Abdulrahman Adel Ibrahim

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Portfolio · Linkedin · Kaggle · HackerRank · Github

Work Experience

Omaline | Machine Learning Engineer   Remote | Jan 2024 - Present

- Led development of search engine using Large Language Models (LLMs), enhancing relevance.
- Engineered algorithms to optimize search result ranking, boosting user engagement.
- Orchestrated large-scale web scraping for data acquisition and model training.
- Fine-tuned LLMs with V100 GPUs for efficient processing of datasets.
- Built machine learning model for product categorization across various categories and subcategories.
- Collaborated cross-functionally to align improvements with user needs.
- Conducted rigorous testing to ensure performance and scalability.
- Contributed to technical strategy for enhancing search capabilities.

Aprcot | Machine Learning Intern   El Dokki, Cairo | Aug 2021 - October 2021

- Developed a prototype for an Arabic Automatic Speech Recognition (ASR) system.
- Designed and implemented an encoder-decoder architecture based on the Transformer model for the custom acoustic model of the ASR prototype.
- Implemented a language model that achieved a notable 12% Word Error Rate (WER) on the Mozilla Common Voice dataset.
- Utilized Google Cloud Platform (GCP) with GPU for efficient model training, optimizing computational resources.
- Collaborated with the development team to contribute the ASR prototype for integration into our chatbot, enabling transcription of received audio files.

Projects / Open-Source Contributions

Next Generation Smart-Grid Meter (NSGM)   *Graduation Project, Pytorch, Embedded Linux*

Key Contributions:

- Help with the hardware design of the smart meter.
- write a c++ script to collect data from the smart meter and send it to the cloud.
- Build a deep learning model to forecast the power consumption of the connected loads.
- Using variational autoencoder model for non-intrusive load monitoring.
- develop an algorithm for harmonics and anomalous detection.

Violence Detection in YouTube Videos ⍉   *Tensorflow, OpenCV, FastAPI*

- Coded vision transfomer (ViT) architecture for Videos from scratch.
- Trained the model on a diverse YouTube dataset without using pre-trained weights.
- Achieved 85% accuracy in real-world video scenarios.
- Implemented a FastAPI application for model deployment.

OpenVINO ConjugateTranspose Operation Support ⍉   *C++, Pytest, TensorFlow, OpenVINO*

Intel Corporation / OpenVINO Contributor

- Implemented ConjugateTranspose operation in TensorFlow Frontend for Intel's OpenVINO.
- Extended TF Frontend with corresponding loader for OpenVINO.
- Handled complex tensors for compatibility with OpenVINO.
- Conducted rigorous unit testing across various inputs.
- Contributed to enhancing OpenVINO for Intel platform deployment.

Predict Defects in C Programs k   *Scikit-learn, Pandas, Matplotlib, Optuna*

- Conducted in-depth exploratory data analysis (EDA) to extract insights from the synthetically generated datasets.
- Implemented an ensemble approach, combining multiple machine learning models to enhance predictive performance.

- Fine-tuned individual models and optimized hyperparameters to achieve superior predictive accuracy.
- Achieved a notable AUC-ROC score of 0.794, securing a top 9% position on kaggles' private leaderboard.

Improve a Fixed Model k   *Kaggle Competition, pandas, sklearn*
- Applied a data-centric approach, conducting comprehensive EDA to understand synthetic datasets and identify improvement areas.
- Employed anomaly detection to enhance dataset quality by addressing anomalies.
- Implemented feature selection to identify crucial features for model enhancement.
- Mitigated outlier impact via data clipping during model training.
- Utilized cross-validation with RMSE metric to evaluate model performance effectively.

SKILLS

Programming Languages:	Python (main language), C++, Java
Deep Learning Frameworks:	TensorFlow, PyTorch, Scikit-learn
Machine Learning Capabilities:	Pandas, NumPy, Matplotlib, Seaborn
Deployment:	Cloud Platforms (AWS, GCP), Docker, Kubernetes, Flask, FastAPI
Software Engineering:	Object-Oriented Programming (OOP), Data Structures, Algorithms
Databases:	SQL (MySQL, PostgreSQL)
Machine Learning Operations (MLOps):	Monitoring, Scaling, Model tracking, Performance optimization
Statistical Analysis:	Hypothesis Testing, Regression Analysis, Time Series Analysis
Natural Language Processing (NLP):	Text Mining, Sentiment Analysis, Hugging Face Transformers
Computer Vision:	OpenCV, Image Processing, Object Detection, Image Classification

PUBLICATIONS

Hassan Hosny, Hadeer A., **Abdulrahman A. Ibrahim**, Mahmoud M. Elmesalawy, and Ahmed M. Abd El-Haleem. 2022. **"An Intelligent Approach for Fair Assessment of Online Laboratory Examinations in Laboratory Learning Systems Based on Student's Mouse Interaction Behavior"** Applied Sciences 12, no. 22: 11416. https://doi.org/10.3390/app122211416

N. E. -D. M. Mohamed, M. M. El-Dakroury, **A. A. Ibrahim** and G. A. Nfady, **"IoT Next Generation Smart Grid Meter (NGSM) for On-Edge Household Appliances Detection Based on Deep Learning and Embedded Linux,"** 2023 5th Novel Intelligent and Leading Emerging Sciences Conference (NILES), Giza, Egypt, 2023, pp. 410-415, https://doi.org/10.1109/NILES59815.2023.10296567

ACCOMPLISHMENTS

Smart Cities Hackathon   Benha University
Ranked 2nd in Smart Buildings Track + Best Use of Geospatial Technology Award (Certified)   Mar 2022
Applied Project: "Smart Geofencing System for Monitoring Workplaces & Service Areas"

Multi-Theme Climate Change Challenges Hackathon   Helwan University
Ranked 2nd in AI Solution Track (Certified)   Sep 2022
Applied Project: "Vehicles Fuel Consumption Analysis and Reduction"

Kaggle Notebooks' Expert   kaggle
Recognized for writing informative notebooks.   Aug 2023

CERTIFICATES

Computer Vision nanodegree (Certified)	Udacity - Apr 2021
Deep Learning Specialization (Certified)	Coursera - Aug 2020
Machine Learning Engineering for Production (MLOps) (Certified)	Coursera - Dec 2023

EDUCATION

Helwan University   Helwan, Cairo
BSc Computer Engineering   Sep 2017 - Jun 2022

LANGUAGES

- **Arabic** [Native]   - **English** [Fluent]   - **German** [Elementary proficiency]