

Chinmay Narolia

+91-xxxxx-xxxxx | chinmay91797@gmail.com | github.com/cxinu | cxinu.github.io

ABOUT

Systems Software Engineer focused on systems programming, hardware-level interactions, and performance optimization. Experienced in building custom version control systems, GPU-accelerated pipelines, and high-performance distributed libraries. Proficient in C/C++, CUDA, Odin, and Go, with a strong interest in computer systems architecture, AI infrastructure, and OS internals.

EDUCATION

International Institute of Professional Studies, DAVV

Integrated Masters in Computer Application (5-Year)

Indore

2022 — 2027

PUBLICATIONS

- **A Lightweight Machine Learning Framework for DDoS Attack Detection in SDN**

Published in Springer | DOI: [10.1007/978-3-032-16791-0_36](https://doi.org/10.1007/978-3-032-16791-0_36)

PROJECTS

CUDA, C++, OpenCV, CudaCV – GPU-Accelerated Vision Pipeline ([GitHub](#)) 2026 — Present

- Engineered a GPU-accelerated real-time vision pipeline using CUDA and OpenCV, achieving sub-millisecond processing latency (~0.97ms) for operators like Sobel edge detection
- Implemented hardware-accelerated vision operators with a modular architecture supporting real-time parameter tuning and multi-mode processing streams

Odin, File I/O, Hashing (SHA-256), norse – A Git-like Version Control System ([GitHub](#)) 2025 — 2026

- Implemented custom version control system replicating Git-style architecture using SHA-256 blob storage
- Designed internal file tracking system with `.norse/` metadata directory and staged object system
- Wrote foundational commands from scratch in Odin to master VCS internals and content-addressable storage

Lua, Redis, OpenResty, rllib – Distributed Rate Limiting Library ([GitHub](#)) 2024 — 2025

- Built a high-performance, distributed fixed-window rate-limiting library for OpenResty supporting both standalone Redis and Redis Cluster for sharded setups
- Implemented atomic cross-node counting with optional local caching via `lua_shared_dict` to absorb traffic spikes
- Published package to LuaRocks, featuring native HTTP header helpers for standard `X-RateLimit-*` API responses

SKILLS

- **Programming Languages:** C/C++, CUDA, Odin, Go, Python, Lua, Shell
- **Systems & OS:** Linux Systems Programming, OS Internals, GPU Programming, TCP/IP, Content-Addressable Storage
- **Infrastructure & Tools:** OpenCV, PyTorch, MLIR, Docker, K8s, Redis, Neovim

CERTIFICATIONS & ONGOING LEARNING

- **Nand2Tetris:** Coursera Certified ([Verify](#)) — Constructed a basic computer system from fundamental logic gates up to an operating system. (Jan 2026)
- **Advanced Architecture:** Deepening OS and hardware-software interface knowledge via **Computer Systems: A Programmer's Perspective (CS:APP)**.
- **GPU Programming:** Exploring low-level AI infrastructure tooling, including CUDA, MLIR, and PyTorch internals.

ACHIEVEMENTS

- **GATE Qualified (2026):** Successfully cleared the national-level Graduate Aptitude Test in Engineering.
- **IIPS CoMET (2025):** Presented Entropy-Based AI Detection of DDoS Attacks in SDN at an international conference.
- **HackTheBox CTF (2025):** Ranked 458th out of 8,130 teams globally with Team Exploit Academy.
- **Avinya Tech Exhibition (2024):** Led team demonstrating an AI-based network defense system at a national military tech event.