PHYSICAL NANO-MEMORIES, SIGNAL AND INFORMATION PROCESSING LABORATORY

Requirements for new PhDs to join the group

Principal Investigator: Prof. Shayan Srinivasa Garani

Candidates desirous of working with **Prof. Shayan Srinivasa Garani** within **PNSI lab** must be aligned to **one** the following broad research areas for a PhD.

PHYSICAL DATA STORAGE

QUANTUM INFORMATION PROCESSING

NEURAL NETWORKS AND LEARNING SYSTEMS

MUSIC SIGNAL PROCESSING

Please note that you might not have any background in the areas above, but you need to have a **strong desire to do fundamental/applied work** in one of the broad areas above.

The interviews would be based on **any two math** related topics from the following set.

- Linear Algebra
- Probability and statistics
- Transform Theory
- Optimization
- Abstract Algebra
- Discrete Math topics such as combinatorics etc.

Domain specific topics would be **any two** of the following topics.

- Signal Processing Theory
- Communications Theory
- Classical Coding Theory
- Classical Information Theory
- Digital Circuits and VLSI architectures

If you already know something in the quantum information area or neural networks, please feel free to indicate what you know, and we can go that route during the interview.

It must be noted that the **level of interview questions** will depend on whether you are **direct PhD candidate after Bachelors or after your Masters**.

It is important that you visit https://labs.dese.iisc.ac.in/pnsil/ to surf through the areas or possibly read through any papers/patents/general stuff related to PNSI lab to see what interests you to work with me and how you are aligned.

Your statement of purpose should be reflective of the topics relevant to Prof. Garani should you wish to work with him.

Wish you all the best for a successful PhD career at IISc.