Ashutosh Sharma

Cloud Engineering · AWS · Terraform · Docker · Kubernetes · GitHub Actions · Python

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SUMMARY

IT undergraduate who builds cloud systems on AWS as code and tests them by breaking them. LiftLens runs on Lambda, DynamoDB and Cognito with all 25 resources in Terraform, and its API and data are live at $0 a month. SwimSync is a FastAPI and PostgreSQL booking system on Docker and Kubernetes, checked by drills that kill instances, the database link and pods. Independent research found two flawed metrics in a 2025 FGCS cloud forecasting paper. Seeking a cloud engineering internship.

EDUCATION

B.Tech, Information Technology — Netaji Subhas University of Technology (NSUT), New Delhi · Expected 2028

Relevant coursework: Data Structures and Algorithms, Advanced Programming (Java, grade 9/10)

LeetCode: 64 solved (33 Easy, 24 Medium, 7 Hard)

Class XII, High School Diploma — American International School of Mozambique (AISM), Maputo · 2023 · 89%

EXPERIENCE

Digital Marketing Intern — Socialbent, Gurgaon · May 2025 – Jul 2025

- Researched markets, competitors and users for client campaigns, alongside SEO research and content optimization.
- Monitored campaign performance with the marketing team as part of campaign management.

RESEARCH

Re-evaluation of spike-aware cloud CPU forecasting — Independent research · Sep 2026 – Present

- Identified two flawed metrics in a 2025 *Future Generation Computer Systems* (FGCS) cloud CPU forecasting paper, confirmed in the authors' code; replicated it on the 29 GB Alibaba 2018 cluster trace with Python (pandas), showing a simpler approach matches its spike recall with 14 to 29% less over-provisioning across 3 seeds with no actuation delay; with a 15-minute delay, the paper's method wins.

PROJECTS

LiftLens — privacy-first physique tracker on AWS · React, TypeScript, Python, Lambda, DynamoDB, Cognito, Terraform · GitHub

- Built a 3-tier serverless web app (React/TypeScript, Python on AWS Lambda, DynamoDB, Cognito) managed entirely with Terraform (25 resources across three stacks); the API and data are live, and app hosting on CloudFront is next.
- Implemented on-device pose estimation with MediaPipe so photos are never uploaded, and designed an explainable score with a ±2.4% noise band calibrated from repeat photos, plus photo checks that ask for a retake.
- Achieved a $0 monthly cost with DynamoDB on provisioned capacity inside the free tier; a $1 budget alert, a kill-switch Lambda and a deploy lock, tested end to end, limit the damage if that changes.
- Implemented JWT verification against Cognito to secure the API, and covered it with 89 TypeScript and 112 Python tests, including forged-signature and expired-token cases.
- Automated builds and checks: a GitHub Actions CI pipeline runs lint, both test suites, the frontend build and Terraform validation on every pull request, and Bash scripts cross-build the Lambda package for Linux arm64; 8 decisions recorded as ADRs.

SwimSync — booking system that never oversells · Python, FastAPI, PostgreSQL, React, Docker, Kubernetes, Terraform · GitHub

- Eliminated requests dropped during Kubernetes rolling restarts by giving each pod a 5 s pause before stopping: 4 errors in 308 requests before, none in 291 after, on a local kind cluster that CI builds and books through on every push.
- Built a booking system for capacity-limited swimming sessions, run with Docker Compose: a PostgreSQL row lock makes the capacity check and the booking one atomic step, idempotency keys make retries safe, a transactional outbox sends notifications, and an operator screen cuts capacity or closes sessions with an audit log.
- Validated it with 52 backend and 37 frontend tests and three fault drills (instance killed; database down, slow or losing a commit reply; pod restarts and kills), all with zero duplicate or false bookings; one exposed a worker crash, fixed so all 473 notifications arrived.
- Designed the AWS deployment in Terraform (two-zone VPC, ALB, RDS, IMDSv2, Session Manager via VPC endpoints), validated in CI and deliberately not deployed to keep cost at ₹0; recorded 17 decision records.

LEADERSHIP

Student Lead & Organizer — School Clothing Drive (IB CAS) · Nov 2022 – Dec 2022

- Led a team of peer volunteers to organize and run a school-wide clothing drive benefiting local youth communities.

SKILLS

Cloud (AWS): Lambda, DynamoDB, Cognito, CloudWatch, SNS, Budgets, IAM and IAM Identity Center (SSO)

Infrastructure: Terraform (multi-stack layout, plan/apply review, deletion protection), Docker Compose, Kubernetes (kind)

Languages and data: Python (pandas), TypeScript, JavaScript, Java, SQL, Bash, HTML, CSS, Microsoft Excel (formulas, charts)

Web and data: React, Vite, MediaPipe (in-browser pose detection), FastAPI, PostgreSQL

Practices: automated testing (Vitest, pytest), architecture decision records, Git and pull-request workflow, GitHub Actions CI

CERTIFICATIONS

NPTEL Cyber Security and Privacy (IIT Madras) — Elite + Gold, 93%, top 1% of 20,949 candidates · AWS Certified Cloud Practitioner — in preparation · AWS Certified Solutions Architect – Associate — planned