HARSHAAN CHUGH

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EDUCATION

Cornell University Ithaca, NY

Bachelor of Science in Computer Science, ***GPA: 3.93 / 4.00*** *Aug. 2024 - May 2027*

Relevant Coursework: Data Structures, Backend Development, Operating Systems, Computer Networks, Deep Learning, Systems Programming, Parallel & High-Performance Computing, Functional Programming, Large-Scale ML Systems

TECHNICAL SKILLS

Languages: Java, Python, C, C++, Rust, Kotlin, TypeScript, Go (Golang), SQL, OCaml
Technologies: Linux, AWS (3x Certified), Google Cloud, Slurm, Docker, Kubernetes, Kafka, Git

WORK EXPERIENCE

Software Engineer Intern May 2026 – Aug. 2026

Google – Android Automotive OS *San Jose, CA*

- Transitioned Android Automotive OS driver distraction enforcement from display-scoped to task-level routing, enabling "mixed" intra-display safety zones after securing approval from **20+ engineers** in a system design review.
- Exposed 3 public **executor-driven APIs** in **Java**/**AIDL** for **1M+** 1P/3P Android apps to listen for rules and self-restrict UI.
- Designed a safety engine with delta suppression across 4 VHAL and task callbacks, eliminating 100% of redundant IPC.
- Built system to parse and link safety rules to **Binder tokens**, clearing stale configs during RRO swaps and user logouts.
- Developed an algorithm to deduplicate and launch event-driven blocking screens over unsafe apps in **Java**/**Kotlin**.

Software Engineer Intern June 2025 – Aug. 2025

Entropy Laboratories *Palo Alto, CA*

- Migrated an AWS data streaming pipeline to an **on-premise TAK Server** to meet Department of Defense standards.
- Engineered an air-gapped pipeline integrating internal APIs with MariaDB and TAK Server, cutting update latency **50%**.
- Built a **Python bridge** converting JSON to Cursor-on-Target XML, enabling connection to 1000+ devices.

Software Engineer Intern Apr. 2025 – July 2025

Paint It Forward *Milpitas, CA*

- Built volunteer-hours tracking service for **20+ users** using **API Gateway, Lambda, and DynamoDB** for the nonprofit.
- Built a **CI/CD pipeline** using **AWS CDK and SST** for **infrastructure as code (IaC)** and zero-downtime deployments.

ACADEMIC EXPERIENCE

High Performance Computing Researcher Aug. 2026 – Present

Algorithms for Large-Scale Parallel Systems (ALPS) Lab *Ithaca, NY*

- Sped up distributed genome alignment **1.7–3.7x** and seed extraction **34–136x** by eliminating redundant reads in **C**/**MPI**.
- Cut **peak memory per process 25–38%** and fixed crashes using batched MPI transfers and early buffer release.

Distributed Systems Engineer Sep. 2025 – Present

Cornell Data Science *Ithaca, NY*

- Led an **8-person team** building a LAN downloader with **Java, Spring, gRPC, and Protobuf**; cut origin bandwidth **80%**.
- Built GitDistributed, a primary–backup **distributed versioning system** in C++ with failover and multi-client support.

Teaching Assistant Jan. 2025 – Dec. 2025

CS 4820 – Analysis of Algorithms *Ithaca, NY*

- Held weekly office hours guiding students in debugging, designing algorithms, and developing test cases.
- Led 1-hour, weekly discussion session for **20+ students**; resolved **250+** Q&A threads for the 400 student class.

FEATURED PROJECTS

RabbitReels.com – Distributed AI Video Platform | *Python, TypeScript, Next.js, FastAPI, PostgreSQL, Stripe, GCP*

- Engineered a distributed AI video creation pipeline using **RabbitMQ** and **FastAPI** to generate, edit, and publish short-form videos for **50+ monthly active users** creating **100+ videos per month** upon launch.
- **Auto-scaled** video creation agents with **Redis** job queuing to cut generation time from **15 minutes to 2-5 minutes**.

DormHop – Best Overall App, Cornell AppDev Hackathon | *Python, Flask, SQL, Docker, Google Cloud, OAuth*

- Developed hackathon-winning mobile app that lets Cornell students list dorms and privately negotiate room swaps.

HarshaanChugh.com – Portfolio | *HTML, CSS, Python (LangChain RAG)*