Yahya Mohamed Hamza

Address: Cairo, Egypt
Phone: +201207051837
Email: yahyamohamed2000@gmail.com
LinkedIn: https://www.linkedin.com/in/yahya-hamza-923575220
GitHub: https://github.com/yahyaHamza

Professional Summary

AI engineer and teaching assistant with a strong foundation in machine learning, natural language processing (NLP), and computer vision. Awarded first place in the 2023/2024 class at the Benha Faculty of Computers and Artificial Intelligence. Led all academic projects as the team leader, demonstrating strong project management skills and a proven ability to develop innovative AI solutions. Currently seeking to contribute to cutting-edge research and apply advanced AI technologies in real-world applications.

Education

Benha University – Faculty of Computers and Artificial Intelligence

Bachelor of Computers and Artificial Intelligence, **Computer Science Department**

Benha, Al Qalyubiah, Egypt | 2020 – 2024

- Awarded **First Place** in the 2023/2024 graduating class
- **CGPA:** 3.975/4.0 (Excellent with Honors)
- **Final Grade:** 96%
- **Graduation Project:** Interactive E-learning platform powered by AI – Grade: 100% (A+)

Information Technology Institute (ITI)

Menoufia, Egypt | July 2023 – August 2023

- **Track:** Machine Learning / Artificial Intelligence
- **Program Duration:** 120 hours

Work Experience

Teaching Assistant

Benha University – Faculty of Computers and Artificial Intelligence, Computer Science Department

Benha, Al Qalyubiah, Egypt | December 2024 – Present

- Assist in delivering undergraduate courses, including machine learning and IoT courses.
- Provide academic support to students, including tutoring, grading assignments, and leading lab sessions.
- Collaborate with faculty members in preparing course materials and coordinating class activities.

Technical Skills

- **Programming Languages:** Python (proficient), PHP, Dart, SQL, C / C++, Java, HTML, JavaScript, CSS, Assembly
- **Artificial Intelligence & Machine Learning:**
    - **Frameworks & Libraries:** PyTorch, TensorFlow, scikit-learn, spaCy, NLTK, regex, transformers, ultralytics, OpenCV
    - **Core Expertise:**
        - **Machine Learning:** Strong foundation in machine learning principles, including supervised and unsupervised learning, and deep learning techniques. Experienced in end-to-end AI pipeline management, encompassing data collection, preprocessing, feature engineering, model training, and evaluation. Skilled in hyperparameter tuning and optimizing model performance, with a focus on building efficient and scalable deployment pipelines for production environments.
        - **Natural Language Processing (NLP):** Proficient in text preprocessing, feature engineering, named entity recognition (NER), sentiment analysis, content classification, topic modeling, machine translation, information retrieval, document summarization, conversational agents, and few-shot learning techniques. Experienced in fine-tuning Large Language Models (LLMs) for task-specific applications.
        - **Computer Vision:** Proficient in image processing techniques using OpenCV, with extensive experience in developing and fine-tuning deep learning models for classification, detection, and segmentation tasks. Skilled in leveraging transformer-based architectures such as Vision Transformers (ViTs) for advanced vision applications. Capable of building complex computer vision models from scratch, optimizing their performance through customized pipelines, and deploying them in real-world scenarios.
- **Web Development:**
    - **Front-End:** HTML, CSS, JavaScript
    - **Back-End:** PHP, Flask, MySQL, XAMPP
- **Internet of Things (IoT) Development:**
    - **Hardware:** Arduino Uno, Arduino Mega, ESP8266, ESP32
    - **Protocols & Tools:** MQTT, Wi-Fi, Embedded-C, IoT system design
- **Version Control Systems & Collaboration:** Git, GitHub
- **Database Management:**
    - **Tools:** MySQL, Oracle, Firebase, SQL Server, SQLite, Sqflite
    - **Tasks:** Database design, optimization, query performance tuning
- **Software Engineering:** Knowledgeable in software development best practices, including writing clean, maintainable, and reproducible code with thorough documentation. Practical experience working within Agile frameworks, particularly Scrum, for team-based collaboration and project management. Skilled in iterative development, sprint planning, and delivering high-quality software solutions in dynamic environments.
- **System Analysis & Design:** UML, Use Case Diagrams, ERD, Activity Diagrams, DFD, Class Diagrams, Sequence Diagrams
- **Additional Skills:** Problem-Solving Skills, Interface Design & Prototyping, Networking & Security, Compilers Development, Computer Graphics with OpenGL, Algorithms & Data Structures
- **Tools & Platforms:** Anaconda, Kaggle, Google Colab, Visual Studio Code, Visual Studio, Apache NetBeans, draw.io, Balsamiq, Postman, Microsoft Project, MS Office Suite (Word, Excel, PowerPoint)

