





MARIAM MAHRAN

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EDUCATION

Master of Science in Artificial Intelligence

 Liverpool John Moores University, Liverpool, UK

 2023

 Master of Science, With Distinction

Bachelor of Science in Computer Science and Engineering

 German University in Cairo (GUC), Cairo, Egypt


 2020

 Excellence with honors

EXPERIENCE

Full Stack Developer

Safer Management

 2022 – Present

 Texas, USA

 Fully 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

 2020 – 2022

 San Francisco, USA

 Fully remote

- Managed and successfully developed 4+ projects for international clients spanning different time zones, ensuring seamless communication.
- Built 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

 2018 – 2019

 Cairo, Egypt

- Acquired proficiency in constructing web applications using 2 popular JavaScript frameworks, React.js and Vue.js.
- Gained a solid understanding of functional programming concepts.
- Advanced skills in JavaScript, HTML, CSS, and various JavaScript libraries, strengthening the ability to create engaging user interfaces.

Junior Teacher Assistant

German University in Cairo (GUC)

 Oct 2017 – Jan 2018

 Cairo, Egypt

- 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, where I facilitated engaging discussions on new programming concepts, guided students through problem-solving exercises, and maintained a positive and inclusive learning environment.

SKILLS

Python Docker TensorFlow ScikitLearn Numpy Pandas RAPIDS DASK Flask Java MySQL
Neural Networks XGBoost Computer Vision REST APIs JavaScript React.Js Agile GitHub/Bitbucket
Problem Solving Communication and presentation Teamwork

PROJECTS

Interspecies Money: A Comprehensive Approach to Orangutan Conservation Using Deep Learning for Species Monitoring

Liverpool John Moores University, Liverpool, United Kingdom, 2023

This project addresses the critical challenge of orangutan conservation, given their endangered status due to habitat loss and other threats. The innovative concept of "interspecies money" was explored, involving the assignment of digital currency to protected wildlife. An AI solution, primarily the Faster R-CNN model, was developed to monitor orangutan populations. The model demonstrated impressive accuracy, with an 86% identification rate and 84% counting accuracy. It also showed high localization precision. This research contributes to the preservation of orangutans and highlights the potential of interspecies money to engage local communities in conservation efforts while using advanced technology for monitoring and protection.

Bird Species Classification Web Interface Using Flask

Liverpool John Moores University, Liverpool, United Kingdom, 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%.

Link to UI repository: <https://github.com/mariamkhamran/bird-classifier-ui>

Link to model repository: <https://github.com/mariamkhamran/bird-classifier-model>

Machine Learning-Based Gun Detection System for Urban Settings

Liverpool John Moores University, Liverpool, United Kingdom, 2023

Used audio data analysis and machine learning techniques to develop a gunshot detection system for urban environments. 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.

Link to project repository: <https://github.com/mariamkhamran/gunshot-detection-system>

GPU-Based Machine Learning for Higgs Boson Process Classification

Liverpool John Moores University, Liverpool, United Kingdom, 2023

Designed 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. Selected XGBoost model as the better suited model task, achieving a 74% accuracy rate.

Link to project repository: <https://github.com/mariamkhamran/higgs-boson-discrimination>

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%.

Key Words Extraction Model (NLP)

German University in Cairo (GUC), Cairo, Egypt, 2017

Created a model that detects all keywords in a given context using NLTK, scikit-learn and Python, using the multinomial Naive Bayes classifier, Logistic regression, Support vector machine and Neural Network, calculating the accuracy, f-score and precision for each. The dataset used was "Hulth2003" and the accuracy achieved for the model was 78.9%.

LANGUAGES: Arabic NATIVE English FLUENT German ELEMENTARY