

Manish Krishna Kandrkota

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PROFILE SUMMARY

Aspiring MS/MEng applicant in Computer Science (Fall 2026) with strong focus on software security, static analysis, and scalable systems. IEEE-published undergraduate researcher and core open-source contributor (100+ merged PRs) to Checkstyle. Experienced in building research-grade tools across program analysis, distributed systems, compilers, and ML systems.

EDUCATION

Bachelor of Technology in Computer Science and Engineering

Sreenidhi Institute of Science & Technology (SNIST), Hyderabad

GPA: 3.6/4.0 (WES Scale)

Relevant Coursework: Algorithms, Machine Learning, Software Engineering, Computer Systems, Databases, Programming Languages, Compiler Design, Networking Security

High School (Science) — Aakash Institute, Hyderabad (97%)

Graduation: May 2026

EXPERIENCE

Open-Source & Developer Contributions

Major Open-Source Engineering Contributions – Checkstyle

- Contributed 100+ production-grade improvements to Checkstyle, a widely adopted Java static analysis framework used in enterprise CI pipelines.
- Delivered rule enhancements, architectural refactoring, and reliability-critical bug fixes across a mature, large-scale codebase.
- Collaborated with senior maintainers on design reviews, test coverage expansion, and CI modernization.

Research & Publications

IEEE — ICRISST 2024

Charity with Clarity: Crowdfunding Using Smart Contracts

<https://ieeexplore.ieee.org/document/10921771>

- Co-authored and presented a peer-reviewed IEEE paper on a decentralized crowdfunding system using Ethereum smart contracts, addressing trust, transparency, and security in financial workflows.
- Designed and implemented a Solidity-based contract architecture supporting proposal creation, consensus-driven voting, and controlled fund disbursement with protections against unauthorized state transitions.
- Built and validated the system using modern Ethereum tooling, performing rigorous test-driven evaluation of edge cases including vote manipulation, double-spend prevention, and deadline enforcement.

Technical Writing

Medium Stories - <https://medium.com/@MANISH-K-07>

- I write on Medium to share my journey in open source, system design, and building software that scales with both users and contributors.

Code Quality Chronicles - <https://mk07codeops.hashnode.dev/>

- A publication exploring code quality, static analysis, and open-source engineering — featuring insights from my Checkstyle contributions and extensive projects portfolio.

Decentralized by Design - <https://mk07blockops.hashnode.dev/>

- Insights on blockchain architecture, smart-contract security, and decentralized governance—rooted in research and real engineering that advances transparent, trustless digital systems.
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PROJECTS

([GitHub](#) @MANISH-K-07)

SecureFlow | Static Taint Analysis, Program Security

- Built a static taint-analysis engine to detect unsafe data flows from untrusted inputs to sensitive APIs
- Modeled source–sink relationships and propagation rules at the program-analysis level
- Identifies security vulnerabilities such as injection paths and insecure API usage

CodeChecker | Java, Static Analysis, AST Parsing

- Built a Java-based static analysis tool to enforce coding standards and compute cyclomatic complexity metrics
- Implemented AST-level inspections to detect code issues and maintainability risks
- Designed extensible rule pipelines inspired by industry linters used in large-scale CI systems

NodeSync | Distributed Systems, Concurrency, Fault Tolerance

- Implemented a fault-tolerant key-value store with replication and leader-based coordination
- Designed concurrency-safe request handling and recovery mechanisms under unexpected node failures
- Simulated distributed system failures to validate consistency and availability guarantees

Py2C | Compiler Design, Program Transformation

- Designed a mini Python-to-C optimizer from first principles, including IR translation and code lowering
- Implemented static optimizations to reduce runtime overhead and improve execution performance
- Explored compiler pipelines, code generation, and cross-language execution models

PyScope | Python, Runtime Profiling, Systems Internals

- Developed a lightweight dynamic profiler to measure function-level execution time and call frequency
- Instrumented Python runtime hooks to capture low-overhead performance metrics
- Enables developers to identify runtime bottlenecks without modifying source code

ModelTrace | Machine Learning Systems, Model Interpretability

- A research-grade framework for inspecting, debugging, and stress-testing ML models
 - Implemented activation tracing, sparsity analysis, drift detection, robustness scoring, and failure attribution
 - Designed API-first tooling to evaluate model reliability under distribution shifts and perturbations
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PROFESSIONAL COURSEWORK & CERTIFICATIONS

- **Azure Fundamentals (AZ-900)** — Microsoft Learn (Completed, Dec 2025)
(Cloud concepts, Azure architecture, management & governance)
 - **Introduction to Linux** — LinuxFoundationX LFS101x
(edX Coursework – Completed, Dec 2025)
 - **Pearson Certified – Business English (English Expert)**
<https://www.credly.com/badges/3114470a-0f55-44f0-8009-f53eea557275>
 - **IEEE-published undergraduate researcher** – Blockchain systems
 - **ISRO-IIRS** — Overview of Geo-computation & Geo-web services (Issued Jan 2024)
(Practical, real-world applications using Python)
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TECHNICAL SKILLS

Languages: Java, Python, Solidity, C++, JavaScript

Systems & Tools: Linux, Git, Docker, Maven

Core Areas: Static Analysis, Software Security, Distributed Systems, Compilers

Other: Technical Documentation, Research Analysis

RESEARCH INTERESTS

- Static Analysis & Software Security
 - Distributed Systems & Cloud Computing
 - Compilers & Machine Learning Systems
 - Blockchain Systems & Smart Contracts
 - Systems Programming & Performance Engineering
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EXTRA-CURRICULAR ACTIVITIES

- Competitive swimmer and table tennis player
 - Technical writing & blogging
 - Avid Reader (Adventure, Dystopian, Fantasy, Sci-Fi)
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