Prasita Mukherjee

Ph.D. student, Purdue University

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 https://github.com/prasitaGit

Research Interests

My research interests lie in the areas of neurosymbolic and automated reasoning. My research focuses on broadening the scope of intractable problems in the domain of formal methods and programming languages by providing learning-based solutions. A second major focus of my research is to develop automated solutions for problems that can be mapped to first/higher order logic - with little to no user help.

Education

Ph.D. Computer Science *Purdue University*   **Indiana, USA** *2019 - present*
Advisor: Prof. Benjamin Delaware

M.Tech Computer Science *Indian Institute Of Technology, Guwahati*   **Assam, India** *2017 - 2019*
Thesis Advisor: Prof. Purandar Bhaduri (Thesis)

B.Sc + M.Sc. Computer Science *University Of Calcutta*   **West Bengal, India** *2011 - 2016*

Professional Experience

Graduate Teaching Assistant *(Purdue University)*   **Indiana, USA** *08/2019 - present*
- Courses: CS 251 (Data Structures and Algorithms), CS 252 (Systems Programming), CS 456 (Programming Languages)

Applied Science Intern *(Amazon)*   **Washington, USA** *05/2022 - 08/2022*
- Developed initial SMT encoding for the authorization system CEDAR (Manager: Emina Torlak)

Teaching Assistant *Indian Institute Of Technology, Guwahati*   **Assam, India** *08/2017 - 05/2019*
- Courses: Introduction to C, Data Structures, Formal Methods

Software Engineer *(Polaris Networks, Inc.)*   **West Bengal, India** *07/2016 - 06/2017*
- Front end engineer for Evolved Packet Core (EPC) in 4G-LTE network

Publications

KestREL: Relational Verification using E-Graphs for Program Alignment - with Robert Dickerson and Prof. Benjamin Delaware [draft] (**OOPSLA 2025**)

P. Mukherjee and Benjamin Delaware. **SYNVER**: Towards Automated Verification of LLM-Synthesized C Programs. **CoqPL 2025** - Extended abstract [full draft]

P. Mukherjee and Haoteng Yin. OCTAL: Graph Representation Learning for LTL Model Checking. **DLG**-**KDD 2023** - Selected as a Contributed Talk [paper]

K. Nagar, **P. Mukherjee** and S. Jagannathan. Semantics, Specification, and Bounded Verification of Concurrent Libraries in Replicated Systems. **CAV 2020**.[paper]

S. Banerjee, **P. Mukherjee**, S. Kanrar, and N. Chaki. A Novel Symmetric Algorithm for Process Synchronization in Distributed Systems. **ALAP 2018**. [paper]

Under Submission

SYNVER: Towards Automated Verification of LLM-Synthesized C Programs - with Prof. Benjamin Delaware [draft]

Awards and Travel Grants

- One-time employee recognition award (Purdue University, Amount - 1500 USD)

- Travel grant for KDD 2023 (Purdue University, Amount - 500 USD)