Ashish Kumar

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Education

- **Indian Institute of Information Technology** — Kalyani, WB, India
  Bachelor of Technology - Computer Science; GPA: 8.56 — *Dec 2021 - June 2025*
  - **Courses**: Data Structures & Algorithms, Software Engineering, Operating Systems, Computer Networks, Database Management Systems, Agile Methodologies, Software Testing, System Design

Experience

- **MAQ Software** — Noida, India
  Software Engineer I — *July 2025 – Present*
  - **Shipped a full-stack RAG chat webapp for internal proposal search**: Built end-to-end **Python (aiohttp)** backend + **React / Vite / Tailwind** frontend on a same-origin API, deployed to **Azure App Service** via **GitHub Actions** with Oryx build.
  - **Designed a two-tier auth model on Azure**: **Easy Auth** (**Azure Entra ID**, OAuth 2.0 / OIDC) for browser sessions; a custom **constant-time HMAC** middleware protecting internal tool-callback endpoints. Wired the correct user-assigned managed identity into a multi-UAMI App Service for all outbound service calls.
  - **Owned the RAG retrieval pipeline behind an Azure AI Foundry agent**: Hybrid **BM25 + vector kNN** over a large chunked document corpus in **Azure AI Search**, **Reciprocal Rank Fusion**, semantic **cross-encoder reranker** with a confidence floor. Added a planner-driven query dispatcher with a whitelist validator so no free-form filter strings ever reach Search.
  - **Built the Azure Function App feeding the search index**: Python 3.11 timer + HTTP triggers: incremental **SharePoint** scans via **Microsoft Graph**, text extraction with **Azure Document Intelligence**, persistence to **Azure SQL**, with a near-real-time processor draining the ingestion queue.
  - **CertyFast — WCAG 2.1 AA accessibility pass across the workflows I owned**: Semantic-first **React** components with focus traps + restore, visible focus rings, and ARIA only where semantic HTML couldn't reach; cleaned **.NET / C#** service data shapes so the front end could trust them; **SQLite** persistence for offline-tolerant flows. Shipped alongside a **12% lift in user retention**.
- **FastCode AI** — Bangalore, India
  Engineering Intern — *Dec 2024 – June 2025*
  - **Application Development & System Design**: Designed and developed modular application components using **Flutter** and backend services, ensuring scalability and maintainability.
  - **Data Processing & Analytics**: Built event-driven data pipelines using **Google BigQuery**, enabling analysis of user behavior and supporting data-driven decisions.
  - **API Integration & Performance Optimization**: Integrated APIs and optimized application performance through efficient state management and asynchronous processing.

Skills

- **Programming Languages**: TypeScript, JavaScript (ES6+), Python, C#, Java, C++, SQL
- **Frontend**: React, Next.js, Tailwind CSS, HTML5, CSS3, Vite, MDX, Responsive & Accessible UI
- **Backend & Distributed Systems**: FastAPI, Node.js, .NET, REST APIs, Microservices, Async I/O, Redis
- **Security & Identity**: OAuth 2.0, OIDC, Azure Entra ID, Managed Identities, TLS/SSL, secure service-to-service auth
- **Cloud & DevOps**: Azure, AWS, GCP, GitHub Actions (CI/CD), Docker, Linux
- **AI / LLM Tooling**: Retrieval-Augmented Generation (RAG), FAISS, LLM prompt engineering, Copilot Chat / Cursor Agent-mode workflows
- **Databases**: PostgreSQL, MySQL, MongoDB, Firebase, Relational & NoSQL
- **Testing & Engineering Practices**: Jest, Unit & Integration Testing, Code Reviews, Agile (Scrum/Kanban), Remote-first collaboration
- **Observability & Monitoring**: Structured Logging, Distributed Tracing, Correlation IDs, Application Monitoring

Projects

- **VibeFix** — npm | GitHub: Designed and shipped an open-source **npm** dev tool (**TypeScript, Vite, Node.js**) that accelerates the AI-assisted development lifecycle: maps browser elements to exact source files/lines via React Fiber, expands Tailwind classes into source-aware LLM prompts, and delivers them straight into **Copilot Chat / Cursor Agent mode** across **7 IDEs**, with zero production footprint.
- **Git City** — GitHub: Design + prototype phase. Browser-based 3D city (**Three.js, React Three Fiber, TypeScript, WebGL2 to WebGPU**) where each GitHub user becomes a procedurally-generated skyscraper — a single `InstancedMesh` per LOD tier plus a packed `DataTexture` window atlas render millions of lit windows in a handful of draw calls. Backed by a **Node.js / Fastify + PostgreSQL + Redis + BullMQ** pipeline that ingests GitHub GraphQL `contributionsCollection` data and packs spatial tiles for CDN streaming.

Volunteer Experience

- **Media & Outreach Lead, Google Developers Student Club** IIIT Kalyani, WB
  Led Outreach Department *July 2022 - July 2023*
  - **Sponsorship & Community Growth**: Managed sponsorships and partnerships, increasing participation by **20%** and growing Discord community to **1200+ members**.
  - **Event Execution**: Organized Winter of Code 3.0, achieving **700+ registrations** and significantly improving outreach.

- **Organizer, StatusCode 0** IIIT Kalyani, WB
  Event & Outreach Coordination *Feb 2023 - May 2023*
  - **Event Management**: Planned and executed a tech event with **500+ attendees**, increasing engagement and sponsorships.