

Nathan Gopee

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EDUCATION

- **State University of New York at New Paltz** Jan. 2025 – Present
GPA: 4.0
M.S. Computer Science
- **State University of New York at New Paltz** Aug. 2021 – Dec. 2024
New Paltz, NY
B.S. Computer Science

EXPERIENCE

- **Graduate Teaching Assistant** Jan. 2025 – Present
New Paltz, NY
SUNY New Paltz
 - Instructed 50+ students in Assembly Language, Computer Architecture, and Programming Languages through labs, office hours, and review sessions
 - Developed and integrated LCC.js, an interactive web compiler toolkit for classroom demonstrations
- **Graduate Lab Manager & Systems Administrator** Aug. 2024 – Present
New Paltz, NY
SUNY New Paltz
 - Architected enterprise SSO infrastructure managing 30+ Linux servers at hydra.newpaltz.edu
 - Deployed local LLM infrastructure, configured 3D printer farm, and implemented container orchestration across servers
 - Implemented network security, centralized logging, admin dashboards, and automated CI/CD pipelines for the department

PROJECTS

- QView3D — 3D Printer Farm Management** 🐍 Python 🎨 Go 🌐 Vue 🚧 Flask 🔍 PySerial 📁 SQLite 🏛 Express
– Led development on an open-source capstone project enabling simultaneous coordination of multiple 3D printers
- ScuffedK8 — Lightweight Container Orchestrator** Go 🐳 K8s 🚲 gRPC 🛡 WebSocket 🌐 REST
– Built a Kubernetes-inspired orchestrator to explore container scheduling internals, with custom algorithms distributing workloads based on resource availability and node health
- Extended the Go framework to create **ClusterShip**, a game that teaches container orchestration through battleship-style gameplay
- ScuffedRedis — 3D Cache Visualization** ⌚ C++ 🎨 React 🎨 Three.js 🎨 Node 🛡 Socket.IO 🚧 Docker 📁 nginx
– Developed a Redis-inspired cache server in C++ with interactive 3D visualization—cache hits glow green, misses flash red—to teach caching patterns intuitively
- Implemented Zipf distribution to simulate realistic web traffic using `std::unordered_map` for O(1) lookups paired with doubly-linked lists for O(1) LRU eviction
- Malware Classification Research — Security ML Analysis** 🐍 Python 🎨 scikit-learn 📁 pandas 📁 NumPy 🌐 Jupyter
– Analyzed the CIC-MalMem-2022 dataset using machine learning models to identify malware patterns and security threats
- Implemented multiple classification algorithms to detect suspicious API call patterns and code injection signatures in memory dumps
- Fibonacci Fractal Engine — Distributed Computing** 💻 Java 🚲 gRPC 🌐 Vue
– Led a team to build a multi-threaded distributed fractal generation system with HashMap caching, reducing computation time and improving scalability; tested with JUnit and Mockito
- Architected Java backend with gRPC for inter-node communication while Vue.js renders mathematical art patterns in real time
- Danmomo — Multiplayer Physics Game** 👾 Godot 🎨 Node 🛡 WebSocket 🌐 AWS 🌐 REST
– Developed a Suika-inspired multiplayer game where players compete to merge fruits, with physics synchronized across clients via low-latency networking
- Engineered real-time state synchronization through WebSocket connections with AWS-hosted leaderboards
- Homelab Infrastructure — Enterprise Setup** .docker 🐳 K8s 🐳 Linux 🚧 Prometheus 🚧 Grafana 🌐 Traefik
– Building multi-node cluster (Proxmox/Kubernetes/Rancher) on repurposed hardware with GPU nodes for ML workloads and Longhorn distributed storage; includes NAS, VPN, and local hosting
- Monitoring via Prometheus/Grafana, routing with Traefik ingress, securing via internal SSO; upgrading to 100GbE Mellanox QSFP28 NICs with InfiniBand for HPC networking

TECHNOLOGIES & SKILLS

Languages	Backend & APIs	Tools & Cloud	Certifications
🐍 Java 🎨 Go	🌐 Node 🚧 Flask	.docker 🐳 K8s	🌐 Cloud/DevOps (OpenShift, Cloud Sec, DevOps)
⌚ C++ 🎨 C	📝 Express 🔍 FastAPI	❖ Git 🐳 Jenkins	🌐 Networking (LAN/WAN, MPLS)
🛠 Python 🎨 JS/TS	☁️ REST 🚲 gRPC	🐧 Linux 🌐 AWS	🌐 Security (Ethical Hacking, Kali Linux)
Frontend	Databases	🌐 GCP 🐳 Azure	🌐 GitHub Essentials
🎨 React 🌐 Vue	🌐 PostgreSQL 🚧 MongoDB	🌐 Nginx 🐳 Traefik	🌐 (Office 365, Cyber, Sys Admin, Software Dev)
🗃 Three.js 🎨 Tailwind	🌐 SQL 🐳 Redis	🌐 Terraform 🐾 GitHub Actions	
		🌐 Quartus Prime	