Soft Skills

- Self-Learning
- Leadership
- Ability to Work Under Pressure
- Teamwork
- Written and Verbal Communication Skills
- Cooperative
- Willingness to Learn

Certifications and Courses

- Machine Learning / Artificial Intelligence, Information Technology Institute – *Information Technology Institute (ITI), September 2023*
- Deep Learning for Natural Language Processing – *Udemy, September 2023*
- Generative AI: Learn about the next AI frontier – *Udemy, July 2024*
- CCNAv7 Introduction to Networks, CCNA 2022
- AWS Academy Cloud Architecting [63823]
- CCNA Enterprise Networking Security and Automation, CCNA 2022
- Flutter & Dart Complete Development Course [2023] [Arabic]

Projects

Graduation project: (Interactive E-Learning Platform powered by AI)

- **Role:** Team Leader & AI Developer & Frontend Developer
- **Description:** Developed an AI-driven interactive e-learning platform aimed at enhancing online education through improved engagement and personalized learning experiences. This project was tested with 40 users, ranging in age from 12 to 60 years old, and their feedback was entirely positive. All of them were enthusiastic about using the platform.
- **Key Features:** AI-Powered Exam Creation, Automatic Essay Grading, Progress Monitoring and Understanding Checks supported by AI, Hybrid Question Answering System, Offensive Speech Detection using a fine-tuned BERT model, Intelligent Chatbots, Speech Recognition and Text-to-Speech integration, and Clarification of complex concepts for students through innovative AI models and advanced algorithms.
- **Tools & Technologies:**
    - **AI:** Python, JavaScript, Flask, PyTorch, TensorFlow, scikit-learn, spaCy, NLTK, regex
    - **Backend:** ASP.NET MVC, Entity Framework Core, SQL Server, C#
    - **Frontend:** HTML5, CSS, JavaScript, Bootstrap, Sass, Pugjs

IoT Smart Home System

- Developed an intelligent IoT-based home automation system to enhance safety and convenience through automated, secure interactions with household devices. This project was selected as the best project in the Computer Science department.
- **Features:**
    - Behavior Detection: Equipped with a camera using YOLO model for **person detection** and **pose estimation** and fine-tuned **vision transformer** to detect unusual behaviors, such as children fighting, and sending alerts to parents.

    - **Face recognition** for Automatic Door Control.
    - Automated lighting based on **occupancy detection** using YOLO.
    - **Smoke and fire detection** with YOLO.
    - Real time monitoring for the home status using web-based dashboard.
    - Also, there are more features for safety, security and energy efficiency.
- **Tools & Technologies**: Python, Flask, PyTorch, TensorFlow, Transformers, OpenCV, ultralytics, HTML5, CSS, JavaScript, Bootstrap, Firebase, Embedded-C, Arduino, ESP8266, MQTT, Wi-Fi**.**

Telco-Customer-Churn-Prediction-Using-Machine-Learning

- **Description:** This project aims to predict customer churn for a telecommunications company using machine learning techniques. The goal is to identify customers who are likely to leave the service soon, enabling the company to take proactive measures to retain these customers.
- Implemented a comprehensive range of techniques, including statistical analysis, data visualization, data preprocessing, feature extraction, dimensionality reduction, classification, regression, and clustering, to analyze and interpret complex datasets.

Grammar Error Correction

Developed a grammar correction system using a custom-built LSTM-based encoder-decoder model in TensorFlow. Leveraged 2 million samples from Google's C4 dataset for training. The project involved data preprocessing, tokenization, model training, and evaluation. Additionally, inference function was built and a simple user-friendly GUI using Tkinter. The system effectively identifies and corrects grammatical errors, achieving significant improvements in error correction tasks.

Winton Website

- **Description:** Developed the Winton website to facilitate communication between freelancers and clients. The platform enables freelancers to showcase their skills and experience, allowing clients to review work and initiate contact. Clients can post job requirements with specific timeframes and prices, and freelancers can respond. This project promotes remote work opportunities and helps freelancers manage multiple clients and projects.
- **Technologies Used:** PHP, SQL, XAMPP, HTML, CSS, JavaScript

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Languages

- Arabic (Native)
- English (Fluent)