Anirudh Sripada Koundinya M

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Education

B.Tech in Computer Science and Engineering Expected June 2027
PES University, Bangalore CGPA: 8.46 / 10.0

Relevant Coursework: Computer Networks, Operating Systems, Database Technologies, Object Oriented Analysis and Design, Cloud Computing, Compiler Design, Computer Architecture, Web Technologies.

Experience

Intern (Career Preview Program) Feb 2026 – May 2026
Hewlett Packard Enterprise (HPE)

- Engineered a containerized traffic generation and capture pipeline with MCP server/client, noise server/client, and passive `tcpdump` sidecars; simulated 3 session modes (interactive, bot, burst) across 18 MCP tools with realistic noise patterns (REST, WebSocket, SSE) to generate labeled PCAP datasets for encrypted MCP traffic classification without payload decryption.

Research Intern June 2025 – August 2025
The Innovation Lab, PES University

- Developed **PortMux**, an asynchronous application-layer port-multiplexer in Rust (Tokio); implemented a zero-copy protocol analysis engine to inspect packet headers without SSL termination.
- Validated using Locust, sustaining **10,000 concurrent connections** with average latency overhead converging to **˜8% above direct connection** at peak load, demonstrating efficient scaling of the async architecture.
- Packaged as a Systemd service and published to the **Arch User Repository (AUR)**.

Selected Projects

MergeDB: Distributed Fault-Tolerant KV Store September 2025 – Present
Stack: Rust, gRPC (tonic), Gossip Protocol, CRDTs, LSM Trees

- Implemented a leaderless distributed key-value store with gRPC (tonic) for inter-node RPC and a hybrid Push-Pull Gossip protocol for rapid cluster convergence without a single point of failure.
- Building **Byzantine-Fault Tolerant CRDTs** for strong eventual consistency, extended with an LSM Tree + WAL persistence layer.

Rumour: UDP Gossip Networking Layer January 2026 – Present
Stack: Rust, UDP, Ed25519, BLAKE3, Protobuf

- Built a BFT-ready epidemic broadcast layer over UDP with configurable fanout relay, enabling probabilistic message convergence across peers without centralized coordination.
- Hardened against DoS with two-layer token-bucket rate limiting (500 msg/s global, 50 msg/s per-sender), TOFU Ed25519 key pinning, and TTL-based replay deduplication with bounded memory via background GC.

AI-Powered Automation for SDLC March 2026 – April 2026
Stack: Python, Tree-sitter, NetworkX, LLM APIs, GitHub API, Jira API

- Engineered an autonomous pipeline orchestrating Jira issue ingestion, LLM-driven patch generation, knowledge-graph-powered file localization, sandbox validation, and automated GitHub PR creation; achieved **100% top-3 bug localization accuracy** (a **12x improvement** over baseline) with sub-450ms retrieval latency via a multi-hop Sentence-Transformer engine over a dependency-aware AST knowledge graph.

AI Resume Analyzer August 2025 – October 2025
Stack: Cloudflare Workers, Vectorize, Workers AI (Llama 3), TypeScript

- Architected a serverless **RAG system on the Edge** using Cloudflare Vectorize for context storage and Llama 3 via Workers AI; deployed on Cloudflare Workers with JWT auth and middleware rate limiting, achieving zero cold-start overhead versus containerized deployments.

Palya: Minimal Static Site Generator December 2025 – Present
Stack: Rust, Rayon, MiniJinja, Syntect, Pulldown-cmark

- Built with a **parallel build pipeline** using Rayon, achieving a **1.40x speedup** over Hugo on a 7,500-post corpus (2.13s vs 2.99s); incremental build cache reduced single-file rebuild time from ˜2s to ˜400ms. results published here.

Achievements & Leadership

- Selected as one of 13 research interns from 1000+ applicants (**Top 1.3%**) at The Innovation Lab.
- Ranked Top 150 out of 4000+ teams in The Great Bengaluru Hackathon.
- As VP of CodeChef Club, scaled active participation to **250+ students** via bi-weekly contests.
- Prof. CNR Merit Scholarship (Top 20% of cohort); JEE Mains 2023 (95th percentile).

Skills

Languages	Rust, Python, C, C++, JavaScript/TypeScript, Bash, SQL
Tools & Tech	Tokio, gRPC (tonic), CRDTs, Gossip Protocols, Docker, Cloudflare Workers, Vectorize, Workers AI, LLM APIs, RAG, Linux, Git, Locust, hyperfine, CI/CD, LaTeX