Saharsh Kallu | Computer Science Engineering Student

International Institute of Information Technology – Hyderabad, India
+91 9963966022 • saharsh.kallu@students.iiit.ac.in
saha264.github.io/Saharshs-Website • Saha264 • saharsh-kallu
saharshreddyy._

Education

International Institute of Information Technology **Hyderabad, India**
Bachelor of Technology in Computer Science Engineering *2024–2028*

- Currently in 2nd Year
- Relevant Coursework: Data Structures & Algorithms, Operating Systems, Computer Networks, Database Management Systems
- Focus Areas: Machine Learning Security, Systems Programming, Distributed Systems

Technical Skills

Languages: C, C++, Python, JavaScript, HTML/CSS, Shell Scripting, SQL

Systems: POSIX API, Socket Programming, Multi-threading (pthreads), IPC, Memory Management

Networking: TCP/IP Stack, UDP, Network Protocols (DNS, ARP, HTTP), Packet Analysis, libpcap

AI/ML: Deep Learning, Computer Vision, Time-Series Analysis, TensorFlow, PyTorch, Scikit-learn

Hardware: PCB Design, IoT Sensors (ECG, Accelerometer), Embedded Systems, Real-time Data Streaming

Tools & Tech: Git, GDB, Valgrind, Wireshark, Make, Linux/Unix, VS Code

Concepts: Distributed Systems, Concurrency Control, Fault Tolerance, Data Structures (Tries, LRU Cache)

Projects

Automated ICU Guardian: Multimodal AI System: Developed an AI-powered patient monitoring system to address ICU nursing staff shortages using multimodal data fusion.

- Built deep learning model for real-time ECG analysis to detect arrhythmia and cardiac irregularities
- Implemented computer vision module for physical distress detection (falls, pain indicators) using pose estimation
- Designed sensor fusion system combining camera vision and wearable accelerometer data to minimize false positives
- Created predictive engine analyzing Electronic Health Records to forecast patient complications
- Integrated custom PCB with ECG sensors for continuous biosignal streaming

Technologies: Deep Learning, Computer Vision, IoT, Python, PCB Design, Healthcare AI
GitHub: github.com/Saha264/final-codes-ajas

Distributed File System: Designed and implemented a high-performance distributed file system with three-tier architecture modeled after NFS.

- Developed Name Server with Trie-based file lookup (O(1) access) and LRU caching for request optimization
- Implemented Storage Servers supporting dynamic scaling (hot-plugging) and asynchronous replication
- Solved Readers-Writers problem with sentence-level locking for concurrent file editing
- Built fault-tolerant system with heartbeat monitoring and automatic failover to redundant servers
- Created custom TCP-based protocol for file streaming, ACK handling, and remote command execution

Technologies: C, TCP Sockets, pthreads, POSIX, Distributed Systems
GitHub: github.com/Saha264/Distributed-File-Systems

C-Shark: Terminal-Based Network Traffic Analyzer: Built a lightweight packet sniffer for real-time network traffic analysis and forensics.

- Implemented promiscuous mode NIC interaction to capture raw Ethernet frames
- Developed recursive decapsulation engine parsing Layer 2 (Ethernet), Layer 3 (IP), and Layer 4 (TCP/UDP) headers
- Created dual-view payload visualization (Hexadecimal + ASCII) for deep packet inspection
- Built dynamic protocol filtering (DNS, TCP, ARP) with in-memory session storage
- Engineered interface discovery system for multi-device support (WLAN, Docker, Loopback)

Technologies: C, libpcap, Network Forensics, Linux
GitHub: github.com/Saha264/Terminal-Packet-Sniffer

Unix Shell & Reliable UDP Protocol: Systems programming project implementing a full-featured shell and custom reliable transport protocol.

- Built shell with process management using fork/exec, supporting foreground/background job control
- Implemented recursive piping mechanism with file descriptor management for arbitrary command chains
- Designed Reliable UDP (RUDP) with custom packet headers (Seq/Ack numbers, flags, window size)
- Developed sliding window flow control algorithm optimizing throughput vs. network congestion
- Created retransmission engine with RTT tracking and timeout-based packet recovery

Technologies: C, POSIX API, Socket Programming, Networking
GitHub: github.com/Saha264/C-Shell

Personal Portfolio Website: Modern, responsive portfolio website with interactive features and clean design.

- Designed responsive UI with dark/light theme toggle using CSS variables and localStorage
- Implemented typing animation, particle effects (particles.js), and smooth navigation
- Integrated GitHub Stats API with lazy loading and graceful error handling
- Built resume preview functionality with embedded PDF viewer

Technologies: HTML/CSS, JavaScript, Web Design, Particles.js
Live: saha264.github.io/Saharshs-Website

Interests & Activities

Academic: Machine Learning Security, Competitive Programming, Systems Research

Sports: American Football, Cricket, Basketball | Dallas Mavericks Fan

Entertainment: Cinema Enthusiast, Music (Anirudh compositions)

Additional Information

- Strong foundation in systems programming with focus on performance optimization and low-level code
- Experience in building fault-tolerant distributed systems and real-time applications
- Passionate about intersection of AI/ML and cybersecurity, particularly adversarial attacks
- Active learner exploring kernel development and embedded systems