Peter Atef

AI & Automation Engineer
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Education

Cairo University **2019 – 2024**
Bachelor of Computer Engineering, ***Excellent Grade (GPA: 3.7)*** *Military Status: Exempted*

Experience

Ejada **1/10/2024 - present**
AI Engineer *Egypt - Hybrid*

- Embedding AI models in software solutions.
- Build and maintain backend services and APIs for agent workflows.
- Design scalable data pipelines and support RAG components (vector DBs, embeddings, etc.)
- Build Agentic AI solutions that can communicate with the outer world via tools.
- EDA and data analysis for numerical and text data.
- Skills: Python - Data Analytics - LLMs - NLP - Streamlit - FastAPI - Docker - RAG - Agentic AI.

Apes solutions **1/8/2024 - 1/10/2024**
Freelance Mobile developer *Egypt - remote*

- Developing mobile apps using Flutter in a creative way for Android and iOS
- Projects I participated in: Inspkvt - Views - Spark - Eventbeez - Radzoom - Hpadel - SDpadel.
- Skills: Flutter - Clean Code - Git - GitHub - Agile.

VNCR Media Group **1/7/2023 - 1/10/2023**
Generative AI Internship *England - remote*

- It's a great experience to be part of a company outside Egypt and have the chance to work on exciting projects and meet new people worldwide.
- **Technology used:** Langchain, Streamlit, OpenAI, Python, chromeDB, Faiss.
- *Certificate Link -Recommendation Letter Link*

Projects

KidAI | *Unity, Agile, Python, C sharp, machine learning, Github, Team work* ***Project Link***

- This is my graduation project, a tool that teaches kids aged 8 to 18 about machine learning through games. It guides them through the pipeline of creating datasets, training, validating, and testing models. One game focuses on image classification, allowing kids to capture or import images, train a model, and then play the game to learn about its behavior.

Transaction prediction | *scikit-learn, machine learning, Python, data analysis* ***Project Link***

- The goal is to predict if a customer will make a specific future transaction based on historical data. Santander seeks to develop a model to identify likely customers, regardless of transaction amount. We explored five models: Linear Regression, Adaboost, SVM, Random Forest, and XGboosting.

Arabic Text Diacritization | *NLP, machine learning, Python, PyTorch* ***Project Link***

- Arabic diacritics clarify pronunciation and meaning but are often omitted and inferred by native speakers. Restoring them benefits NLP systems like text-to-speech and machine translation by reducing ambiguity. We used two approaches to address this: a recurrent neural network (Bi-LSTM) with an embedding layer and the CBHG architecture.

Blog Writer Agent | *LLMs, NLP, LangChain, Python, OpenAI, Hugging-Face, Vector database, Streamlit* ***Project Link***

- During my internship at VNCR, I worked on a Blog Writer Agent designed to help users create blogs by entering a title, word count, and any specified resources.

Virtual Calculator | *Image processing, OpenCV, machine learning, Python, Threading* ***Project Link***

- Machine learning project for real-time hand detection of numbers and arithmetic operations. We used SVM, achieving 90% accuracy. My role involved image enhancements and accuracy calculations.

Hand Gesture Recognition | *Image processing, OpenCV, machine learning, Python* ***Project Link***

- A machine learning model detects hand-drawn numbers through effective image pre-processing and noise handling. Hand extraction is performed for accuracy, utilizing HOG, LBP, and PCA for features, with SVM as the model. My role focused on hand extraction using GMM and K-means, and implementing the LBP algorithm for feature extraction.

Loan acceptance | *Big data, cloud computing, data analysis, python, Algorithms, EDA, PySpark* ***Project Link***
- The challenge was to develop a predictive model using the U.S. Small Business Administration's loan application data to determine approval or denial. We preprocessed the data with Spark, performed exploratory data analysis (EDA), visualized association rules, and used K-nearest neighbors (KNN) for predictions, along with machine learning techniques like logistic regression, random forest, and SVM.

Vector Database Indexer | *python, Algorithms, Data Structure* ***Project Link***
- Main function is to search and retrieve the most relevant vectors concerning the input query. The challenge was to build an indexer that optimizes in memory and time and achieves that using vectorized techniques and algorithms like IVF, LSH

Search Engine | *Java, OOP, Data Structures, Threading, MongoDB* ***Project Link***
- I worked on the Indexer, a pre-processing step prior to storing data in the DB, and contributed to building the website for a search engine that consists of a Crawler, Indexer, and Ranker.

Hospital management | *C-sharp, SQL, MySQL, Database* ***Project Link***
- Developing a hospital Windows application to manage multiple users, user privileges, patient appointments, and medical history tracking. I participated in building the DB scheme and implementing the backend, and I built screens like a doctor, nurse, and patient screens.

Skills

AI: Python, PyTorch, Langchain, OpenAI, Hugging-Face, Vector databases, RAG, LLMs.
Agentic AI & Automation: Agentic AI Design Patterns, Agent Tools, Memory Systems for Agents, Knowledge Bases, CrewAI, Prompt Engineering, Microsoft Copilot Studio Basics, MCP server, LangGraph, n8n, RPA
Data analysis: NumPy, Pandas, Matplotlib, OpenCV, Scikit-learn, Streamlit
Developer Skills: Github, CI/CD, Linux and Bash scripting, SOLID Principles, clean code
Back-end: FastAPI, Flask
Front-end: Flutter, React, HTML, CSS
Soft skills: Microsoft Office, Teamwork, Presentation Skills.

Trainings & Courses

AI Summer Training - ITI Egypt **08/2022 - 09/2022**
Certificate Link *Egypt - remote*
- Learning the fundamentals of Linear algebra, Probability, Machine-learning, and Deep learning

AI Summer Training - The National Telecommunication Institute (NIT) **07/2021 - 08/2021**
Certificate Link *Egypt - remote*
- Learning data analysis using Python using Numpy, Pandas, and Matplotlib. Learning how to deal with supervised learning models with hands-on experience.

Achievements

NVIDIA **summer 2022**
NVIDIA DLI Certificate for the successful completion of Fundamentals of Deep Learning. *Certificate Link*
- Learning Fundamentals of Deep Learning from engineers working at NVIDIA by applying to the supervised learning pipeline using NVIDIA GPUs.

Orange Digital Center (ODC) **summer 2022**
Certificate Link *Project Link*
- I got a fourth place over more than 50 other students in the Competitive Programming Hackathon by Orange Digital Center in C++. That really enhanced my experience in problem-solving and also meeting new people was a wonderful experience.

Cairo University: Faculty of Engineering **Spring 2023**
Certificate Link *Project Link*
- My team and I got first place in the Maze-solving competition and second place in the line follower competition.
- The first competition was to build a car that follows the track line in minimum time, and the second competition was to use the car to solve a maze in minimum time using the shortest route.
- **My Role**: I participated in building an Android native mobile application using Java to send a signal to the car representing the speed level of the car. The app was required to send a high-speed signal to the car whenever there is a straight line and a low-speed signal whenever there is a curve.
- **Technology used**: Java, OpenCV, Image Processing