



# YAZEED ABD ALKAREEM MSHAYEKH

Machine Learning Engineer / Co-Founder of MedFormer

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## EDUCATION

### The University of Jordan

Bachelor's program in Data Science (BS in DS)

Oct 2020 - Jun 2024

## EMPLOYMENT

### Machine Learning Engineer Training

Jan 2023 - May 2023

ShAI for AI | Training Details can be seen via: [https://github.com/yazeedmshayekh2/ShAi\\_Training](https://github.com/yazeedmshayekh2/ShAi_Training)

I underwent an extensive five-month training program with SHAI, specializing in machine learning. This training deepened my understanding of data preprocessing, handling various data types, implementing model pipelines, and training models. I undertook several projects to sharpen my skills in data manipulation and model optimization. A significant part of my learning involved researching and troubleshooting to resolve debugging issues and errors, further enhancing my problem-solving capabilities in this domain.

### Natural Language Processing Engineer Training

Mar 2024 - Present

SMSM for AI | Training Updates and Details can be seen via: <https://github.com/yazeedmshayekh2/SMSM-Internship>

Learned a lot about the workings of search engines, large language models (LLMs), Retrieval augmented generation systems, data annotation, LLMs dataset creation, Optical Character Recognition (OCR), PDF Mining tools. Learned how to build RAG systems from document reading until LLM text Generation. How to fine-tune LLMs in general and specifically for Arabic. Team working, how to split the work on the team members, give everyone a part of the success. Working now on dataset research paper and the whole system paper. Working now on a new, unseen from before, Arabic system related to LLMs and RAG. Working on ASR system for Arabic also, and learned about seamless4t and Whisper Models. Working on a Arabic annotated dataset.

### Co-Founder

Feb 2024 - Present

MedFormer a Startup Company | Startup page can be seen via: <https://www.linkedin.com/company/medformer>

A small startup company that mainly focuses on revolutionizing Healthcare with advanced AI solutions. Our expertise extends beyond standard AI applications. We delve into the exciting realms of Large Language Models (LLMs) and Multimodal LLMs, pushing the boundaries of what AI can achieve. Imagine intelligent systems that not only process vast amounts of text but also seamlessly understand and integrate visual information, opening doors to entirely new possibilities. Here, you could see an example about our upcoming system: [click here](#).

## RESEARCH PROJECTS

### MedFormer: A Progressively Aligned Biomedical Vision-Language Multimodal LLM with Efficient Adapters

Mar 2024

Unpublished yet. Draft will be added soon to my github: <https://github.com/yazeedmshayekh2>.

This paper proposes MedLaVIN, a novel approach for multimodal modeling that builds upon PaLM2-VAdapter and expands it to integrate text-only, speech, and vision modalities. MedLaVIN leverages a large pretrained language model architecture and trains lightweight adapter modules progressively to enable efficient alignment across modalities. We introduce speech encoders based on Whisper and text-to-speech decoders built on SpeechT5 into this framework. A small LLM is first tuned as a text decoder, then trained as a cross-modal adapter to encode speech and visual inputs. This allows swiftly adapting the LLM's strong language representations for multimodal reasoning. We evaluate on benchmarks for speech recognition, visual question answering, image/video captioning, and text-to-speech synthesis. MedLaVIN achieves state-of-the-art performance across these diverse tasks while using fewer parameters than prior models. Our work demonstrates the effectiveness of progressive adapter learning for aligning modalities in a scalable multitask LLM.

### Attendify: Automated Attendance System Using Tri-Architecture Fusion for Facial Recognition

Jan 2024

Unpublished yet. Draft will be added soon to my github: <https://github.com/yazeedmshayekh2>.

Our fully automated envisioned AI-based attendance system leverages camera technology within classrooms to capture images during each lecture, eliminating the need for instructors to use any manual or semi-automated methods for recording attendance. The proposed process initiates with a command issued by the instructor, triggering the camera to capture an image of the class. Subsequently, the captured photo undergoes processing through the Yolo-V9 detection model, which detects faces for all individuals present. The detected faces are then transmitted to the recognition model Resnet50, where each face's distinctive features are extracted and transformed into embeddings. These embeddings are subsequently compared with the database's existing embeddings, employing the third network architecture which is Siamese network for the comparison process (Similarity Search).

