

HARSHAAN CHUGH

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EDUCATION

Cornell University

Ithaca, NY

Bachelor of Science in Computer Science, **GPA: 3.97 / 4.00**

Expected May 2027

Relevant Coursework: Data Structures & OOP, Backend Development, Discrete Structures, Analysis of Algorithms, Functional Programming, Data Science, Multivariable Calculus, Machine Learning, Systems Programming, Networks

TECHNICAL SKILLS

Certifications: AWS Solutions Architect – Associate · AWS Data Engineer – Associate · AWS Certified Cloud Practitioner

Languages: Advanced: Java, Python, SQL; Proficient: TypeScript, Golang, JavaScript, HTML/CSS, OCaml, C, C++

Cloud, DevOps & Tools: AWS, Google Cloud (GCP), YAML, Linux, Docker, Kubernetes, Postman, Git, Grafana

WORK EXPERIENCE

Software Engineer Intern

June 2025 – Aug. 2025

Entropy Laboratories

Palo Alto, CA

- Led migration of a real-time data streaming pipeline from an **Apache Server on AWS EC2** to an **on-premises TAK Server** to meet Department of Defense standards.
- Engineered a pipeline integrating internal APIs with MariaDB, TAK Server, and webmap, slashing position-update latency by **50%** vs. prior REST-based solution.
- Built a **Python bridge** converting JSON to Cursor-on-Target XML, enabling connection to 1,000+ devices.

Software Engineer Intern

Apr. 2025 – July 2025

Paint It Forward

Milpitas, CA

- Built a highly-available website (paintitfwd.org) on **Amazon S3 via CloudFront and Route 53** to serve the nonprofit.
- Developed a portal with **Next.js, React, API Gateway, Lambda, and DynamoDB** to log work hours for 20+ people.
- Created a **AWS CDK + Serverless Stack Toolkit (SST) CI/CD pipeline** provisioning IaC with zero-downtime.

ACADEMIC EXPERIENCE

Data Engineer

Sep. 2025 – Present

Cornell Data Science

Ithaca, NY

- Developing **GitDistributed**, a simplified **Git-like version control system in C++** over a client-server architecture.
- Designing a **distributed primary-backup system** supporting replication, failover, and multi-client collaboration with fast-forward/three-way merges and conflict resolution.

Teaching Assistant

Jan. 2025 – Present

CS 4820/5820 – Analysis of Algorithms (Fall 2025)

Ithaca, NY

- Hold weekly office hours on greedy, DP, randomized algorithms, NP-completeness, cryptography, etc.
- Guide students in debugging, designing solutions, and developing test cases in OCaml, Python, and Java.

CS 2800 – Discrete Mathematics (Spring 2025)

- Led 1-hour, weekly **discussion session for 20+** students; resolved **150+** 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.
- Built a secure credits-based payment model using **Stripe API** and authentication via Google OAuth and 2FA.
- **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, SQLAlchemy, Docker, Google Cloud, OAuth

- Developed hackathon-winning mobile app that lets Cornell students list dorms and privately negotiate room swaps.
- **Web scraped** “Community Features” from **30+** housing pages, cached results to deliver **< 50 ms** responses.
- Engineered a **recommendation system** using cosine similarity on amenity and occupancy vectors.

Robinhood & Plaid MCP Server | Go, TypeScript, PostgreSQL, Plaid API

- Built **MCP server** with a companion **Go ingestion** service, enabling LLMs to reason over financial data.

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