

Abhishek Chigurupati

LinkedIn GitHub Website

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EDUCATION

- New York University, Courant Institute of Mathematical Sciences** New York, USA
Master of Science in Computer Science | GPA: 3.9/4.0 Sept 2024 – May 2026
Relevant Coursework: Operating Systems, Cloud & Machine learning, Multicore Architecture, Algorithms, GPU Computing

SKILLS

- Languages:** C, C++, Python, Go, Rust, JavaScript, SQL, Bash
- Cloud & Infrastructure:** AWS (EC2, EKS, S3, Lambda, IAM), GCP (GKE, Compute Engine), Kubernetes, Docker, Terraform, Jenkins, Helm
- Frameworks & Tools:** Django, Node.js, React, PyTorch, TensorFlow, Apache Spark, CUDA, OpenMP, MPI, Git, Grafana
- Databases & Systems:** PostgreSQL, MySQL, Redis, Oracle, Teradata, Linux/Unix, RESTful APIs, Microservices, CI/CD

EXPERIENCE

- Teradata** San Diego, CA
Software Engineer Intern — Query Optimizer Team May 2025 – Present
 - Designed a **high-performance HNSW vector search engine** in C++ with multi-precision support (FP16/FP32/FP64), scaling to **100M+ vectors** for AI/ML workloads.
 - Optimized distance computations using custom **LLVM IR** operations, achieving **3× throughput** and **40% lower P99 latency**.
 - Integrated vector search into Teradata’s **query optimizer and columnar storage**, maintaining **zero regression** across 10K+ tests with sub-second queries at scale.
 - Collaborated with kernel team to embed indexing into execution pipelines, delivering production-ready capabilities for cloud customers.
- Apple Inc.** Hyderabad, India
Software Engineer Jul 2021 – Aug 2024
 - Architected a **global monitoring platform** using React, Django **RESTful APIs**, Redis, and Grafana across **AWS and GCP**, improving efficiency by **75%**.
 - Built **Golang microservices** for automated diagnostics with **RESTful endpoints** and Slack integration, reducing incident response time by **60%**.
 - Optimized **Kubernetes workloads** on **AWS EKS and GCP GKE** using HPA, topology spread, and GSLB, reducing **P99 latency by 25%**.
 - Improved **Apple backbone WAN reliability** by deploying **BGP routing** and traffic monitoring, enabling proactive issue detection globally.
 - Automated deployment pipelines using Docker, Jenkins, and Helm with testing and rollback, cutting deployment time by **30%**.
- Hewlett Packard Enterprise** Bengaluru, India
Software Engineer Intern — Aruba Networks Jan 2021 – May 2021
 - Developed **Static PortFilter security module** for Aruba OVA, implementing rule parsing, traffic enforcement, and audit logging.
 - Automated policy deployment using **Python/Bash scripts** and **packet-level debugging** with tcpdump, reducing manual work by **50%** with **zero incidents**.

PROJECTS

- CUDA-Accelerated Embedding Search Engine:** Built a similarity search system for 10M+ vector datasets using shared memory tiling and kernel fusion, achieving **3.2×** speedup over baseline PyTorch with sub-millisecond query latency. **Tech:** CUDA, C++, PyTorch
- Parallel Programming Performance Analysis:** Benchmarked Rust (Rayon) vs. OpenMP across 8 HPC workloads on a 64-core cluster; identified and eliminated false sharing to achieve up to **4.7×** speedup, demonstrating Rust’s advantages for irregular workloads. **Tech:** Rust (Rayon), C, OpenMP
- CPU Scheduler Simulation Framework:** Developed discrete-event simulator implementing 6 scheduling algorithms (FCFS, SRTF, RR, Priority) with I/O modeling and Gantt chart visualization for performance analysis. **Tech:** C++

ACHIEVEMENTS & CERTIFICATIONS

- Apple Global Hackathon 2022 Finalist & Cloud Monitoring SME** — Selected from 500+ submissions for automated diagnostics prototype; designated technical expert for cloud monitoring and infrastructure reliability.
- Certifications:** Juniper Network Certified Associate (JNCIA-Junos), HashiCorp Terraform Associate, Amazon EKS for Developers