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*

Certificates:
Follow this link to check out all the certificates I got from courses and internships. *(Link)*

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 for organizations.
- EDA and data analysis for numerical and text data.
- Skills: Python - Docker - Data Analytics - LLMs - NLP - Streamlit - FastAPI - Docker.

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

- Developing mobile apps using Flutter.
- 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.
- Completion Certificate: **Link**
- Recommendation Letter: **Link**

Ejada **4/7/2023 - 17/8/2023**
Mobile Development Internship *Egypt - on-site*

- I was a member of a mobile development team that was required to build complex mobile apps using React-Native and Android Kotlin.
- We built a lot of apps like Mnara El-Seha as a hospital system app. GitHub Repository
- Completion Certificate: **Link**

ITI Egypt **08/2022 - 09/2022**
AI Summer Training *Egypt - remote*

- Learning Linear algebra fundamentals.
- Learning Probability fundamentals.
- Learning Machine-learning fundamentals .
- Learning deep learning basics.
- **Certificate Link**

ITI Egypt **09/2022 - 10/2022**
React-Native Summer Training *Egypt - remote*

- Learning React-Native fundamentals: dealing with mobile UI, Context, Redux
- Building Todo app. **Project Link**
- Building e-commerce system. **Project Link**
- **Certificate Link**

The National Telecommunication Institute (NIT) **07/2021 - 08/2021**
AI Summer Training *Egypt - remote*

- Learning data analysis using Python using Numpy, Pandas, and Matplotlib
- Learning how to deal with supervised learning models.
- **Certificate Link**

AI Projects

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

- The problem is a binary classification task aimed at predicting whether a customer will make a specific transaction in the future. Given historical data on customer transactions, Santander seeks to develop a predictive model to identify customers likely to engage in the specified transaction, regardless of the transaction amount.
- After processing the data and analysis, we tried to solve the problem using 5 models: Linear Regression, Adaboost, SVM, Random Forest, and XGboosting(decision tree boost).

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

- One of the aspects that differentiates Arabic is the diacritics. Diacritics are short vowels with a constant length that are spoken but usually omitted from Arabic text, as Arabic speakers usually can infer them easily. The same word in the Arabic language can have different meanings and different pronunciations based on how it is diacritized. Getting back these diacritics in the text is very useful in many NLP systems like text-to-speech (TTS) systems and machine translation, as diacritics remove ambiguity.
- We used two approaches to solve the problem: the first is to use a recurrent neural network (Bi-LSTM) with an embedding layer and the second approach is the CBHG architecture. You can find all the details about the project in the project repo on GitHub.

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

- During my internship at VNCR, I was working on a Blog writer Agent.
- The project aims to provide a website that helps to write blogs using a simple prompt.
- The user just inserts the blog title, the number of words required, and if any resources need to be specified.

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

- Machine learning project to build a real-time hand-detection project to detect the numbers and the arithmetic operations.
- We used SVM as a machine learning model ,and we got an accuracy of 90 percent.
- **My Role**: pre-processing "image enhancements", Accuracy Calculations

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

- A machine learning model to detect the numbers constructed with a hand with pre-processing on the image to enhance the accuracy, which is the most challenging part because the data set is so noisy. The pre-processing part is to extract the hand from the image with maximum accuracy. In the feature extraction part, we use HOG and LBP. Also, we use PCA for feature extraction. We use SVM as our machine learning model.
- **My Role**: pre-processing, which includes extracting the hand from the image using GMM and K-means. Also, I implemented the LBP algorithm in the feature extraction module.

Software Development Projects

Loan acceptance | *Big data, cloud computing, data analysis, python, Algorithms, EDA, pySpark* ***Project Link***

- Given the dataset from the U.S. Small Business Administration (SBA) comprising loan application information, the challenge is to develop a predictive model that effectively evaluates loan applications to determine whether they should be approved or denied.
- We followed the following steps to solve the problem:
  - Preprocessing of the data using Spark
  - EDA to visualize our results.
  - Get the association rules between features and visualize the results.
  - Further preprocessing based on EDA and association rules.
  - Apply KNN on the data using map-reduce to predict if the given loan will be accepted or not.
  - Use ML to solve the problem by applying: Logistic Regression, Random Forest, GBT, 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 is to build an indexer that optimizes in memory and time and achieves that using vectorized techniques and algorithms like IVF, LSH.

Reddit Clone | *Flutter, Dart, Bloc, Agile, Github* ***Project Link***

- Participated in developing the front end of a mobile application for Android using Dart and the Flutter framework.
- We were a team of twenty members containing backend, cross-platform, and DevOps sub-teams.
- Collaborated with team members using version control systems such as Git to organize modifications and assign tasks.
- **My Role**: System Authentication, Searching module, Setting, Unit testing
- Skills: Responsive Mobile app and website - Bloc Design Pattern- Unit Testing - Teamwork - Agile

Search Engine | *Java, OOP, Data Structures, Threading, MongoDB* ***Project Link***

- Build a Search Engine using mainly three components Crawler, Indexer, and Ranker.
- **My Role**: I worked on the Indexer which is a pre-processing before storing the data in the DB, and I participated in building the website.
- we got first place among all teams in this project because of the high performance of the code and how it manages the resources.

Hospital management | *C-sharp, SQL, MySQL, Database* ***Project Link***

- Building a Hospital Windows application system.
- System capabilities: Handle multi-users, Handle the privileges of each user, Make appointments for the patient, and Keep track of the patient's medical history.
- **My Role**: I participated in building the DB scheme, I built screens like a doctor, nurse, and patient screens.

E-Commerce System | *React-Native, JS, Context, Redux, Axios, Async-Storage, Github, Expo* ***Project Link***

- I built an online Store that gets the product using API and gives you the option to add and remove them to your cart to buy them.

Logic Simulator | *C++, OOP, Data Structure* ***Project Link***

- Built the application mainly for designing and simulating circuits and saving, copying, cutting, pasting, restoring, undoing, and redoing actions.
- Dealt with several object-oriented programming (OOP) concepts, including polymorphism, inheritance, abstraction, and encapsulation.

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.
Data analysis: NumPy, Pandas, Matplotlib, OpenCV, Scikit-learn, Streamlit
Developer Skills: Github, 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.

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