Hossam Fares

Teaching Assistant

hossamfares180100@gmail.com
hossamFares180100
+20) 1114652236 / 1017373239
Hossam Fares | LinkedIn
Cairo

Summary

Results-driven AI researcher with 3+ years of experience in deep learning, machine learning, reinforcement learning, and natural language processing. Strong background in developing AI solutions for real-world applications and integrating machine learning models into Android systems. Currently a **Teaching Assistant at Benha Faculty of Computer and Artificial Intelligence and Benha National University**, supporting AI education, lab instruction, and student supervision. Huawei Certified in Artificial Intelligence (HCIA–AI). **Pursuing an MSc in Artificial Intelligence with a research focus on generative models.** Experienced in building deep learning applications, AI-driven mobile apps, and research-oriented prototypes. Committed to advancing innovative, scalable, and impactful AI technologies.

Professional Experience

2022/10 present
BFCAI(Full)

Teaching Assistant at Benha Faculty Of Computer And Artificial Intelligence, Benha University.
Computer Science Department:

- Taught AI topics, including deep learning, machine learning, and NLP, to undergraduate students.
- Mentored students on AI projects, supervised exams, and tracked performance analytics to support personalized learning and early identification of challenges.
- Delivered the HCIA-AI (Huawei Certified ICT Associate – Artificial Intelligence) course to undergraduate students during an intensive summer program
- Contribute to academic research with a focus on Generative AI and machine learning.
- Provide academic support and consultation to improve student outcomes.
- Provided practical training in Flutter, Machine Learning, and the HCIA-AI (Huawei Certified ICT Associate – Artificial Intelligence) course.

2024/02 present
BNU(part)

Teaching Assistant at Benha National University, Faculty of Computer Science, **Data Science, and AI Department**

- Teaching core AI courses include Deep Learning, Machine Learning, and NLP, with emphasis on modeling, optimization, and knowledge extraction.
- Designing and delivering lectures, tutorials, and hands-on labs where students implement neural networks, ML models.

2024/09–2025/02 **AI Research and Development**

Veszprem, Hungary **Pannonia University(Hungary)**

- Worked on AI R&D initiatives, driving innovation in healthcare cutting-edge machine learning solutions.
- Collaborate with European corporations and Hngarian research laboratories to design innovative solutions for complex challenges in healthcare and beyond.

Publication

Amr M. Nagy, Hossam F. Alsayed, Fady Maher & László Czúni, **"UMobile-Net: A Dual-Model Deep Learning Framework for Pill Image Detection"** manuscript under review.

Education

Master of Artificial Intelligence (Computer Science Department) | Sept 2023 – present Faculty of Computer And Artificial Intelligence, Benha University

Completed the preparatory year of the MSc in Artificial Intelligence and officially registered the research topic: "Enhancing Photovoltaic Panel Defect Detection with Deep Learning and Generative Synthetic Data." Currently working on deep learning–based defect detection, synthetic data generation, and model evaluation. Collaborating with faculty members on research design, experiments, and implementation. Focused on producing publishable results and contributing to advancements in computer vision, generative models, and renewable-energy AI applications.

Bachelor of Computer Science (Faculty of Computer Science and Artificial Intelligence, Banha University

Graduation Year: [2022 CGRADE: Excellent with Honor 90.8%]

Graduation Project: Dr Care: Comprehensive AI Healthcare Platform Featuring Medical Chatbot, X-Ray Analysis, and Patient–Doctor Interaction.

- Developed an AI-powered healthcare application integrating a medical chatbot and multi-modal disease detection, enabling users to identify potential conditions through conversation and automated analysis of X-rays (chest, heartbeat, skin cancer, brain tumor, Retinal OCT).
- Implemented deep learning models for medical image classification and built patient–doctor interaction features, including appointment scheduling, case posting, and real-time feedback from doctors, improving accessibility and efficiency of remote medical follow-up.

Erasmus+ Scholarship in Computer Science
Faculty of Information Technology, University of Pannonia, Hungary Sep 2024 – Feb 2025

- Completed an international exchange program focused on advanced computer science, reinforcement learning, and AI research.
- Collaborated with international faculty and participated in an AI lab project using generative models and Python-based tools.

Technical Skills

Data Analysis (Pandas, Matplotlib, SciPy, Plotly, Signal, and Text Analysis).
Software Development (C++, Python, OOP, SQL, Flask, Data Structures, Algorithm, Git, GitHub).
Applied Mathematics (Calculus, Linear Algebra, Probability, Statistics).
Machine learning and deep learning (Scikit-Learn, Pytorch, TensorFlow, Spacy, Cuda, Data Modeling, Model Optimization, and Evaluation, Generative Modelling, Transformers, Reinforcement Learning).

