualification: A. Applicants having an M. Tech/M.E./M.S. (Eng.) degree should fulfil all the criteria given below: a. M. Tech/M.E./M.S. (Eng.) with a minimum of 65% marks in aggregate or a minimum CGPA of 6.5 on a 10-point scale. b. B. Tech/B.E. with minimum of 65% in aggregate or a minimum CGPA of 6.5 on a 10-point scale. c. A candidate should have cleared GATE. B. Applicants having an B. Tech/B.E. degree should fulfil all the criteria given below: a. Minimum of 65% in aggregate or a minimum CGPA of 6.5 on a 10-point scale with a valid GATE score. C. Applicants having master's degree in science should fulfil following criteria: a. M.Sc. with a minimum CGPA of 7.5 at a 10-point scale or 75% marks in aggregate with a valid GATE score/UGC/CSIR JRF/GPAT/NBHM or equivalent

		qualification in the relevant area tenable for the year of registration. b. Exemption under schemes as agreed by the IIT council for students of NITs/IITs/IIESRs/IISc may be acceptable. Note: (i) Mere fulfilling the minimum criteria of qualification will not vest any right on the candidates to be called for the written Test/Interview <u>Desired Qualification:</u> Exceptional computer programming skills (**proficient** in programming using Python/Java/C/C++); Excellent academic background; Expertise in Graph theory, Data Structures and algorithms/Data Science; Experience of working with Transportation network analysis and prototype development.
09.	Brief description of Project	Traffic flow models in traditional Dynamic Traffic Assignment (DTA) frameworks were analytical expressions of exit flow functions, delay functions, point queue, and physical queue models. For a multi-class traffic network lacking lane discipline, i.e. vehicles with varying sizes flow on links with frequent lateral movements showing a percolating behaviour through the available space ahead, exiting DTA models fail to predict travel time output even with an acceptable level of accuracy. Any traffic management measures based on this incorrect output could actually worsen the traffic congestion. Thus, it is essential to develop a DTA framework that can incorporate the behaviour of multi-class traffic lacking lane discipline and capture route switching behaviour. This research will develop a visualization tool for link traffic flow and the same will be demonstrated using field traffic data from Jodhpur City, Rajasthan, India. Integrating the link traffic flow model to an existing node traffic flow model, a macroscopic DTA framework will be developed for multi-class traffic lacking lane discipline and will be demonstrated in a sample network selected from literature, for example, Nguyen Dupuis and Sioux Falls networks. DTA model performance will be assessed with respect to link/path travel time prediction in the network as well as efficiency in convergence to Dynamic User Equilibrium (DUE). Finally, the proposed framework will be compared with an existing microscopic DTA tool. The outcomes of these tasks will be used towards accurate modelling of DTA framework for sufficiently large transport networks.
10.	Job Description	a. Development of network traffic flow modelling framework and visualization tool b. Application of the proposed framework in a sample transportation network from literature. c. Comparison of the proposed framework with an existing commercial tool for DTA.

11.	Maximum Age	Below 35 Years

The candidates possessing the requisite qualification and experience should apply through the ONLINE process up to **02 February 2022**. The candidates are advised to send a 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).No need to send a 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