Junior Research Fellow (JRF) Position

'Strong correlation, entanglement, and complexity in topological and flat band systems: A GPU-accelerated Quest'

BITS Pilani, Goa Campus | Deadline: 29th April 2026 | Joining: At the earliest

Date: 27th March 2026

Applications are invited for **ONE** Junior Research Fellow (JRF) position in the project on ***"Strong correlation, entanglement, and complexity in topological and flat band systems: A GPU-accelerated Quest"***.

Quantum information-based markers can help classify external influences that lead to transport or thermalisation.. These would require tensor network-based DMRG programs in 2 dimensions and exact diagonalisation and time evolution in large Hilbert spaces whose dimension grows exponentially with system size. In the absence of a scalable fault-tolerant quantum computational platform in the near future, and with the advent of GPU-based parallel computing tools, the convergence of physical markers with increasing system size falls in the category of general-purpose GPU (GPGPU) programming. Moreover, with the intersection of classical and quantum systems, there needs to be better checkpointing and scheduling workflows designed for the quantum-classical paradigm.

Principal Investigator: Gargi Sanket Prabhu, Department of Computer Science

Funding Agency: ANRF

Position	Scope of Work	Eligibility	Stipend
Junior Research Fellow (JRF)	Attacking the physics problems is a critical challenge in computational science i.e. solving large-scale eigenvalue problems as well as matrix reshaping and contractions efficiently on modern heterogeneous hardware. From a computer science perspective, this problem is tightly coupled with key research areas such as parallel algorithm design, memory hierarchy optimisation, and GPU-accelerated computing. The JRF should explore novel task scheduling and memory management strategies to mitigate GPU memory bottlenecks, with an emphasis on developing scalable and portable software solutions. Such innovations directly contribute to the fields of high-performance computing (HPC) and scientific computing by enabling efficient handling of data-intensive computations that exceed the capacity of conventional GPU memory. The JRF will also work on developing novel checkpointing and scheduling solutions for quantum-classical workloads.	Graduate/Postgraduate Degree in Computer Science (or any allied discipline - ECE/EEE/EIE)	**₹ 40700 / month**

Place of Work: BITS Pilani, Goa Campus

Application Process

Fill the Google Form: https://forms.gle/Tt5fBVU3VProcMmK7 by 29th April 2026.

Selection Process

Preliminary shortlisting will be conducted based on the resume. Shortlisted candidates will be called for a telephonic/video interview. Final selection will be communicated via email. No TA/DA will be provided.

Desirable Qualification

1. B.E./B.Tech/M.E./M.Tech. in CSE/ECE/EEE/EIE with GATE and/or UGC-NET2. Decent programming skills in Python/C/C++/Java3. Decent knowledge of how computer systems work (Operating Systems/Computer Networks), especially distributed systems. 4. Knowledge of parallel programming in CUDA is preferred. 5. Knowledge about quantum computing is desired.

Contact

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