

Udai Das

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EDUCATION

ICFAI University

Bachelor of Computer Science; CGPA: 9.2

Tripura, India

2023 – 2027

SKILLS

Languages: C++, Python, TypeScript

Frameworks: React, Next.js, Node.js, FastAPI, Tailwind

Database: MongoDB, ChromaDB, Postgres, MySQL, Redis

Cloud & Tools: AWS (EC2, Lambda, ECS, EKS, S3), Docker, Kubernetes, NGINX, Figma, n8n, Prisma

WORK EXPERIENCE

Founder & Full-Stack Engineer, Archilect Studio

2025 – Present

Full-Stack Software Studio

- Founded and lead a full-stack software studio, architecting and delivering 10+ production platforms in 2 years for institutional and private clients (NIC, SCERT, Tripura Tourism), owning each engagement end-to-end from PRD through deployment.
- Delivered a diverse portfolio spanning a hotel & restaurant management suite with real-time kitchen order tickets, e-commerce platforms including one for Purbasha and a large-scale survey portal for a political party's field operations.

Software Engineer (Freelance), Aaharan EduSMART Pvt. Ltd.

Jul 2025 – Jan 2026

District KPI Monitoring System – Government of Tripura

- Engineered a three-tier RBAC KPI monitoring platform (React, TypeScript, Node.js, PostgreSQL) with in-memory LRU caching, reducing server load by 75%.
- Automated ranking and alerting pipelines with weighted scoring algorithms, improving reporting efficiency by 90% and achieving <100ms dashboard response times.

Software Engineering Intern, National Informatics Centre (NIC)

May 2025 – Jul 2025

Minutes of Meeting Platform

- Engineered a hierarchical office workflow platform (FastAPI, React, PostgreSQL, Docker) using closure-table DB traversal, reducing multi-level reporting query complexity from $O(N)$ to $O(1)$.
- Built an authenticated document streaming pipeline supporting 20MB+ PDFs via chunked disk reads, maintaining ≤ 50 ms response times with a full audit-trail logging system.

PROJECTS

Oatly – AI Resume & ATS Optimization Platform | *Next.js, TypeScript, MongoDB, Lambda, S3*

- Built an AI resume maker with real-time collaborative editing via Y.js (CRDTs) and Socket.io, cutting WebSocket message volume by over 80% through cursor-presence throttling.
- Built event-sourced versioning in MongoDB with snapshots, reducing reconstruction from $O(N)$ to $O(K)$.
- Built a RAG engine with a custom in-memory vector store, offloading client-side to cut server-side compute costs by 95%+.

Video Processing Pipeline – Self-Hosted VOD Platform | *React, Fastify, Redis/BullMQ, FFmpeg, MinIO*

- Engineered a decoupled, horizontally scalable pipeline (Fastify, Redis, BullMQ) for background video transcoding, achieving 0% main-thread blocking and a 3x throughput increase via dynamic FFmpeg worker scaling.
- Optimized HLS delivery with Nginx and Cloudflare CDN, achieving 90% cache-hit ratio.
- Implemented authenticated HLS streaming with custom header injection, securing private media delivery.

Bhagavata Purana Sanskrit Morphology Dataset | *Python, Playwright, Pandas, LoRA*

- Architected a Playwright-based scraping pipeline using simulated Chrome browser contexts to bypass Cloudflare protections, extracting morphological data across 300+ chapters and 12,679 verses.
- Built a custom parser generating 196K+ token-level morphological analyses from HTML into JSON/Excel.
- Fine-tuned Qwen2.5-0.5B-Instruct via LoRA to map verse tokens to lemmas, lexical categories, and grammatical tags.