

Muhammad Illiyin

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EDUCATION

Air University

Bachelor's in Computer Engineering

Islambad, Pakistan

Graduation Date: Jun 2027

PROJECT EXPERIENCE

Rare Sense Inc

Ai Engineer Intern

United States - Remote

May 2025 - Oct 2025

- Fine-tuned **LLaMA 3**, **FLUX**, and other large language & diffusion models using **LoRA** and custom training pipelines.
- Built **Gradio applications** to demo NLP and Computer Vision models interactively.
- Worked with **OpenAI API**, **Facebook's SAM**, and **Florence** models for generative, segmentation, and vision-language tasks.
- Developed **image classification models** and applied **transformers in NLP & CV pipelines**.
- Created, curated, and transformed large-scale **datasets** (including image-mask pairs) and published them on **Hugging Face Hub**.
- Implemented **data transformations, augmentations, and preprocessing pipelines** to improve model robustness.
- Leveraged **PyTorch, TensorFlow, Hugging Face diffusers, OpenCV, and scikit-learn** for research and production tasks.
- **Deployed full-stack AI applications on AWS** using **Docker, FastAPI**, and modern frontend frameworks; orchestrated scalable cloud environments with containerization and automated **CI/CD pipelines**.
- Managed **GPU/Cloud environments (AWS, Linux servers)** for efficient model training and deployment.
- Applied deep knowledge of **tensors, embeddings, tokens, and attention mechanisms** to optimize generative AI workflows.

FLUX Pixel Art Characters (LoRA Training)

Jul 2025 - Present

- Fine-tuned **FLUX.1-dev** using **LoRA adapters** to generate high-quality **pixel-art characters** optimized for game assets and avatars.
- Trained on **NVIDIA A100** with **NF4 quantization, FP16 precision**, and a custom **Diffusers** pipeline; published on **Hugging Face Hub**.

FGSM-ML-Attack (Adversarial ML System)

Sep 2025 - Present

- Implemented **FGSM adversarial attacks** with **FastAPI** backend, **Dockerized** for **AWS Lambda**, and **React frontend** deployed via **AWS Amplify**.
- Built a full-stack ML deployment pipeline supporting local testing, **ECR-based Lambda containers**, and real-time attack visualization UI.

TaskHive (AI Agent Marketplace Platform)

Feb 2026 - Feb 2026

- Engineered a **full-stack AI agent marketplace** with **Next.js 16, PostgreSQL**, and **Supabase**, enabling **task lifecycle management** (posting → claiming → delivery → payment) with a **credit-based economy system**
- Built a scalable **serverless API architecture** with **Bearer authentication, MCP integration (23 tools), real-time events (SSE), webhooks (HMAC-SHA256)**, and **idempotent APIs**, optimized via **PostgreSQL full-text search (GIN indexing)**
- Developed an **AI-powered reviewer agent** using **LangGraph** and **LLM-based analysis** to automate **deliverable validation**, integrated with **webhook-triggered workflows** and deployed on **Vercel**

SKILLS & INTERESTS

Skills: Python, C++, Generative AI, Transformers, NLP, Machine Learning, Deep Learning, PyTorch, TensorFlow, LangChain, REST APIs, API Design, System Design, AWS (Serverless), PostgreSQL, OpenCV, YOLO, Scikit-learn, Hugging Face, Fine-Tuning, Docker

Toolkit: Python, C++, JavaScript (TypeScript), Node.js, React, Git, NumPy, Scikit-learn, Jupyter Notebook, PostgreSQL, Docker

LEADERSHIP EXPERIENCE

Organization

Hospital Management System

Apr 2023 - Apr 2023

- Oversaw the development of a hospital management system by utilizing Git to effectively delegate tasks and assign one team member to focus on detailed documentation, resulting in a 30% reduction in overall project completion time.
- Assigning specific functions to team members, resulting in a 20% increase in productivity and code efficiency.

COURSES

- Supervised Machine Learning: [Regression and Classification](#)