

Aspiring PI Info:

- Name: Rahul Purandare
- Position: Associate Professor
- Affiliation: University of Nebraska–Lincoln

Research interests:

- Scalable Formal Verification
- Static and Dynamic Program Analysis
- Hybrid Approaches for Program Verification
- Program Optimization
- Software Testing

Current Projects:

- Static and dynamic verification of concurrent programs
- Leveraging may-alias information and dynamic analysis to optimize programs

Project Ideas...

1. Proving termination and nontermination of realistic programs
2. Proving the functional correctness of software components using hybrid approaches

Significance: Proving functional correctness and safe termination is vital for the safety and reliability of real-world critical software. The cost of safety and security violations of such software is high.

Impact: Relevant to both industry and government. Since the final goal is to develop scalable tools that assist in building dependable real-world software, the research would be relevant to the software developer community and society.

Transition to practice: An important goal is to develop scalable and robust tools that can be applied to real-world programs. The tools and artifacts and their source will be made publicly available to help the research community and developers.

Education and Outreach: We plan to develop courses on formal specification and verification. We will involve students from regional colleges serving minorities in the research as interns.

... and possible collaborators sought

Particularly interested in collaborating with researchers in the areas of Cyber-Physical Systems and Security interested in integrating formal methods in their design and development processes.

