Gagan Chandan

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GitHub: https://github.com/gaganchandan

Research Interests

**Program Analysis, Formal Methods, Automated Theorem Proving,
Functional Programming, Type Theory**

Education

B.Tech in Computer Science and Engineering November 2022 – Present
PES University Bengaluru, India

- Current CGPA: 8.39/10

Experience

Research Intern Januaray 2026 -
Internation Institute of Information Technology Bangalore Bangalore, India

- Working on automated test case generation for RESTful web APIs under Professor Sujit Chakrabarti at the Software Engineering and Analysis Lab
- Developing a typechecker for a domain specific language for API specifications
- Developing an SMT solver based test case generator for API specifications

Research Intern June 2025 - July 2025
Aarhus University Aarhus, Denmark

- Worked on the Flix programming language under Professor Magnus Madsen
- Implemented an experimental method to improve effect error reporting in the Flix compiler
- General improvements to error reporting along with improved LSP integration

Research Intern June 2024 - July 2024
Indian Institute of Science Bangalore, India

- Worked on static analysis of Java programs under Professor K.V. Raghavan at the Programming Languages Lab
- Implemented the intra-procedural component of a novel backwars heap points-to analysis
- Performed benchmarking and profiling of the implementation on existing and generated Java programs
- *https://gitlab.com/GaganChandan/heap_backward_analysis*

Student Head Feb 2023 - May 2024
Centre for Information Security, Forensics and Cyber Resilience, PES University Bengaluru, India

- Participated in multiple national and international Capture The Flag (CTF) competitions, focusing on Reverse Engineering and Binary Exploitation
- Taught workshops on Reverse Engineering, Cryptography and Steganography for undergaduate students of all semesters
- Assisted in teaching and lab setup for Cybersecurity courses offered to final year undergraduates and M.Tech students
- Conducted hackathons and CTF competitions for over 300 students

Projects

toylang
Protoype language for exploring implementation of user-defined types, developed as part of my work at IIIT Bangalore.
https://github.com/gaganchandan/toylang

pocket
A compiler for a procedural, statically typed programming language. written in OCaml
https://github.com/gaganchandan/pocket

java-static-analyses
A collection of static analyses for Java programs.
https://github.com/gaganchandan/java-static-analyses

solveit
A simple SAT solver for propositional logic written in Haskell.
https://github.com/gaganchandan/solveit

Talks and Workshops

Introduction to Reverse Engineering October 2023
PES University Bengaluru, India

- Talk followed by hands on session for over 200 undergraduates
- Slides: *https://gaganchandan.com/talks/revpesu2023*

Introduction to Cryptography and Steganography April 2023
PES University Bengaluru, India

- Interactive Workshop for over 100 undergraduates
- Slides: *https://gaganchandan.com/talks/cryptopesu2023*

Technical Abilities

Programming Languages:
Proficient in: Ocaml, Haskell, Rocq, C++, Scala, Java, Python, C
Familiar with: x86 assembly, Lua, JavaScript, Rust

Tools and Technologies:
Ghidra, AFL++, Z3, LLVM, GDB,
Linux, Git, Docker, LaTeX

Other Skills:
Compiler Design, Reverse Engineering,
Fuzzing, Penetration Testing

Accomplishments

Capture The Flag
ctftime.org

- 2022 - Annual ranking of 8th out of 4392 nationally and 190th out of 38050 globally with team ISFCR PESU (https://ctftime.org/team/166645)
- 2021 - Annual ranking of 15th out of 4392 nationally and 203rd out of 36811 globally with team Ashes (https://ctftime.org/team/155001)

Additional Skills

Languages:
English (Fluent; TOEFL: 118/120)
Kannada (Native language; Fluent)
Hindi (Working knowledge)