MARIAM MAHRAN

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EDUCATION

Master of Science in Artificial Intelligence
Liverpool John Moores University, Liverpool, UK, 2023

Bachelor of Science in Computer Science and Engineering
The German University in Cairo, Cairo, Egypt, 2020

EXPERIENCE

Full Stack Developer
Safer Management, Texas, USA, 2022 - Present, Remote

- Led as the Front-End Technical Lead for 2 major projects simultaneously, ensuring successful project delivery within the specified timelines.
- Migrated old and complex code to a new, streamlined version, reducing the ratio of old dead code by around 40% and simplifying the existing codebase. This optimization helped improve code maintainability and overall system performance.
- Implemented all projects using the React framework, leveraging its capabilities to deliver highly interactive and responsive user interfaces.

Full Stack Developer
Nodogoro, San Francisco, USA, 2020 - 2022, Remote

- Managed and successfully developed 4+ projects for international clients spanning different time zones, ensuring seamless communication.
- Implemented responsive web applications using a tech stack that includes React, TypeScript, Redux, and various other technologies.
- Maintained a strong focus on writing clean and maintainable code throughout the development process.

Junior Front-End Developer
DREIDEV, Cairo, Egypt, 2018-2019, on-site

- Acquired proficiency in constructing web applications using 2 popular JavaScript frameworks, React.js and Vue.js.
- Advanced skills in JavaScript, HTML, CSS, and various JavaScript libraries, strengthening my ability to create engaging user interfaces.

Junior Teacher Assistant
The German University in Cairo (GUC), Cairo, Egypt, 2017 – 2018, On-site

- Applied strong Python knowledge to effectively teach a class of 20+ students how to apply programming concepts in real-world scenarios, enhancing their practical skills.
- Conducted 2 interactive lab sessions a week, guiding students through problem-solving exercises.

PROJECTS

Bird Species Classification Web Interface Using Flask
Liverpool John Moores University, Liverpool, UK, 2023

A fully dockerized Flask web interface for bird species classification using TFServing and MySQL. The classification model is a Faster R-CNN trained using transfer learning from the Tensorflow model zoo and further optimized on a dataset of 3000 images specially curated for the task of the detection and classification of 3 distinct bird species. The model achieved inferencing accuracy of 91% and a mAP@0.75IOU of 77%.

Machine Learning-Based Gun Detection System for Urban Settings
Liverpool John Moores University, Liverpool, UK, 2023

This project develops a gunshot detection system for urban environments using audio data analysis and machine learning. It involves two approaches: a 2D CNN on mel-spectrograms with 73% accuracy but weak in identifying gunshots, and a 1D CNN on 1D feature vectors with 80% overall accuracy and 99% accuracy in detecting gunshots, but with a 50% recall score for gunshots. Improvements include data augmentation, class balancing, hyperparameter tuning, and ensemble methods to enhance sensitivity in accurately detecting and classifying gunshot sounds.

GPU-Based Machine Learning for Higgs Boson Process Classification
Liverpool John Moores University, Liverpool, UK, 2023

Implemented a GPU-accelerated machine learning solution for discriminating between Higgs boson signal and background processes in high-energy physics data. Utilized the UCI Higgs dataset with 11 million instances and applied data pre-processing techniques. Trained and evaluated three models for comparison, optimizing hyperparameters through grid search. XGBoost model was selected, achieving a 74% accuracy rate.

Discrimination in Dropout Prediction Systems
Hochschule für Technik und Wirtschaft, Berlin, Germany, 2019

The bachelor's project explores the emerging issue of discrimination in Artificial Intelligence. The thesis delves into the fundamental concepts of AI, fairness, and learning analytics and employs diverse machine learning algorithms to implement 5 dropout prediction systems with average accuracy of 83%.

SKILLS

Python **TensorFlow** **ScikitLearn** **Numpy** **Pandas** **RAPIDS** **DASK** **Flask** **Docker** **Java** **MySQL** **Neural Networks** **XGBoost**

Computer Vision **REST APIs** **JavaScript** **React.Js** **Agile** **GitHub/Bitbucket** **Communication presentation** **Teamwork**