

# Peter Atef

Software Engineer

Giza, Egypt

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## Education

### Cairo University

Bachelor of Computer Engineering, **GPA: 3.6 of 4 (Excellent Grade)**

Sep. 2019 – Present

Graduation Year: 2024

## Technical Skills

**Programming Languages:** C++, C, Python, R, JavaScript, Dart  
**Data analysis:** NumPy, Pandas, Matplotlib, OpenCV, Scikit-learn, Streamlit  
**AI:** Keras, PyTorch, Langchain, OpenAI, Hugging Face, Vector databases, Streamlit.  
**Mobile development:** Flutter, React-Native, Kotlin.  
**Web development:** HTML, CSS, PHP, Javascript, Laravel  
**Databases:** MySQL, Firebase, MongoDB.  
**Developer Skills:** MATLAB, Github, Linux, SOLID, clean code  
**Others:** Microsoft Office, Teamwork, Presentation Skills.

## Relevant Courses

- |                                  |  |                              |                             |
|----------------------------------|--|------------------------------|-----------------------------|
| • OOP                            | • Image Processing                                   | • Probability and Statistics | • React-Native              |
| • Data Structures and Algorithms | • Harvard CS50's Artificial Intelligence with Python | • Discrete Math              | • Agile methodology (Scrum) |
| • Harvard CS50's Database        | • NLP  | • Computer Architecture      | • Parallel Computing        |
| • Operating systems              | • Networks   | • Machine Learning           | • Big Data                  |
|                                  |  | • Neural Networks            |                             |
|                                  |  | • Flutter                    |                             |

## Experience

### 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 very interesting 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'm a member of a mobile development team that is 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](#)

### NVIDIA

2022

Machine learning Intern

Egypt - remote

- Learning Fundamentals of Deep from engineers working at NVIDIA by applying on the supervised learning's pipeline using NVIDIA GPUs.
- NVIDIA DLI Certificate for the successful completion of Fundamentals of Deep Learning. **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](#)**

### 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**

## 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**

## Machine Learning Projects

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**Arabic Text Diacritization model** | *NLP, machine learning, Python, PyTorch*

***Project Link***

- One of the aspects that differentiate Arabic is diacritics. Diacritics are short vowels with a constant length that are spoken but usually omitted from Arabic text as Arabic speakers usually can infer it 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 CBHG architecture. You can find all the details about the project in the project repo on GitHub.

**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.

**Color detector** | *Pandas, OpenCV, Python.*

***Project Link***

- I built a color detector for videos and images program using OpenCV and Pandas.

## Software Development Projects

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**KidAI** | *Unity, Agile, Python, C sharp, machine learning, Github*

**In development**

- This is the graduation project that I'm currently working on which is a tool that teaches machine learning to kids from 8 to 18 years old using games!!
- The idea is to go through the machine learning pipeline starting from creating the data set and going through the training and validation process then testing the machine learning model inside the game environment.
- Skills: Responsive Mobile app and desktop - Unit Testing - Teamwork.

**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.

**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.

**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.

#### **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 optimized in memory and time and achieved that using vectorized techniques and algorithms like IVF, LSH.

#### **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.

#### **Game Engine** | *C++, OpenGL, GLSL, CMake*

***Project Link***

- Phase 1: Building a game engine using C++.
- Phase 2: Using the game engine to implement in a real game.
- **My Role:** I participated in building the search engine with my team which was a challenging task for us because we were implementing everything from scratch. Also, I built the lighting system in the game to control the game lights and finally, I participated in designing and implementing the game's main logic.

#### **Five-stages-RISC-Pipelined-processor** | *Computer Architecture, Verilog, Problem Solving*

***Project Link***

- Simulation to Processor Hardware using Verilog program and Model-Sim.
- **My Role:** I was the team leader for this project - I designed the interface between different modules and how they will communicate with each other- I designed the instruction set - I built the decode stage in the project - I participated in building the core module that handles the interactions with different modules.

### **Honors / Awards**

#### **Orange Digital Center (ODC)**

**summer 2022**

*Certificate Link*

*Project Link*

- I got a fourth place over about 50 other students in the Competitive Programming Hackathon by Orange Digital Center in C++.
- The competition was on a website called Coding Game on a game called Spider Attack.

#### **Cairo University: Faculty of Engineering**

**Spring 2023**

*Certificate Link*

*Project Link*

- My team and I got first place in 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

### **Certificates (*Link*)**

#### **React-Native the practical guide on Udemy**

**2024**

*29 hour course*

*Certificate Link*

#### **Flutter Course on Udemy**

**2022**

*72 hour course*

*Certificate Link*

#### **Python Course on Mahra-Tech**

**2023**

*Online Course*

*Certificate Link*

#### **FrontEnd Certificate from Udemy**

**2024**

*6 hour course*

*Certificate Link*

#### **Web development basics on Udacity**

**2022**

*20 hour course*

*Certificate Link*