## NON-RESEARCH PROJECTS

### SilentVoice

Details can be seen via <https://github.com/yazeedmshayekh2/Continuous-American-Sign-Language-Translation>

Continuous American Sign Language Translation Using Transformer and Conformer Architectures, using Google's Competition Sign Language Dataset, this project tackles the lack of popularity of sign language, creating a solution that automatically translates Sign Language gestures into spoken language.

## LoreWeaver

Details can be seen via <https://github.com/Basel-anaya/LoreWeaver>

In Collaboration with my colleague Basel Anaya, we produced “A Novel Generation Multimodal LLM” called LoreWeaver, LoreWeaver utilizes Mistral LLM’s [1] powerful text generation capabilities while incorporating additional functionalities to provide users with more diverse and accessible experiences.

## RAGChat

Details can be seen via <https://github.com/yazeedmshayekh2/simple-local-RAG-from-scratch>

In this project, we'll build RAGChat, a RAG workflow that allows a person to query a 19 page PDF version of a RAG paper from Facebook and have an LLM to generate responses back to the query based on passages of text from the textbook.

## AMUN-RAG

Under Progress ...

RAG System, specialized in Arabic Language, specifically Egyptian dialect. We're going to build this system by fine-tuning an LLM on a hand-created annotated dataset, by combining the best choices of Large Language Models and Embedding Models that can deal perfectly with the Arabic documents.

# VOLUNTEERING AND INITIATIVES

## AI Content Writer

Jan 2023 - Feb 2023

ShAI for AI

I interned with the ShAI club for AI, where I focused on writing content about the latest developments in AI for about two months.

## Content Writer and Graphic Designer

Jan 2023 - Feb 2023

IEEE Computer Society | University of Jordan Branch

As a member of IEEE, I was involved in writing interesting content to connect with our community and share what IEEE is all about. This work helped me improve my writing and design skills. It also gave me a chance to work alongside professionals and be a part of the active IEEE community.

## Machine Learning Team Leader @ IEEE Geeks Team and Graphic Designer

Feb 2024 - Present

IEEE Computer Society | University of Jordan Branch

Learn about problem solving. I'm now a machine learning and data analysis team leader. Learned about gaming development, One of my gaming project can be seen via <https://github.com/yazeedmshayekh2/Games>

## Founder of JUREPO

Feb 2024

AI and Data Science Community Discord Server.

Details about the server can be seen via [linkedin post](#)

# CERTIFICATIONS

## Deep Learning Specialization

DeepLearning.AI. Consists of 5 courses. Details and Certificate can be seen via <https://github.com/yazeedmshayekh2/Coursera-Deep-Learning-Specialization>

## Machine Learning Specialization

Stanford University and DeepLearning.AI. Consists of 3 courses. Details and Certificate can be seen via <https://github.com/yazeedmshayekh2/Machine-Learning-Specialization-with-Coursera>

## LangChain: Chat with Your Data | Short Course

Given by Co-Founder and CEO at LangChain. Details and Certificate can be seen via [github repo](#).

## LangChain for LLM Application Development | Short Course

Given by Co-Founder and CEO at LangChain. Details and Certificate can be seen via [github repo](#).

## Natural Language Processing Specialization - Under Learning Yet

DeepLearning.AI. Consists of 4 courses. My progress can be seen via <https://github.com/yazeedmshayekh2/Natural-Language-Processing-Specialization>

# ACHIEVEMENTS

## First Place

Organized by the [STEAM Center](#) in collaboration with [Arab Robotics Association](#).

Me and My teammates secured the first spot In the Computer Vision category at the third Arab Olympiad for Artificial Intelligence. It was a remarkable gathering, with over 350 students from Jordan, Palestine, Qatar, Libya, Yemen, Egypt, Tunisia, Sudan, Algeria, and Lebanon. This event More details can be seen via [linkedin post](#).

# LANGUAGES

**Arabic** Native | Mother Tongue | Proficiency

**English** Very Good | Proficiency