Suryansh Rohil

+91-9355284184 | sr738@snu.edu.in | LinkedIn | GitHub | Portfolio

Education

Shiv Nadar University — Noida, Delhi-NCR, India
B.Tech in Computer Science and Engineering — *Aug 2023 – Jul 2027*

Experience

Software Engineering Intern, *Abacus Desk* — May 2026 – Present

- Building **Microtek IDM**, a 10-module serial-level warehouse inventory and dispatch platform, on a **Node.js/Express** backend with a route→service→repository layering and a **React 19** + Vite frontend.
- Implemented deny-by-default **RBAC** with warehouse-scoped permissions, versioned **PostgreSQL** migrations, and **Redis**-backed rate limiting on scan/validate endpoints to harden production reliability.

Software Development Intern, *CodeClowns* — May 2025 – Aug 2025

- Designed and implemented a high-throughput graph-based recommendation engine for the **Dwij AI** test-prep platform using **Neo4j** and **Redis** edge caching, deployed on **GCP**.
- Reduced backend API call frequency by **15%** and cut study-material retrieval latency by **20%** through query optimization and cache-layer tuning on a scalable production architecture.

Backend Development Intern, *CodeClowns* — May 2024 – Oct 2024

- Refactored and optimized 12+ **Go (Gin)** microservices using **Goroutines** and mutex-guarded shared state; restructured **MongoDB/MariaDB** schemas to eliminate race conditions under high-concurrency load.
- Achieved **35% reduction in end-to-end API latency** and **25% increase in data throughput**; debugged concurrency defects via profiling and root-cause analysis using Go's `pprof` toolchain.

Projects

GradGuard: Adaptive Network Deception System

- Built a concurrent service in pure **Go** that provisions isolated, ephemeral **Docker** containers per connection on **Linux**, with modular internal packages for session management, SSH handling, and an HTTP gateway.
- Wrote **eBPF** kernel-space programs to trace syscalls in real time; built an in-memory **ML pipeline** (Logistic Regression, Naive Bayes, Euclidean Anomaly Detector) trained on 170MB+ of labeled network data for sub-second behavioral classification.
- Designed a custom dataset extraction pipeline and a self-improving feedback loop that re-ingests session data after each run, plus a CLI dashboard for replaying and analyzing classification results.
- *Stack: Go, eBPF, Docker, Python (ML), Linux, concurrent systems*

MorphDAG: Workload-Aware DAG Blockchain Execution Engine

- Implemented a highly concurrent transaction execution engine in **Go** for a DAG-based blockchain; applied a hot-account detection algorithm to minimize state conflicts across parallel execution nodes.
- Achieved verifiable **4.3x throughput speedup** and **17.48% reduction in global finality latency** vs. standard EVM benchmarks; results published at **IEEE**.
- *Stack: Go, Ethereum EVM, concurrent data structures, Linux*

GradLedger: Decentralized Mentorship Platform

- Built a platform for alumni resource-sharing and mentorship on **Ethereum**/**Hardhat**, applying consensus, persistence, and liveness guarantees to ensure reliable resource exchange and transparent reward distribution.
- Deployed **Solidity** smart contracts for on-chain access control and designed 10+ **Go** REST APIs with JWT authentication, integrating a **Python** face-verification backend with the **Next.js** frontend over a documented API contract.
- *Stack: Go, Solidity, Hardhat, Python, Next.js, MongoDB, REST APIs, JWT*

Technical Skills

Languages: Go (Golang), C/C++, Python, Java, JavaScript, Solidity, php, Bash/Shell scripting
Frameworks & Libraries: Node.js/Express, Gin, Next.js, React, NestJS, Hyperledger Fabric, Hardhat, Flutter
Databases: PostgreSQL, MongoDB, MySQL, MariaDB, Neo4j, Redis
Tools & Platforms: Git, GitHub, Docker, GCP, AWS, Linux (UNIX), REST APIs, pprof
Concepts: Data structures & algorithms, microservices, concurrency, distributed systems, system design, OOP, debugging & profiling

Achievements

Smart SNU Hackathon'25 – 1st Place: Built a high-performance agricultural app in Flutter; optimized widget state management to reduce memory overhead and accelerate render pipeline throughput.

IEEE Publication: Co-authored research on workload-aware DAG blockchain execution achieving 4.3x throughput improvement (MorphDAG, IEEE 2025).