

AYUSH AGARWAL

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EDUCATION

International Institute of Information Technology, Hyderabad Hyderabad, India
B.Tech in Computer Science & Engineering | CGPA: 9.44/10 2024 – 2028

Relevant Coursework: Data Structures & Algorithms, Computer Systems Organization, Algorithm Analysis & Design, Database Systems, Operating Systems & Networks, Information Security, Machine Learning, Software Design & Analysis

EXPERIENCE

Software Engineer Intern | ConnectMyWorld May 2026 – Present

- Prevented proxy attendance by shipping an on-device face-verification system in the company's Android and iOS apps, actively used by 650+ users.
- Designed and implemented the full ML pipeline locally: Google ML Kit detection, ArcFace alignment, MobileFaceNet embeddings, a multi-template matching scheme, tuned thresholds, and an active anti-spoofing challenge.

Software Engineer Intern | ConnectMyWorld Feb 2025 – Jul 2025

- Developed the iOS version of the company's existing native-Java Android app in Flutter/Dart (with native Swift), solving the core challenge of keeping a continuous field-employee tracking app running persistently as an iOS background process.
- Engineered reliable collection and offline sync of location and form data to the company's central servers with guaranteed delivery, and hardened the app against adversarial users with tamper-resistant logic. Validated through extensive case testing and deployed to production, now actively used by 1000+ users.

PROJECTS

Orbit-Node | Neo4j, Wazuh (SIEM), Docker, Google Gen AI SDK (Gemini), Presidio, Python, FastAPI [GitHub](#)

- Led a 5-person team to build a bank security-orchestration platform, working directly with a US-based client (NJSecure). It defends against global threats pushed from a central server, not just local ones, with an analyst approving each AI-reasoned threat assessment before Wazuh (SIEM) auto-executes the mitigation.
- Personally built the AI reasoning, the Gemini MCP servers, and the orchestrator, and co-implemented the Neo4j graph of the bank's systems and the Presidio layer that flags and risk-scores sensitive data in the pipeline; delivered end-to-end, earning client recognition.

CoWrite: Distributed File System | C, POSIX Threads, Sockets, Concurrency [GitHub](#)

- Built a terminal-based collaborative document system inspired by Google Docs that tackles the core distributed-systems challenges: lets many users concurrently edit shared documents via sentence-level locking with conflict detection on same-sentence writes, and enforces per-user file permissions.
- Stays available through server failure using primary/backup replication with failover, and distributes load across storage nodes, with rollback support.

xv6 OS Enhancements | C, OS Internals, Virtual Memory, Scheduling [GitHub](#)

- Extended the xv6 RISC-V teaching kernel with demand paging (lazy allocation, page-fault handling, FIFO swap eviction) and four CPU schedulers (FCFS, Round-Robin, CFS, MLFQ). Benchmarked all four in QEMU, where MLFQ matched Round-Robin's response time while achieving the best turnaround of the four.

SHAM: Reliable Transport over UDP | C, UDP Sockets, Networking, Protocol Design [GitHub](#)

- Tackled UDP's unreliability by building a reliable, ordered transport from scratch: a 3-way handshake, sliding-window flow control, cumulative ACKs, RTO-based retransmission, and out-of-order reassembly; verified byte-exact delivery (MD5) under simulated packet loss up to 99%.

SKILLS

Languages: C, C++, Python, SQL, x86-64 Assembly, Bash, Dart, Swift
Systems & Concurrency: POSIX Threads, Socket Programming, IPC, Synchronization, Memory Management
AI / ML: TensorFlow Lite, Google ML Kit, Google Gen AI SDK (Gemini), MCP
Backend & Infrastructure: Neo4j, MongoDB, Linux, Git, Docker, Flutter, Firebase, FastAPI

ACHIEVEMENTS

- Recognized on the Dean's List in all semesters, awarded to students in the top 10% of the batch.
- Problem Setter (CTF challenges), Hacking Club IIIT-H (1.5+ yrs).
- 2nd Place (Open), Deccan CTF.
- JEE AIR 836 (Main), 1630 (Advanced).