

ADITYA ANAND

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Mumbai, Maharashtra - 400076, India

RESEARCH INTEREST

My research area is compilers, programming languages, and program analysis. I am interested in developing efficient and precise static+dynamic program-analysis techniques, with a current emphasis on developing a speculation-based static+dynamic technique for Java-like languages.

EDUCATION

- **Indian Institute of Technology Bombay** May 2023 - Ongoing
Mumbai, India
Doctor of Philosophy (Ph.D.), Computer Science and Engineering
 - GPA: 8.82/10.00
- **Indian Institute of Technology Mandi** September 2020 - April 2023
Mandi, India
Doctor of Philosophy (Ph.D.), Computer Science and Engineering – (Transfer to IIT B)
 - GPA: 8.82/10.00
- **Visvesvaraya Technological University** August 2015 - June 2019
Belagavi, India
Bachelor of Engineering (B.E), Computer Science and Engineering
 - GPA: 9.52/10.00

PUBLICATIONS

C=CONFERENCE, J=JOURNAL

- [J3] : Aditya Anand, Vijay Sundaresan, Daryl Maier and Manas Thakur. **CoSSJIT: Combining Static Analysis and Speculation in JIT Compilers**. In *Proceedings of the ACM on Programming Languages (OOPSLA), Singapore, October 16-18, 2025*. DOI: 10.1145/3763149
- [J2] : Aditya Anand and Manas Thakur. **Partial Program Analysis for Staged Compilation Systems**. In *Formal Methods in System Design (FMSD)*, Springer, 2024. DOI: 10.1007/s10703-024-00458-x
- [J1] : Aditya Anand, Solai Adithya, Swapnil Rustagi, Priyam Seth, Vijay Sundaresan, Daryl Maier, V. Krishna Nandivada, and Manas Thakur. **Optimistic Stack Allocation and Dynamic Heapification for Managed Runtimes**. In *Proceedings of the ACM on Programming Languages (PLDI)*, Copenhagen, Denmark, June 24-28, 2024. DOI: 10.1145/3656389
- [C1] : Aditya Anand and Manas Thakur. **Principles of Staged Static+Dynamic Partial Analysis**. In *Proceedings of the 29th Static Analysis Symposium (SAS 2022)*, Auckland, New Zealand, December 5th-10th, 2022.
DOI: 10.1007/978-3-031-22308-2_4
Invited to appear in Formal Methods in System Design (FMSD)

POSTERS

P=POSTERS

- [P3] : Aditya Anand et. al. **CoSSJIT: Combining Static Analysis and Speculation in JIT Compilers**. Poster in the Object-Oriented Programming, Systems, Languages & Applications (OOPSLA) co-located with SPLASH 2025, Singapore, October 16-18, 2025.
- [P2] : Aditya Anand et. al. **Optimistic Stack Allocation and Dynamic Heapification for Managed Runtimes**. Poster in the Academic Research and Careers for Students (ARCS), ACM India, Coimbatore, India February 27th-28th, 2025.
- [P1] : Aditya Anand. **A Study of the Impact of Callbacks in Staged Static+Dynamic Partial Analysis**. In *Companion Proceedings of the 2022 ACM SIGPLAN International Conference on Systems, Programming, Languages, and Applications: Software for Humanity (SPLASH Companion)*, Auckland, New Zealand, December 5th-10th, 2022. DOI: 10.1145/3563768.3563957

WORK EXPERIENCE

- **PLATO LAB, IIT Bombay** May 2023 - Present
Doctoral Assistant
 - Working on developing a framework for "Precise speculation-based static+dynamic analysis for managed runtimes".
- **SAT LAB, IIT Mandi** September 2020 - April 2023
Doctoral Assistant
 - Formalized the idea of "Staging the analysis across static and dynamic time for managed runtimes".

TEACHING EXPERIENCE

- Teaching Assistant, CS339+CS355: Abstractions and Paradigms for Programming, IIT Bombay Fall 2025
- Teaching Assistant, CS614: Advanced Compilers, IIT Bombay Spring 2025
- Teaching Assistant, CS339+CS355: Abstractions and Paradigms for Programming, IIT Bombay Fall 2024
- Teaching Assistant, CS6004: Code Optimization for Object-Oriented Languages, IIT Bombay Spring 2024
- Teaching Assistant, CS614: Advanced Compilers, IIT Bombay Fall 2023
- Teaching Assistant, CS515: Advanced Computer Science Practicum, IIT Mandi Fall 2022
- Teaching Assistant, CS611: Program Analysis, IIT Mandi Spring 2022
- Teaching Assistant, CS502: Compiler Design, IIT Mandi Fall 2022
- Teaching Assistant, CS302: Paradigms of Programming, IIT Mandi Spring 2021

PROFESSIONAL EXPERIENCE

• Artifact Evaluation Committee Member:

- European Conference on Object-Oriented Programming (ECOOP 2025)
- Programming Language Design and Implementation (PLDI 2024).
- European Conference on Object-Oriented Programming (ECOOP 2024)

AWARDS

- ACM/IARCS Travel Grant. 2025
- George B. Fernandes Award, Excellence in PhD Research Progress, IIT Bombay. 2025
- Excellence in Teaching Assistantship, IIT Bombay. Spring 2024
- ACM/IARCS Travel Grant. 2024
- SIGPLAN Fellowship, PLMW and PLDI 2024. 2024
- Poster Presentation winner RISC 24, IIT Bombay. 2024
- Excellence in Teaching Assistantship, IIT Bombay. Fall 2023
- GATE Fellowship, Government of India. 2020
- 4th rank in B.E, Department of Computer Science, VTU, Belgavi, Karnataka. 2019
- 1st rank in Inter College Technical Quiz Competition. 2018
- Awarded Rajya Puraskar in Bharat Scouts and Guides. 2013

SKILLS

- **Programming Languages:** C, C++, Java, Scheme, Haskell.
- **Web Technologies:** HTML 5, CSS, Flask, and W3 CSS framework.
- **Scripting:** Bash and Awk.
- **Other Tools & Technologies:** Git, Docker.
- **Compiler frameworks/tools:** JavaCC/JTB, Soot, OpenJ9 VM.

RELEVANT COURSES

- Compiler Design Verification of Reactive Systems
- Reactive Design Patterns Computer Architecture
- Program Analysis Discrete Mathematics
- Data Structure and Algorithm - II Language Engineering for Complex Programs: A C++ Perspective

TALKS

- Presented “CoSSJIT: Combining Static Analysis and Speculation in JIT Compilers.” at OOPSLA 2025.
- Talk on “Combining Static Analysis and Speculations in JIT Compilers” at IICT 2025.
- Talk on “Program Analysis for Managed Runtimes in Presence of Dynamic Features” at IICT 2024.
- Talk on “Optimistic Stack Allocation and Dynamic Heapification for Managed Runtimes.” at ComputerSysTalks@India.
- Talk on “Optimistic Stack Allocation and Dynamic Heapification for Managed Runtimes.” at SERI 2024.
- Presented “Optimistic Stack Allocation and Dynamic Heapification for Managed Runtimes.” at PLDI 2024.
- Talk on “Staged Static+Dynamic Partial Analysis for Java-like languages” at SERI 2023.
- Presented “Principles of Staged Static+Dynamic Partial Analysis at SAS 2022”.