

AKSHAT LAKHERA

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EDUCATION

Indraprastha Institute of Information Technology, Delhi (IIIT Delhi)

2023 – 2027

B.Tech. in Computer Science and Applied Mathematics – CGPA: 7.67

Delhi, India

- Coursework:** Data Structures & Algorithms, Operating Systems, Computer Networks, Database Management Systems, Parallel Programming, Statistical Machine Learning, Convex Optimization, Theory Of Computation, Agentic AI

TECHNICAL SKILLS

Languages: C++, Python, Java, C, JavaScript, TypeScript, SQL

Frameworks & Backend: Spring Boot, Kafka, Node.js, Express, FastAPI, Next.js, React, REST APIs, Microservices, RBAC

Databases & Cloud Tools: PostgreSQL, MongoDB, Supabase, Docker, Kubernetes, Vercel, Version Control (Git/GitHub), Linux, CI/CD, Redis

Core CS: Data Structures & Algorithms, Object-Oriented Programming & Design, Distributed Systems, Multithreading & Concurrency (OpenMP, MPI), Operating Systems, Computer Networks, DBMS, TCP/IP

AI & Practices: LangChain, LangGraph, RAG, MCP, YOLOv8, Machine Learning; Agile/SDLC, Unit & Acceptance Testing, Code Review, Debugging, Secure Coding

WORK EXPERIENCE

Grove Growth

Jan 2026 – Apr 2026

Software Developer Intern

- Shipped a production gamified campus-ambassador platform for **100+ users** – dual student/admin portals, live leaderboards, and **20+ REST APIs** in TypeScript/Next.js on a 17-table Supabase (PostgreSQL) schema across Agile sprint cycles.
- Eliminated concurrency defects under peak load via **atomic transactions and row-level locking**; enforced secure coding (input validation, parameterized queries), drove peer code reviews, and validated releases with **433 automated tests** across 21 suites.

Undergraduate Research – Parallel & High-Performance Computing, IIIT Delhi

Aug 2025 – Dec 2025

Research Student (Scientific & Financial Simulations)

- Accelerated the explicit PDE solver **~10x** on multicore CPUs with OpenMP (persistent teams, cache-friendly access) and scaled it across nodes with MPI (domain decomposition, ghost-cell exchange).
- Implemented and benchmarked Explicit, Implicit, and Crank-Nicolson finite-difference solvers (C++/Python) against analytic prices; Crank-Nicolson's unconditional stability cut average solve time from **2.69 s to ~6 ms** at equal-or-better accuracy.

DRDO – ISSA Lab, Metcalfe House

Jun 2025 – Jul 2025

Software Developer Intern

- Engineered Kafka-based distributed pipelines and object-oriented Java Spring Boot / C++ microservices over TCP/IP, improving asynchronous processing efficiency by **60%** for mission-critical defense systems.
- Trained a YOLOv8 maritime vessel-detection model on HRSC2016 satellite imagery, reaching **0.83 mAP@0.5** through systematic preprocessing and a custom XML-to-YOLO annotation parser.
- Streamlined C++ Linux service deployments into a CI/CD pipeline under Agile/SDLC practices, eliminating manual integration errors across test environments.

PROJECTS

ReturnGuard – Multi-Tenant AI Returns Resolution Platform | Python, LangGraph, Kafka

Jun 2026 – Present

- Built a multi-tenant refunds platform where an autonomous agent (FastAPI + an **11-node** LangGraph state graph) resolves disputes against each brand's uploaded policy via per-tenant **RAG** with citations – spanning **68 REST APIs**, a **Kafka** pipeline (idempotent consumer, dead-letter queue, transactional outbox), and 4 role-gated portals behind an **RBAC** credential chain.
- Engineered a fraud-resistant money path: deterministic guardrails run outside the model (prompt injection cannot move money), with idempotent execution and per-session locks making double payouts structurally impossible. Red-teamed twice, fixing **11 exploits** pinned as regressions; **290+ tests** and a 44-case eval gate every CI push – **88.6%** auto-resolution, zero guardrail violations.

ciPD 360 – ERP & LMS for IIIT Delhi | Next.js, PostgreSQL, Node.js

Jan 2026 – Apr 2026

- Launched a full-stack ERP + LMS serving **250+ students and faculty**: 40+ REST APIs, analytics dashboards, and event-driven email workflows over a 19-table PostgreSQL architecture.
- Designed a Wi-Fi-based real-time attendance system (MAC/BSSID detection) with Node.js services for live faculty analytics.

Custom Unix Shell with MLFQ Scheduler | C, Makefile, Linux

Aug 2024 – Nov 2024

- Programmed an MLFQ-based scheduler daemon inside a custom C shell to simulate OS-level scheduling, managing **30+ concurrent processes** with adaptive priority scaling (~12% CPU-utilization gain under load).
- Incorporated semaphore-based synchronization and timing-driven deadlock detection, eliminating race conditions under heavy concurrency.

LEADERSHIP & POSITIONS OF RESPONSIBILITY

- Student Mentor, Student Mentorship Program (SMP), IIIT Delhi (2025–26):** mentored first-year students through their academic transition; received the **SMP Recognition Award** for sustained mentee engagement across the year.
- Managed outreach and secured creator **Crafter Aditi (14M+ subscribers)** for Odyssey 2023, increasing event attendance by 20%.
- Designed and delivered **3+ technical workshops** at ESYA (IIIT Delhi's tech fest) for 200+ participants, 90%+ positive feedback.

ACHIEVEMENTS

- Codeforces Specialist** (max rating 1458); solved **750+ DSA problems** across LeetCode (550+) and Codeforces (200+).
- Earned **Finalist** status in **IMC Prosperity 4**, IMC Trading's global algorithmic trading competition – **World Rank 823, All India Rank 175, Algorithmic Rank 278**.
- Scored a perfect **100/100** in Mathematics (CBSE, 2021) as **Subject Topper**.