

THE INSTITUTE OF MATHEMATICAL SCIENCES

(An autonomous body under Department of Atomic Energy, Government of India)
C I T CAMPUS , THARAMANI, CHENNAI – 600 113, INDIA

Advt. No. IMSc/ 486 /2009

Date: October 6, 2009

The Institute of Mathematical Sciences (IMSc) is a national institute for fundamental research in the mathematical and physical sciences. It is home to a growing community of computational scientists working on problems in computational biology, soft matter physics, complex systems, computational material sciences, climate science and other interdisciplinary fields.

Four positions are available for Project Assistants (3 Nos.) and Research Associate (1 No). These positions are under the Project for Interdisciplinary Science and Modelling (PRISM) at IMSc. Nine faculty members, and associated students and postdoctoral fellows, are part of this project.

Minimum qualifications for Project Assistants are a BE/BTech/MSc from a reputed institution, and good computational skills, in addition to the specific requirements described below. The consolidated salary attached to the position is Rs. 12,000/- + HRA @ 30% on Consolidated Salary.

Minimum qualifications for Research Associates are a PhD from a reputed institution, and good computational skills, in addition to the specific requirements described below. The consolidated salary attached to the position is Rs. 15,000/- + HRA @ 30% on Consolidated Salary.

All the above Positions are temporary and are being filled on contractual basis initially for a period of one year with possibility of extension based on mutual satisfaction.

The individual positions have additional specific requirements, as follows:

Position 1:

The selected candidate will work on GIS framework for "Agent-based models for infectious diseases", in collaboration with a team of epidemiologists, public health specialists and modeling experts. Essential skills for this position are a good knowledge and experience of GIS. C++ programming skills are highly preferred. Finally, prior experience in developing complex simulation codes in a collaborative

environment would be a strong positive. Prior knowledge of infectious diseases/the appropriate modeling techniques is not essential. The selected candidate for this position should be prepared to start work immediately.

Position 2:

The selected candidate will work on "Analysis and modelling of spatial and temporal distribution of ancient archaeological sites". The candidate must have competence in GIS and mapping software; competence in statistical analysis methods; competence in finite element modelling of population diffusion equations; familiarity with neolithic and early historic cultures of the Indian subcontinent

Position 3:

The selected candidate will work on a project in collaboration with the Ecology, Behaviour and Conservation Group of the National Institute of Advanced Studies (NIAS), Bangalore, on theoretical approaches to understand the network of social interactions in nonhuman primates. This involves (i) using complex network techniques to reconstruct primate social networks from field-observation data, and (ii) developing agent-based models of "strategy"-following individuals to reproduce the observed features of the empirical networks. Such a study will show how primate groups work as a cohesive society, and also shed light on the formation of complex societies with hierarchical organization. The candidate should necessarily have a background (MSc/BE/BTech for PA, PhD for RA) in quantitative/mathematical sciences or engineering, have some experience in using analytical and computational techniques, and have a strong interest in biological systems. Knowledge of MATLAB or equivalent scientific software is desirable but not essential.

Position 4:

The selected candidate will work on analysis of protein-DNA binding data (DNase I footprints, ChIP-chip, ChIP-seq) from the literature, modelling of protein-DNA binding, and characterisation of transcription factor binding affinity. The candidate should have strong computational skills, good familiarity both with a scripting language (preferably Python) and with a compiled language (preferably from the C family), and experience in computational biology and problems of regulatory genomics.

Interested candidates are requested to confirm their interest by e-mail to the Institute's administrative officer, **Mr S Vishnu Prasad** <svishnu@imsc.res.in> not later than October 15, 2009, and report for written test followed by an interview at the Institute on October 26 2009 [Monday].

The candidates should report with applications on plain paper, curriculum vitae, originals and copies of all certificates as to proof of age, educational qualifications, experience, and a passport size photograph. The confirmatory e-mail and the application should clearly mention which of the four positions the candidate is interested in.

General Conditions:

1. The prescribed qualifications are minimum and mere possession of the same does not entitle the candidate to be considered for the advertised position. The decision of the Director of this Institute in all matters will be final and no enquiry or correspondence will be entertained in this matter.

2. Only outstation candidates called for written test and interview will be reimbursed to and fro Second Class Railway Fare/Bus Fare by the shortest route from the station of residence/work place to Chennai on production of tickets.