Moahmmed Elkhiat

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Education

Cairo University Faculty of Engineering — Cairo, Egypt
Computer Engineering Department ***(GPA 3.5/4)*** — *Oct. 2020 – May 2026*

Experience

Undergraduate NLP Researcher — Feb. 2025 – Present
Zewail City Computing Society — *Remote*

- A student-run research association in the Applied ML research group
- Helped in research related to AI in financial applications and quantitative finance

Applied Data Science Trainee Credential — Mar. 2023 – Aug. 2023
WorldQuant University — *Virtual*

- Completed eight projects using machine learning models for supervised and unsupervised learning tasks
- Created visualizations to explain data characteristics and model predictions to non-technical audiences

Projects

Multimodal Corrective Agentic RAG | *Langchain, Langgraph, Gemini, Mistral, Chroma, Gradio.* Project

- Developed a question-answering tool using Corrective-RAG (CRAG) to improve answer accuracy through self-reflection and grading of retrieved documents
- Integrated a multimodal retriever to extract relevant images from PDF and PPTX files

Long Document Summarization and Chat with PDFs | *Langchain, Gemini, FAISS, Streamlit* Project | Demo

- Utilized K-means clustering to group similar sections and reduce dimensionality, enabling efficient summarization system, capable of processing documents with 1000+ pages in less than 60s
- Implemented a cumulative approach to reduce the time required for summarizing added documents
- Leveraged Gemini's multi-modal capability to build a multi-modal RAG that enables users to chat with PDFs

Search Engine | *Java, MongoDB, JSOUP* Project

- Designed and developed an efficient Indexer that leverages NLP techniques to store and preprocess HTML pages, minimizing overhead and redundancy, and enabling fast data retrieval
- Built a robust Query Engine that efficiently retrieve relevant results from the indexed data

Employee Attrition | *Python, Scipy, Scikit-learn, Pandas, Plotly* Project | Demo

- Conducted statistical analysis and hypothesis testing to gain insights into the factors affecting employee turnover
- Built an early warning system that accurately predicts the probability of an employee quitting and assigns a risk level to each employee

License Plate Recognition | *Python, Scikit-image, OpenCv, Scikit-learn* Project

- Applied classical computer vision techniques to build a fast and real-time license plate detection
- Built an OCR model to be used in license plate recognition

Chat with Your Repo | *Python, Llama-index, Gemini, FAISS, Streamlit* Project

- Built a robust RAG system that accurately answers questions by parsing and analyzing code files from repositories

Process Scheduler | *C++, Data Structure, OOP* Project

- Implemented an efficient scheduling algorithm using data structures and OOP concepts to minimize response time and waiting time for the CPU

Technical Skills

Languages: Java, Python, C/C++, SQL, MongoDb
Machine learning and AI: Scikit-learn, XGBoost, Scipy, Tensoflow, Keras, Pytorch, Transformers, Spacy, Scikit-image
Data Manipulation and Visualization: Numpy, Pandas, Matplotlib, Seaborn, Plotly
Tools and Frameworks: Git, Linux, Docker, Azure, Langchain, Llama-index,Hugging Face, FastAPI, Streamlit

Awards

First Place: 10^{th} Undergraduate Engineering Mathematics Researcher Forum by TCCD Career Centre