Applications Invited for a Postdoctoral Position

(Starting Immediately at the Software Engineering and Testing Group, CSE, IITGN)

Title of the project:
Incorporating Parallelization And Consensus Based Approaches In Software Testing Workflows

Principal Investigator (PI): [Prof. Shouvick Mondal](#)
Position being advertised: Post-Doctoral Fellow (one)
Duration: one year (which can be extended based on the performance and availability of funds).

Project description: The software testing life cycle is composed of multiple modules, some of which are inherently sequential while some are parallelizable. The parallelizable modules follow certain structures which facilitate several operations to be performed in parallel. The complexity of transformation needed to extract parallelism from these modules not only determines the efficiency of parallelization, but also the correctness and the benefit, i.e. speedup obtained after parallelization. A parallelization should produce an output deemed to be correct for an application. Meeting both efficiency, and correctness is challenging. The first part of the project aims to automatically identify and devise parallelization opportunities in the software testing life-cycle that balance efficiency, and correctness. The second part of the project deals with employing techniques from social choice theoretic frameworks such as consensus into testing phases when there is no single best performing strategy. Such scenarios are resolved by employing individual techniques known to perform well under specific conditions and perform an aggregated benefit. The project involves utilization of today's Generative Artificial Intelligence (GenAI) tools such as state-of-the-art Large Language Models (LLMs) in our project.

Responsibilities: 70% Research, and 30% Teaching.
Fellowship amount: ₹72,000 per month (consolidated with no other allowances).
Leaves & Other benefits: As per IITGN norms.

Eligibility: Indian Nationals who have completed (or thesis submitted and waiting for Defense) Ph.D. in Computer Science and Engineering (or equivalent). Background and prior publications on Software Engineering Research is **mandatory**.

Applicants should submit the following documents in **a single PDF** through the online link (https://forms.gle/P2Yq5gtt2Yzot9pu9):
1. One page research proposal relevant to the project, but without too much deviation.
2. Detailed Curriculum Vitae.
3. Copy of three best publications.
4. Contact information (preferably email id) of three referees.

Last date for applying: **September 10, 2024**.
For more details, please contact the PI: [shouvick.mondal@iitgn.ac.in]