

# Jayasri PA

2nd Year Ph.D. Student  
PLATO Lab, CSE, IIT Bombay  
Research Focus: Program Analysis, SSA-based Representations, Compiler Optimizations

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## EDUCATION

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- **Indian Institute of Technology, Bombay** 2025-  
*Ph.D. Computer Science and Engineering* CGPA: 8.9/10
- **PSG Institute Of Technology and Applied Research, Coimbatore** 2020-2024  
*B.E. Computer Science and Engineering* CGPA: 9.08/10
- **SSVM Institutions** 2020  
*HSC, CBSE, Tamil Nadu* Percentage: 96%

## RESEARCH EXPERIENCE

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- **Quantifying Interaction between Hardware and Software Data Prefetching** Fall 2025  
*CS490 UG R&D | Guide: Prof. Biswabandan Panda*
  - Evaluated hardware–software prefetching interactions across 46 PBBS benchmarks on Intel Raptor Lake, to quantify the combined impact on execution performance
  - Classified hardware–software prefetching interactions into positive, negative, and neutral categories extending the prefetching classification framework of Lee et al.’s “When Prefetching Works, When It Doesn’t, and Why” (TACO ’12)
  - Observed only ~0.4% geometric mean speedup from combined hardware–software prefetching, with 74% of workloads exhibiting neutral behaviour; identified graph and text-processing workloads as primary beneficiaries
  - Analyzed memory access patterns using the Gem5 simulator by profiling load PCs and stride sequences to diagnose root causes of prefetch inefficiency

## EXPERIENCE

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- **Leap Green Energy Pvt. Ltd.** February 2023 - April 2023  
*Intern* Coimbatore
  - Applied time series analysis on 3-year wind speed data across Aravoyal, Sengottai, and Palakkad to compare GFS and Meteoblue forecast models, finding Meteoblue outperformed GFS by 76.04% in forecast accuracy
  - Explored Linear Regression and Decision Tree models for imputation of missing real-time wind speed data to support power planning
- **Indian Institute of Technology, Guwahati** April 2022 - November 2022  
*Undergraduate Research Intern* Guwahati
  - Explored anonymous routing for mesh-based Network-on-Chips (NoCs) under Prof. John Jose, focusing on hardware trojan prevention via Trust Aware Routing
  - Simulated and analyzed secure routing mechanisms on Gem5 to evaluate performance impact

## TEACHING EXPERIENCE

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- **Teaching Assistant**, CS320 - Implementation of Programming Languages Spring 2026
- **Teaching Assistant**, CS306 - Implementation of Programming Languages Lab Spring 2026
- **Teaching Assistant**, CS230 - Digital Logic Design and Computer Architecture Fall 2025
- **Teaching Assistant**, CS231 - Digital Logic Design and Computer Architecture Lab Fall 2025

## SKILLS

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**Programming Languages:** C++, Python, C

**Systems & Tools:** Gem5, Linux Perf

**Areas of Interest:** Program Analysis, Compiler Optimization, Computer Architecture

## ACHIEVEMENTS

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- **Dr. Winifred A. Fernandes Student Grant for an Outstanding PhD applicant** *2025*
- **GATE fellowship, Government of India** *2025*
- **Ranked 6th among 61 students in the undergraduate class (2024)**
- **7th place, European Rover Challenge Remote Edition 2022, Team Aurora** *September 2022*

## POSITIONS OF RESPONSIBILITY

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- **Navigation and Simulation Technician**, Team Aurora, PSG iTech *November 2021 - September 2022*
  - Led Leo rover navigation for the European Rover Challenge Remote Edition 2022, securing 7th place
  - Implemented autonomous navigation using ArUco marker detection alongside manual control

## RELEVANT COURSES

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- **CS6004 - Code Optimization for Object Oriented Languages**
- **CS228 - Logic For CS**
- **CS638 - Advanced Computer Architecture**
- **CS744 - Design and Engineering of Computing Systems**