Akshat Agarwal

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Education

Vellore Institute of Technology, Vellore July 2024 – 2028
B.Tech. in Information Technology *CGPA: 9.32/10*

Technical Skills

Languages: Java, Python, C/C++, JavaScript, TypeScript, SQL
Development: React.js, Next.js, Node.js, Express.js, REST APIs, PostgreSQL, MongoDB, Redis, Supabase
Infrastructure & AI: Docker, Kubernetes, AWS, Git, Postman, LLMs, RAG, Browser Automation
CS Fundamentals: Data Structures and Algorithms, OOP, DBMS, Operating Systems, Computer Networks

Experience

Sstudize Labs Mar 2026 – Present
Software Development Lead; previously Software Developer Intern *Remote*

- Lead development of an **AI-enabled EdTech platform serving 500+ students**, owning feature delivery, code reviews, debugging, and production releases.
- Design and ship full-stack features using **React, Next.js, Node.js, Express.js, PostgreSQL, and Supabase** across assessment and test-generation workflows.
- Reduced API response times by **35%** through backend performance improvements and workflow optimization.
- Diagnosed production failures during **1,000-VU stress testing**, investigating Node.js request timeouts, Supabase PostgREST connection-pool exhaustion, authentication rate limits, and cascading request failures.

Samsung PRISM – Samsung R&D Institute India May 2026 – Present
R&D Intern – GenAI / LLMs *Remote*

- Develop an **autonomous interaction framework using LLM-driven browser agents** to handle dynamic websites and multi-step workflows.
- Design modular agent orchestration and adaptive interaction pipelines using **DOM analysis, browser automation, and LLM reasoning**.
- Investigate dynamic DOM structures and interstitials, including anti-bot and verification pages, to improve agent robustness across changing web interfaces.
- Evaluate **DOM-based versus vision-based interaction strategies** for layout changes, UI state transitions, and complex interaction flows.

Metis Intellisystems Pvt. Ltd. May 2026 – Jun 2026
AI Developer Intern *Onsite*

- Built an AI-assisted financial transaction intelligence pipeline supporting **UPI, IMPS, NEFT, and RTGS** transaction records.
- Developed a hybrid classification engine spanning **40+ transaction categories**, combining deterministic rules, domain-specific signals, and transformer-based classification.
- Improved classification consistency by **30%** through domain-specific feature extraction and hybrid classification workflows.
- Implemented modular processing stages for transaction parsing, narration normalization, signal extraction, and classification of heterogeneous financial records.

Projects

Drop – Student Project Discovery Platform Live | GitHub

- Conceived and built a platform showcasing student innovation through **curated weekly exhibitions**, project discovery, builder profiles, recruitment, and permanent achievement tracking.
- Engineered the full-stack application using **Next.js, TypeScript, PostgreSQL, and Cloudflare Workers**, implementing Google OAuth, moderated submissions, weekly ranking logic, and a **browser-based social-card studio** that generates shareable graphics locally without external image-generation APIs.

Orbit – Personal Command Center Live | GitHub

- Designed and built a **unified command center** for Google Drive, Calendar, and Cloudflare analytics, combining global search, quick capture, notes, file management, and an installable PWA.
- Developed a **React/TypeScript frontend and Cloudflare Workers backend** with D1 persistence, owner-only authentication, **AES-GCM encrypted provider tokens**, and isolated integration failures; created a local demo mode that lets users explore the product without accessing private services.

BankStatementRAG – Financial Document Intelligence GitHub

- Built a **privacy-first Retrieval-Augmented Generation (RAG) system** for querying bank statement PDFs using locally hosted **Qwen 2.5 7B via Ollama**.
- Implemented PDF parsing, custom chunking, and **table-aware retrieval** to preserve transaction context for date-based and financial queries.
- Designed the pipeline around local inference, avoiding external hosted LLM APIs for sensitive financial documents.