Soft Skills

- Problem-solving & Analytical Thinking: Adept at translating complex data into actionable insights, with experience in model optimization and evaluation.
- Project Management: Demonstrated ability to balance multiple roles, managing AI research projects, academic responsibilities, and client relationships.

Project

Chat with Your Documents (LLMs + RAG) with Hugging Face & Tkinter (Pannonia) . [GitHub Link]

- Built an AI-based system using **Hugging Face models** for chat with your documents
- Leverage MarianMTModel and MarianTokenizer from transformers to handle multilingual queries.(**Translate the user query from the original language to English**)
- Grammar and spelling correction (**Leverage spelling-correction-english-base and grammar_error_correcter_v1 from transformers to handle error in queries.**)
- Summarization **(Apply facebook/bart-large-cnn to summarize the detailed answers in English, then translate the summary back into the original language for concise responses.**)
- integrated with a Tkinter GUI for user friendly interaction and validation of input pdf.

Deep-Learning-Models-for-Classification. **[GitHub Link]**

- **Brain Tumor Classification** — Developed a deep learning model for accurate classification of brain tumors using medical imaging to assist diagnostic processes.
- **Retinal OCT Classification** — Created a deep learning system to classify retinal OCT scans, enabling early detection of various eye diseases.
- **Skin Cancer Classification** — Implemented AI models to classify skin lesions and identify potential skin cancers, supporting early diagnosis and improved healthcare outcomes.
- **Jaw Types Classification** — developed an AI-based classification model to automatically identify jaw alignment types, including prognathic, retrognathic, and normal.
- **Heart Beat Classification —** developed an AI model to classify heartbeat signals into Fusion, Supraventricular, Ventricular, and Normal categories.

NLP Projects. **[GitHub Link]**

- **Arabic Offensive and Toxic Comments —** implemented a natural language processing (NLP) model for detecting offensive and toxic language in Arabic social media comments.
- **English Offensive and Toxic Comments —** implemented an NLP-based classification model to detect offensive, toxic, and abusive language in English comments.
- **Disease Diagnosis Chatbot —** Designed and implemented an AI-powered chatbot for preliminary disease diagnosis. The system interacts with users through natural language, collects symptom data, and suggests possible conditions using a rule-based or machine learning backend.

Computer Vision Projects.

- **Pose Estimation —** Implemented real-time body and hand pose estimation using YOLOv8/YOLOv9 and Python, including angle calculation, keypoint tracking, and live video processing. **[GitHub Link]**
- **Object Detection (YOLO) —** Developed real-time object detection systems using YOLOv8 and YOLOv9 with custom datasets and pretrained weights. Implemented detection, tracking, and inference pipelines in Python and Jupyter Notebooks, achieving accurate results for diverse scenarios. **[GitHub Link]**
- **UNet Segmentation —** Developed deep learning-based medical image segmentation pipelines using U-Net for full-body and chest CT scans. Implemented end-to-end frameworks in Python and Jupyter Notebooks for preprocessing, model training, and mask prediction, enabling accurate segmentation of anatomical structures. **[GitHub Link]**
- **Face Detection & Recognition —** Developed multiple face detection and recognition systems using deep learning and classical computer vision techniques. Implemented models with MTCNN, VGGFace2, FaceNet, DNN, Mediapipe, Haar Cascades, and OpenCV DNN frameworks. Built end-to-end pipelines for face detection, recognition, and real-time video processing, leveraging Python, Jupyter Notebooks, pretrained weights, and custom training. **[GitHub Link]**

More Advanced Projects.

Arabic Meeting Summarization

- Developed a summarization system for Arabic meetings by translating datasets from Dialogsum.
- Leveraged **Bloomz 3b** and **LoRA** technologies to enhance summarization accuracy. Successfully processed Arabic datasets through efficient translation methods

Age Prediction from Facial Images

Developed a Convolutional Neural Network (CNN) model for age prediction using facial images, achieving an R^2 score of 0.70 through optimized model architecture and preprocessing techniques.

Machine Translation: English to Arabic

- Designed a Seq2Seq MT model based on the Transformer for translating English to Arabic.
- Achieved a BLEU score of 88, demonstrating high translation accuracy. Conducted human evaluation to validate results, achieving precision compared to benchmark translations.

Speech Emotion Detector

- Developed a system using Convolutional Neural Networks (CNNs) to analyze pre-recorded human audio and identify the speaker's emotions based on the sound.

Chatbot Development Using Transformer

- Designed and implemented a chatbot from scratch using the Transformer architecture to answer users.
- Trained the model on the **IMDB dataset**, leveraging movie reviews to build a conversational system capable of responding accurately based on userinput.

Languages

Arabic —Native **English** — Very Good