

Kamal Nayan Kumar

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Education

Indian Institute of Information Technology (IIIT), Dharwad
B.Tech, Data Science and Artificial Intelligence

Expected Graduation: May 2027
CGPA: 8.83

Experience

AI Engineer Intern

Remote

HobbyFi

May 2026 – July 2026

AI CRM

TypeScript, Next.JS, Mastra, Firebase, Plivo, LiveKit, Meta API, Qdrant

- **Integrated multiple third-party APIs (Meta WhatsApp API, Plivo, LiveKit)** into a production AI Receptionist, plus an **AI Morning Brief** agent and a self-serve **Page-Creator** module – hands-on experience wiring external APIs into a real product.
- **Built HobbyFi Copilot** with dual read/write access under guardrails; write actions run only after webhook-driven vendor confirmation, following clean, modular coding practices across the SDLC (design, testing, deployment) with cross-functional teams.

Buddhi AI

TypeScript, Neon, Qdrant, FalkorDB, Resend, OAuth

- **Designed backend APIs** for a company memory platform: implemented **RBAC**, cross-agent **conflict resolution**, and a **fact registry** to govern read/write access – hands-on access-control, debugging, and system design.
- Built a memory layer exposed via **MCP** and **CLI**, with **OAuth** integrations into Google Workspace, Notion, GitHub, and Slack; used **PostgreSQL (Neon)**, **Qdrant**, and **FalkorDB**; deployed on **Render** with Git-based version control.

Projects

Small Language Model (SLM) – Question Generator ([GitHub](#))

Python, PyTorch, Hugging Face

- Built a **114M-parameter** decoder-only Transformer from scratch using object-oriented design for custom neural layers (GQA, SwiGLU FFN, RoPE, RMSNorm), applying OOP and algorithmic problem-solving.
- Structured efficient data-loading algorithms to pre-train on $\approx$ **3B tokens** on an H100 GPU; engineered fine-tuning loops for a synthetic question-generation engine.

AI-Powered Video Presentation Generator ([GitHub](#))

Python, FastAPI, React, Gemini, Sarvam AI, Manim, FFmpeg

- **Built FastAPI backend** that turns any topic into a complete video: AI-generated script (**Gemini**), multilingual voiceover (**Sarvam AI TTS**), and visuals from **Unsplash/Manim** animations, composed into a final **1080p MP4** via **FFmpeg**.
- Implemented **real-time progress tracking** using Server-Sent Events (SSE) so users could watch each pipeline stage – content, audio, visuals, rendering – update live in the UI.

Campus Saathi Bot ([GitHub](#))

Python, FastAPI, LlamaIndex, Astra DB, Firebase, Telegram Bot API

- Deployed a multi-user Telegram application via a **FastAPI**-based RAG pipeline, integrating the **Telegram Bot API** with automated document-parsing and system health-check workflows.
- **Enforced domain-restricted, role-based access control** using Firebase OTP authentication to restrict access to @iiitdwd.ac.in users – practical database-backed access control and secure system design.

Achievements

- **Runner-up, Hack Maze 2025** – Built a real-time computer vision pipeline for industrial bottle crack detection using YOLOv8 and synthetic crack data generation with OpenCV.
- **Third Rank, Vidyutvega Hackathon** – Developed and deployed an on-device AI inference system on constrained hardware, optimizing model for edge deployment.

Skills

- **Languages:** Python, SQL, TypeScript/JavaScript
- **Core CS Fundamentals:** Object-Oriented Programming (OOPs), Operating Systems, Computer Networking, DBMS
- **APIs & Integrations:** RESTful API design & integration, Webhooks, Third-party API integration (Meta API, Plivo, LiveKit), OAuth
- **Software Engineering & Frameworks:** FastAPI, Next.js, SDLC, Unit/Integration Testing
- **Databases & Cloud Tools:** Neon(PostgreSQL), Firebase (Firestore), Qdrant (Vector DB), FalkorDB (Graph DB), Vercel, Render
- **Tools & DevOps:** Git, GitHub, GitHub Actions, Docker, Linux