

Aman Kumar

Software Engineering Student | B.Tech (Computer Science & Engineering), IKGPTU Jalandhar

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EDUCATION

IK Gujral Punjab Technical University | B.Tech, Computer Science & Engineering | CGPA: **8.44/10** 2023 – 2027

Relevant Courses: Data Structures and Algorithms, Object Oriented programming, Operating System, Database Management System, Computer Network, Machine Learning

TECHNICAL SKILLS

- **Programming Languages:** Python, Java, JavaScript
- **Backend Technologies:** Node.js, Express.js, REST APIs, Agile SDLC
- **Cloud, DevOps & Linux:** Docker, Kubernetes, AWS (EC2, S3, Lambda), GCP, Linux
- **Database Management:** MySQL, PostgreSQL, MongoDB, Database Optimization
- **Software Development:** Testing, Debugging, Deployment, Documentation

PROFESSIONAL EXPERIENCE

Indian Institute of Technology (IIT Ropar), VLED Lab | **Summer Intern**

May 2026 – Present

Full-Stack (MERN), Open Source, Linear Algebra & ML

Rupnagar, Punjab, India

- Built PippaQ, a semantic Q&A/FAQ platform with role-based access, a QP reputation system, and RAG-based duplicate detection via Qdrant Cloud, working across both backend (Express, MongoDB) and frontend (React) as part of a 5-member sub-team.
- Diagnosed a broken error-handling middleware that caused every API endpoint to return 500 errors; identified the root cause, fixed it, and shipped the fix via pull request to restore full API functionality.
- Co-developed Spandan v0.8.0, a real-time classroom polling system, designing an event-driven synchronization layer with Socket.IO to improve live-result availability and reliability for concurrent users; implemented role-based authentication, Mongoose schema design, and Whisper-based audio transcription for AI-driven question generation.
- Debugged production-level concurrency issues under concurrent load and applied performance analysis to improve system reliability, quickly picking up new tools and techniques as needed.

Excellence Technology | **Software Engineering Trainee**

Jun 2025 – July 2025

Full-Stack Systems

Chandigarh, Punjab, India

- Designed and implemented full-stack CRUD applications applying software design and data structure principles across MongoDB, Express.js, React.js, and Node.js; gained hands-on REST API and data modelling experience.

PROJECTS

LatencyLens | **API Latency Benchmarking**

Live | GitHub

- Built LatencyLens, a full-stack latency-benchmarking tool (Next.js, Express, TypeScript, MongoDB) with a background job engine that executes, measures, and aggregates up to 10,000 concurrent HTTP requests per run, computing p50/p90/p95/p99 latency percentiles with under 5ms of instrumentation overhead.
- Implemented a layered (Clean Architecture) codebase across 4 core modules, with 12+ REST endpoints, real-time run progress via Server-Sent Events, and MongoDB-backed historical trend tracking.

CampusCart | **PTU Marketplace (Ongoing)**

GitHub

- Built a full-stack campus marketplace by developing secure authentication, product listings, image uploads, and search features using Next.js, TypeScript, PostgreSQL, and Drizzle ORM, reducing dependency on external platforms and enabling a centralized student marketplace.
- Engineered an in-app buyer-seller messaging system with product-linked conversations, image attachments, and polling-based real-time updates, reducing message delivery latency to under 3 seconds without requiring WebSocket infrastructure.

Resume Roaster | **AI Resume ATS Checker**

Live | GitHub

- Built AI Resume ATS Checker, a full-stack MERN application (React, Express, MongoDB, Google Gemini AI) with an AI-scoring pipeline that parses, scores, and rewrites resumes against pasted job descriptions, surfacing keyword gaps and a 0–100 ATS score.
- Implemented JWT-based authentication, version history, and diff tracking across 7+ REST endpoints, enabling users to compare resume revisions and measure ATS score improvement across iterations.

The CodeBlog | **Blog Application**

Live | GitHub

- Built a full-stack MERN blogging platform with role-based access control, implementing a three-tier permission system (Reader/Writer/Admin) with JWT authentication and Firebase OAuth, deployed across Vercel and Render.
- Designed a self-service request/approval workflow for writer and admin access, eliminating manual database intervention for 100% of role upgrades, and resolved cross-domain session persistence issues by reconfiguring cookie SameSite/Secure settings for the split deployment.