

Aditya Singh

+91 8109405290 | adityasingh01517@gmail.com | Portfolio | linkedin.com/in/aditya-singh | github.com/aditya-singh

EDUCATION

Manipal University Jaipur

B.Tech - Computer Science (Artificial Intelligence & Machine Learning)

2023 – Present

Jaipur, Rajasthan

EXPERIENCE

Software Engineering Intern

Jun 2026 – Jul 2026

Grids Apps LLC | React, NextJS, Framer Motion, Tailwind CSS v4, Laravel, PHP 8.3

Remote

- **Built and deployed a premium 19-route dental clinic platform** (Booking, Patient Dashboard, Smile Assessment, Before & After) using **React, TanStack Router/Query, Framer Motion, Tailwind CSS v4** frontend wired to a **Laravel REST API (PHP 8.3)** backend with Filament admin panel seeding 162 appointments, 30 patients, and 8 services.
- **Engineered a protected patient portal** with **Bearer token auth, appointment booking, invoices, and rewards**; deployed to **Vercel** with GitHub CI/CD, environment-based API switching, and Vite optimizations (lazy loading, CDN asset resolution).

Research Intern - Deep Learning & Computer Vision

May 2025 – Jul 2025

Indian Institute of Information Technology (IIIT) Allahabad

Prayagraj, India (Hybrid)

- **Engineered TensorFlow/Keras** pipelines for medical image classification on **HAM10000 (10,000+ dermoscopic images, 7 classes)**; benchmarked **5 architectures** - ConvNeXt Tiny, MobileNetV2, NFNet, Swin Transformer, and a novel **CNN + Self-Attention hybrid**.
- **Conducted 5-fold stratified cross-validation** with data augmentation and comprehensive metric evaluation (accuracy, precision, recall, F1, AUC-ROC); top model **Swin Transformer achieved 97.15% accuracy ($\pm 0.21\%$)**; research manuscript under preparation.

PROJECTS

CausalOCPM | Python, PC Algorithm, DoWhy, SHAP, PM4Py, Streamlit

[GitHub](#) | [Live](#)

- **First unified framework** bridging **Object-Centric Process Mining (OCEL 2.0)** and **Structural Causal Models**; PC Algorithm with Fisher's Z test achieved **DAG F1: 1.000** on planted ground truth, correcting naive correlation's ~19% overestimation of supplier delay effects.
- **Fitted mixed SCMs** per node (Logistic/GBM/Linear); validated across **10 seeds $\times$ 6 confounder strengths**; deployed **5-tab Streamlit dashboard** with SCM-grounded SHAP waterfall attribution.

CHAINIQ | React, FastAPI, PostgreSQL, LangGraph, LightGBM, Docker, SHAP, Power BI, Groq

[GitHub](#) | [Live](#)

- **Architected a full-stack agentic AI platform** 7 autonomous LangGraph agents for forecasting, inventory, supplier risk, and reporting delivering SHAP-explained, human-approved recommendations, with demand forecasting hitting **87.5% accuracy** on the M5 (Walmart) Kaggle benchmark.
- **Built and deployed an SAP-grade enterprise suite**: 9 production modules, JWT-secured APIs, and Power BI reporting, containerized and cloud-deployed (Docker, Render, Vercel) with self-healing database seeding.

Adaptive RAG | Python, FastAPI, LangGraph, Qdrant, Groq Llama 3.3 70B, Cohere, Docker

[GitHub](#) | [Live](#)

- **Production RAG system** with LangGraph StateGraph tri-routing (document index, web search, direct LLM) with single-batch grading; RAGAS vs Naive RAG: **Faithfulness +7%** (0.759 $\rightarrow$ 0.816), **Context Precision +14%** (0.875 $\rightarrow$ 1.000); supports PDF, DOCX, TXT, MD, CSV.
- **Multi-provider LLM fallback pool** (Groq $\rightarrow$ Gemini $\rightarrow$ Cerebras $\rightarrow$ Cohere) with **mid-stream SSE recovery** catches exception mid-generation, resumes on next provider; **fast-path bypass** skips query rewrite when top chunk relevance < 0.3 (saves 1–2s); parent-child chunking (1500/400 chars) deployed on Render + Streamlit Cloud.

AlertLens | Python, FastAPI, scikit-learn, DBSCAN, React, Groq LLM

[GitHub](#) | [Live](#)

- Engineered a real-time **alert correlation engine** using **TF-IDF** vectorization and time-windowed **DBSCAN clustering** to collapse hundreds of raw infrastructure alerts into root-caused incidents; **led Team SpaceX to secure 2nd Place at the SYNERGY 2026 Hewlett Packard enterprise Hackathon (HPE)**, validating **91.7% incident detection** and **91.4% cluster purity across 8 independent test runs**.
- Designed Explainable **Risk Scoring, Alert DNA Historical Incident Matching, Automatic Service Topology Inference, Root Cause Analysis, AI-Powered Remediation Recommendations, and a Multi-Provider AI Copilot with automatic failover**; validated the end-to-end system on LogHub HDFS_v1, AIOps Challenge 2020, and synthetic incident datasets.

RESEARCH & PUBLICATIONS

SSIC 2025 - Published

Conversational Expense Tracker | Python, Flask, LangGraph, Twilio | Co-authored, IIIT Allahabad

- **Designed a hybrid twin-LLM routing system** on WhatsApp dispatching queries between lightweight and heavyweight LLMs; achieved **87% faster responses** and **48% lower compute cost** - peer-reviewed and published at **SSIC 2025**.

TECHNICAL SKILLS

Languages & Frameworks: Python, Java, SQL, JavaScript, Typescript, FastAPI, React

AI / ML: Agentic AI, RAG, Explainable AI (XAI), LightGBM, Scikit-learn, LangChain, LangGraph, SHAP, MLOps

Data Analysis & Visualization: Power BI, Advanced Excel, Pandas, NumPy, ETL/Data Pipelines, Plotly, Statistical Testing, PM4Py

Databases & Tools: PostgreSQL, MySQL, MongoDB, Redis, Qdrant (Vector DB), Docker, GitHub Actions, Vercel, Render, Git

CERTIFICATIONS & ACHIEVEMENTS

[View Certificates](#)

- **General Secretary – Student Research Forum** (Directorate of Research - appointed) · **Student Excellence Award (2x), MUJ (2024, 2025)** · **1st Place in Pixel to Product Hackathon** · **IAESTE LC MUJ: Event Head (800+ attendees)** · **WikiClubTech: Events & Research Lead**.
- **Solved 150+ DSA problems** on Leetcode and **DSA – CodeChef certification**. **2nd Place at HPE Industry-Partnered SYNERGY 2026 Hackathon**
- **CERTIFICATIONS** - Cisco NetAcad (2026): Data Analytics Essentials · Intro to Data Science · Intro to Modern AI · **NPTEL Elite: Deep Learning IIT Ropar** · ML IIT Madras. **AI-900: Microsoft Azure AI Fundamentals**
- **SAP Learning: SAP S/4HANA Production Planning (PP), Business Processes in SAP S/4HANA Production Planning (Digital Badge), Sourcing in SAP S/4HANA (MM) (Digital Badge), SAP Signavio, SAP Analytics Cloud.**