

SUMMARY

A passionate and results-driven Data Scientist and AI Engineer with a strong foundation in machine learning, AI, and data analysis. Currently pursuing a Bachelor’s degree in Computer Science and Artificial Intelligence at Nile University. Experienced in working with large language models (LLMs), computer vision, and natural language processing (NLP) techniques. Adept at leading technical teams, managing projects, and deploying AI solutions in production environments. Known for a strong problem-solving ability, collaboration skills, and commitment to continuous learning in cutting-edge technologies.

EDUCATION

**Bachelor of Computer Science & Artificial Intelligence**, Nile University Oct 2021 – Jun 2025  
CGPA: 3.6

Relevant Coursework: Artificial Intelligence, Machine Learning, Databases, Software Development, Data Analysis, Mathematics  
**Student Activities:**

- ITCS School’s Representative**, Nile University Students’ Union Aug 2023 – Mar 2024  
Addressed student concerns for over 1000 peers and led initiatives to enhance student life.
- Junior Member**, ICPC NU Community Oct 2022 – Present  
Participated in the Egyptian Collegiate Programming Contest (ECPC).
- Technical Member**, IEEE NU Student Branch Oct 2022 – Oct 2023  
Organized workshops on AI and machine learning and contributed to engineering projects.

SKILLS

**Technical Skills:** Python, C/C++, Java, SQL; CUDA, PyTorch, TensorFlow, Keras, Scikit-learn, GANs

**Advanced Skills:** LLMs, Retrieval-Augmented Generation (RAG), NLP

**Soft Skills:** Presentation, Team Management, Project Management, Communication

**Other:** Research, Report Writing, Public Speaking

TECHNICAL EXPERIENCE

**LLM Freelancer – Part-Time** Apr 2025 – Present  
*Digis Squared, Remote*

- Deployed large language models in production using CPU-optimized techniques and GPU acceleration via CUDA.
- Fine-tuned open-source LLMs for tasks such as summarization, classification, and conversational AI.
- Built lightweight, locally deployable pipelines for environments with limited compute resources.

**AI Engineer, Team Lead – LLM Team** Aug 2024 – Present  
*Singularity, Cairo, Egypt*

- Lead the LLM team, managing task delegation, tracking progress, and ensuring project timelines.
- Applied computer vision for object detection and segmentation in steel factory environments.
- Fine-tuned LLMs and implemented Retrieval-Augmented Generation (RAG) for advanced information retrieval.
- Built a digital twin using NVIDIA Omniverse for real-time production monitoring.

**DEMI Coding Instructor – Part-Time** Jun 2024 – Oct 2024  
*iSchool, Instructors Department – Remote, Egypt*

- Taught programming fundamentals and AI concepts to young learners.
- Provided support with grading, student queries, and project guidance using Pictoblox.

**Data Science Intern** Sep 2023 – Dec 2023  
*Misr El-Kheir Foundation, Cairo, Egypt*

- Conducted data validation, cleaning, and exploratory analysis.
- Visualized statistical trends and supported data-driven decision-making.

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# Mohamed Osama

## Data Scientist / AI Engineer

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### Junior Teaching Assistant

Nile University ITCS School, Giza, Egypt

Oct 2022 – Jun 2023

- Assisted in Discrete Mathematics instruction for over 180 students.
- Led tutoring sessions and supported grading and academic inquiries.

### PROJECTS

#### RAG\_Project – [github.com/MOsama10/RAG\\_Project](https://github.com/MOsama10/RAG_Project)

Technologies: RAG, PyTorch, Hugging Face, FastAPI

Developed a local Retrieval-Augmented Generation system for enterprise-grade QA with schema-aware logic and local deployment using FastAPI.

#### Katana NLP-to-SQL Platform – [github.com/MOsama10/katana-nlp-to-sql](https://github.com/MOsama10/katana-nlp-to-sql)

Technologies: FastAPI, PostgreSQL, SQLCoder (GGUF), llama.cpp

Built a fully offline NLP-to-SQL system for Katana telecom analytics. Converts English queries into SQL using domain-aware logic and dynamic schema handling.

#### Hieroglyphic Translation to English – [github.com/MOsama10/Hieroglyphic-translation-to-English](https://github.com/MOsama10/Hieroglyphic-translation-to-English)

Technologies: Python, Transformers, Vision Models, Hugging Face

Designed a CV-NLP pipeline that detects and translates ancient Egyptian hieroglyphics into English using transformer-based models.

#### Production to Instruction – [github.com/MOsama10/production-to-instruction](https://github.com/MOsama10/production-to-instruction)

Technologies: PyTorch, LLMs, NLP, Prompt Engineering

Transformed raw production logs into human-readable instructions using large language models and prompt engineering for enhanced operational clarity.

#### Speech-to-Speech Translation System – [github.com/MOsama10/Speech-to-Speech](https://github.com/MOsama10/Speech-to-Speech)

Technologies: XTTS, PyTorch, Whisper, FastAPI, Hugging Face

Built an end-to-end speech-to-speech translation pipeline using Whisper for ASR and XTTS for TTS. Integrated with FastAPI for local deployment, enabling seamless voice translation across multiple languages.

#### AgriCash Avatar Speech-to-Speech Guide

Technologies: PyTorch, CUDA, Advanced RAG, FastAPI, Hugging Face Transformers (XTTS)

Built an interactive avatar guiding users through the AgriCash app using XTTS, CUDA, and advanced RAG.

#### Production Chatbot for Manufacturing

Technologies: PyTorch, CUDA, Advanced RAG, FastAPI

Built a locally deployed chatbot for production QA, supporting queries on material codes and component data.

#### Crypto Stock Market Analysis

Libraries: Pandas, NumPy, Scikit-learn, Matplotlib, Seaborn, PyTorch

Predicted cryptocurrency price changes using statistical and ML techniques.

#### Dysarthria Classification using CNNs

Technologies: Python, Librosa, CNNs

Created a CNN for detecting dysarthria based on extracted speech features.

#### Room Style Transfer Using CycleGAN & Stable Diffusion

Technologies: Python, CycleGAN, Stable Diffusion

Generated new room styles from text/image input for visual redesign simulation.

### ACHIEVEMENTS

- Participated in GenZeurs Hackathon 2023
- Student Union Readiness Program 2023
- 3rd Place – IEEE Helwan RAS Auxillio 6.0 (Robotics Manufacturing 2023)
- 2nd Place – IEEE Helwan RAS Auxillio 5.0 (Robotics Manufacturing 2022)
- Full Scholarship – Nile University ITCS School (2021)
- 1st Place – “Abakera TV Show” Season 10 (General Information, 2020)