

Ayush Raj

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Education

Kalinga Institute of Industrial Technology (KIIT)

Jul 2023 – Aug 2027

B.Tech in Computer Science Engineering – CGPA: 9.58/10

Bhubaneswar, India

- **Relevant Coursework:** Data Structures & Algorithms, Algorithms Design, Operating Systems (Linux), Database Systems, Discrete Mathematics, Data Mining, Probability & Statistics, Machine Learning
- **Relevant Certifications:**
- Complete Data Science, Machine Learning, Deep Learning & NLP Bootcamp – Udemy [[Certificate](#)]
- AWS Academy Graduate – Machine Learning [[Credential](#)]

Experience

Ama Earth Group

Oct 2025 – Nov 2025

AI-Native Software Engineering Intern

United States, Remote

- Designed a **centralized prompting + schema-validation framework** for all LLM API calls, improving **output consistency by 60%** and reducing prompt drift through unified markdown templates.
- Developed a **hallucination-mitigation and safety pipeline** with citation checks and structured-output enforcement, reducing **malformed/unsafe LLM responses by 90%**.
- Built fallback logic and error-handling layers preventing backend failures even under malformed LLM outputs.
- Engineered a **self-learning module** that compares AI-generated and consultant-edited reports to extract semantic deltas, improving output alignment by **60%**.
- Integrated learning data into **S3 + database**, enabling iterative model improvement across generations.
- Engineered **E2E reliability and security workflows** (SQL injection mitigation, concurrency testing, rollback versioning, safe state recovery), reducing critical failures by **80%**.

Projects

KwixLab – LLM-powered AI Productivity Platform | *React.js, Python, GPT-4, LangChain, Whisper, Firebase, Docker, AWS*

- Shipped a full-stack RAG & tools platform (12+ utilities: YT clipper, summarizers, resume analyzer) serving 200+ users and 1K+ req/day (React, Python, LangChain, GPT-4).
- Improved summarization and Q&A accuracy by **25%** through **chunking + rerank experiments**; implemented **authentication and payments** using **Firebase, JWT, and Razorpay**, maintaining **~95% system uptime**.
- Containerized and deployed on **AWS EC2** using **Nginx, HTTPS, and Route53**; implemented **asynchronous job queues and analytics**, achieving **~5× throughput**. [[Live Demo: kwixlab.com](#)]

Network Threat Detection with MLOps Pipeline | *Python, Scikit-learn, XGBoost, MLflow, Docker, AWS, GitHub Actions*

- Built a **modular MLOps pipeline** (ingestion → validation → feature engineering) on **NSL-KDD**; trained **XGBoost** achieving **92% accuracy** and **91% F1-score**, tracked across **50+ MLflow runs**.
- Packaged **batch inference** in **Docker** and deployed on **AWS EC2** via **ECR**; automated **CI/CD pipelines** using **GitHub Actions** [[Code: github.com/Ayushhgit/NetworkSecurity](#)].

Nexus.ai – Autonomous Multi-Agent Document AI System | *LangChain, FastAPI, Python, Groq, Docker, Redis*

- Architected a multi-agent document processing system with shared memory, achieving **95%+ accuracy** in classifying PDFs, JSON, and Emails.
- Devised robust pipelines with tool routing, retry policies, and async job handling, ensuring **99% uptime** for real-time document triage.
- Orchestrated deployment of **FastAPI + Docker microservices** with Groq LLMs + Redis queues, enabling scalable parallel processing. [[Code: github.com/Ayushhgit/Multi-Format-Autonomous-AI-System](#)]

Technical Skills

Languages: Python (primary), SQL, Bash, Java, JavaScript, C/C++

ML & GenAI: LLM Apps/Agents (LangChain), Retrieval-Augmented Generation (RAG), Transformers, NLP, Classical ML (XGBoost, scikit-learn), Speech (Whisper)

Frameworks: PyTorch, TensorFlow/Keras, Pandas, NumPy, OpenCV

MLOps & Infrastructure: Docker, MLflow (experiments), GitHub Actions (CI/CD), AWS (EC2, S3, ECR), Linux, Redis (queues/cache), Nginx

Data & Storage: PostgreSQL, MySQL, MongoDB, Vector Search (FAISS/Weaviate)

Backend & APIs: FastAPI, Node.js/Express, REST, JWT/Auth; **Frontend:** React, Firebase