

Lakshya Agarwal

LinkedIn: [linkedin.com/in/lakshyaagarwal17](https://www.linkedin.com/in/lakshyaagarwal17)

GitHub: github.com/Lakshya172

Portfolio: lakshya172.github.io

Email: agarwallakshya172@gmail.com

Mobile: +91 9557505737

SKILLS SUMMARY

Languages:	Python, C++, Java, TypeScript, JavaScript, SQL, C, HTML/CSS
Frameworks & Libraries:	React, Next.js, Node.js, FastAPI, Express.js, OpenCV, scikit-learn, PyTorch, pandas, NumPy, Astro
Databases:	PostgreSQL, PL/pgSQL, Redis, MongoDB, Supabase, Parquet, MySQL, SQLite
Cloud / DevOps:	Docker, GitHub Actions (CI/CD), Linux, Vercel, Render, AWS (EC2/S3)
Developer Tools:	Git, GitHub, Postman, VS Code, pytest, Jest, Linux CLI
Core Subjects:	Data Structures & Algorithms, Operating Systems, DBMS, Computer Networks, OOP, System Design

PROJECTS

Rinky Commerce Engine – Production Jewellery Storefront & Admin Platform | [GitHub](#) | [Live](#) 2026 – Present

- Shipped a **live production storefront serving Rinky Jewellers**, engineered end to end on Node.js and Express as **5 REST route groups over 4 Mongoose models** on MongoDB Atlas and deployed to Render behind a /healthz probe.
- Hardened every account workflow: **bcrypt password hashing**, Mongo-backed sessions on 7-day httpOnly SameSite cookies, **role-gated admin APIs**, Helmet security headers and a **20-request / 15-minute rate limiter** on every authentication route.
- Built **Brevo-backed email verification and password recovery**, an admin console for product CRUD, featured-item and enquiry management, and authenticated customer wishlists across **14 server-rendered views with no frontend build step**.

Tech Stack: Node.js, Express.js, MongoDB Atlas, Mongoose, express-session, bcryptjs, Helmet, Brevo API, Render

Attendance System using Facial Recognition – Real-Time Biometric Pipeline | [GitHub](#) 2025 – 2026

- Developed an automated biometric pipeline in Python on OpenCV with DeepFace/MTCNN embeddings, achieving **99.2% face verification accuracy** across a 500+ student dataset under dynamic lighting conditions.
- Optimized RTSP camera stream processing with multi-threaded frame batching and **FAISS vector indexing** (cosine similarity), cutting end-to-end recognition latency to **42 ms at 30 FPS**.
- Built an **anti-spoofing liveness filter** (eye-blink and texture variance) and automated audit logs syncing to PostgreSQL through FastAPI with asynchronous error-retry queues.

Tech Stack: Python, OpenCV, scikit-learn, DeepFace, FAISS, FastAPI, PostgreSQL, Docker, Linux

AdityaNet – Verifiable Research Platform, Aditya-L1 Solar X-ray Archive | [GitHub](#) | [Live](#) Jul 2026 – Present

- Built a Python pipeline parsing ISRO Aditya-L1 SoLEXS/HEL1OS X-ray products under a fail-loud contract into a **SHA-256 digest-addressed** dataset — **7 tables, 1,985 Parquet files, 569 MiB** over 28 months.
- Ran a **pre-registered benchmark** (fixed seed, day-block bootstrap CIs) on a 192,541-minute chronological hold-out, since random splits leak at 0.80 autocorrelation. Learned models (**ROC-AUC 0.966**) do not beat a single count-rate threshold (**0.954**).
- Made a wrong figure unpublishable: a **CI gate re-reads every artifact and fails the build on drift**, and a **PolicyLeakageError gate** structurally refuses test-derived policy after I proved and voided my own leaked thresholds; 18 Astro routes ship 0 KB JavaScript.

Tech Stack: Python, pandas, scikit-learn, Parquet, TypeScript, Astro, React, GitHub Actions, Render

CERTIFICATIONS

Android App Development — Industry-Oriented Summer Training Program Humble Coders, LPU	Jul 2026
Data Structures and Algorithms — six-month programme iamneo (an NIIT Venture), LPU	Jan 2026
Programming in Java iamneo (an NIIT Venture), LPU	May 2026

ACHIEVEMENTS

CEO, Arena LPU — led university-level technical events and mega hackathons	2025 – Present
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EDUCATION

Lovely Professional University Bachelor of Technology in Computer Science and Engineering (Software Development) — CGPA: 8.38	Punjab, India Aug 2024 – Jun 2028
Gulmohar Public School Senior Secondary (Class XII) — Science	Kanpur, India 2023