HARSHAAN CHUGH

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EDUCATION

Cornell University — Ithaca, NY
*Bachelor of Science in Computer Science, **GPA: 3.97 / 4.00**; Major GPA: 4.08 / 4.00* — *Expected Dec. 2027*
Relevant Coursework: Data Structures & OOP, Backend Development, Discrete Structures, Analysis of Algorithms, Functional Programming, Linear Algebra, Multivariable Calculus, C++ Programming; This Fall: ML, Systems Programming

TECHNICAL SKILLS

3x AWS Certified: AWS Solutions Architect – Associate · AWS Data Engineer – Associate · AWS Certified Cloud Practitioner
Languages: Proficient: Java, Python, SQL; Familiar: TypeScript, JavaScript, HTML/CSS, YAML, OCaml, C, C++
Cloud, DevOps & Tools: AWS, Google Cloud (GCP), Linux, Docker, Kubernetes, Postman, REST APIs, Git, Grafana

WORK EXPERIENCE

Software Engineer Intern — Jun. 2025 – Present
Entropy Laboratories — *Palo Alto, CA*
- Leading migration of a military-grade, wearable helmet's data streaming pipeline from an **Apache Server on AWS EC2** to an **on-premises FreeTAKServer (Tactical Assault Kit)** to meet Department of Defense standards.
- Building a **Python bridge converting HTTPS/JSON to Cursor-on-Target XML,** enabling connection to 100+ devices.

Software Engineer Intern — May 2025 – Present
PaintItForward — *Milpitas, CA*
- Building a highly-available serverless website on **Amazon S3 via CloudFront and Route 53.**
- Developing a portal with React, Cognito, API Gateway, Lambda, and DynamoDB **to log hours for 20+ members.**
- Working on a **AWS CDK + GitHub Actions CI/CD pipeline** provisioning IaC with zero-downtime.

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.

CS 2800 – Discrete Mathematics (Spring 2025)
- Led 1-hour, weekly **discussion session for 20+** students; resolved **150+** online posts for the **400 student class.**
- Inaugurated a multi-course workshop on LaTeX, held weekly office hours, graded exams and assignments.

Student Researcher — July 2023 – Jan. 2024
Mentored by Dr. Kundu, Cisco Systems Inc. — *Remote*
- **First-authored** survey paper on usable security, AI algorithms, and statistical analysis of LLMs.
- Surveyed **30+** papers on ethical concerns in AI development, user endpoint security, authentication.

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** as of July 2025.
- Build a secure credits-based payment model using **Stripe API** and authentication via **Google OAuth** and **2FA**.
- Implemented **auto-scaling for video creation agents** with **Redis job queuing** to **reduce video generation time from 5 minutes to 2 minutes**.

DormHop–Best Overall App, Cornell AppDev Hackathon | *Python, Flask, SQLAlchemy, Docker, Google Cloud, OAuth*
- Developed mobile app that lets Cornell students list dorms and privately negotiate room swaps; containerized the **Flask/SQLAlchemy** backend with **Docker** and deployed on **Google Cloud**.
- Implemented a **Google OAuth** flow that mints short-lived, signed JWTs, locking **20+ routes** to verified students.
- **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.

FileScout | *Java, JavaScript, HTML/CSS, Spring Boot, React, Node.js*
- Built **full-stack** app with **React & Spring Boot,** allowing users to create, modify, search, and display file statistics.
- Engineered multithreaded file processing, **boosting read throughput by 2.2×** while preventing race conditions.