NAMAN AGGARWAL

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Github ◇ Linkedin ◇ Blogs

EDUCATION

IIIT Delhi CGPA 9.02

BTech CSE 2025 till 6^{th} semester

SKILLS

Programming languages	C/C++, Java, Python, SQL
Tools and Technologies	Linux, Docker, Git, Kubernetes, Spark, Django, Geth, Message Queues, Tor network, Grpc, Parallel Runtime, OOPS, Wireshark
Expertise Area	Computer Networks, Operating Systems, Distributed Systems, Blockchain, Cloud

EXPERIENCE

Internship, ORACLE May 2024 - July 2024

Tools: Java, Apache Spark, Apache Airflow, Delta tables, Grafana, Docker, OCI Object Storage, OCI Dataflow

- Developed a *spark* based application in *java* which monitors 100s of data ingestion jobs periodically for data completeness, timeouts and successful completions.
- Used *Delta tables* to fetch summaries for past runs. Further *airflow* ensures monitoring job runs periodically.
- Grafana displays metrics as a time series graph, showing all metrics for jobs instantly saving hours of work.

Undergraduate Researcher, Network Security Lab, IIITD Jan 2023 - Apr 2024

Tools: Ethereum, Geth, Django, Ngrok, Shell Scripting, MySQL, Wireshark, Observability tools

- An distributed e-voting system to prevent voter demographics revelation, partial vote count and ensures vote accountability. It also the ensures privacy of voters and other entities involved in the voting process.
- Tested for 1 million voters using Ethereum as the base chain and hosting miners over cloud via Geth interface.
- Designed a tunnel based connectivity approach for miner anonymity using *ngrok*. Working on network threats.

PROJECTS

Raft **Tools:** Python, Grpc, Threading, Docker, GCP

- Implemented consensus algo for distributed systems including Leader election, Log replication, Fault tolerance.

Runtimes **Tools:** C, Hclib, Threading, Profilling algorithms, Synchronization mechanisms

- Implemented runtime improvements to increase efficiency of work stealing among threads and power consumption.
- These include solutions based on *profiling*, *polling*, *private deque*, *signal based*, *lock free* stealing.

IRC Chat Server **Tools:** C, OpenSSL, Threading, Linux IPCs, Socket programming,

- Developed a multi threaded chat server with authentication feature using *Needham Schroeder (NS)* protocol.
- Added functionality in *NS* to prevent *replay*, *cryptanalysis*, *man in middle* and more attacks.

Linux Access Controls List (ACL) **Tools:** C, Discretionary Access Controls (DACs), SetUID, Linux xatrrs

- Implemented *ACLs* for linux based distros which provides users more granular access controls than default DACs.
- Further wrote custom ACL compatible programs such as setfacl, fput, fget, cd, sudo and more.
- With security at core many attacks like privilege escalation are carefully handled.

Linux Shell **Tools:** C, Linux Fork, Threading

- Reproduced functionality of real world Linux shell with some common commands like ls, mkdir, rm, cat and date.
- All commands support running on a seperate kernel thread of shell instead of forking new process.

RELATED COURSEWORK

Computer Networks**, Operating Systems*, Network Systems Security*, Distributed Systems*, Advanced Algorithms*, Advanced Programming*, Parallel Runtimes, Databases, Computer Architecture

* grade point of 10 in course, ** Rank 1

ACHIEVEMENTS & RESPONSIBILITIES

- Dean's list for academic excellence award recipient for 2023-2024
- Technicals team at OWASP, Coordinator of Astronauts club at IIITD, Academics Captain in high school