Ahmed Salim

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Education

University Technology Malaysia — Johor Bahru, Malaysia
Master of Science in Data Science — *May. 2022 – May 2024*

Blinn College — Khartoum, Sudan
Bachelor of Engineering in Electrical and Electronics, Minor in communication — *Aug. 2013 – May 2018*

Experience

Machine Learning Engineer — July 2024 – Present
STEM-Away — *Remotely, USA*

- Led a team of 7 international students to develop GDAP, a Gene-Disease Association Prediction pipeline and a Streamlit app for model training and prediction analysis
- Fetched gene-disease data using EFO from the Open Target Platform and Protein-Protein Interaction data from the STRING database
- Constructed a bigraph with NetworkX to identify positive/negative edges and merged datasets for analysis
- Experimented with multiple algorithms for node embeddings, graph structure capture, and edge feature engineering

Graduate Research Assistant — Mar. 2023 – Feb 2024
Universiti Teknologi Malaysia — *Johor Bahru, Malaysia*

- Developed a deep learning-based solution for automating tomato plant disease detection using advanced image segmentation
- Enhanced the vision transformer, Segment Anything Model (SAM) with HSV color thresholds and OpenCV to improve segmentation accuracy for tomato leaf images
- Fine-tuned VGG16 via transfer learning, achieving classification accuracy of 99.44%
- Developed a FastAPI web interface for plant disease detection, enabling instant image segmentation and classification

Projects

Unlocking SQL | *Python, MySQL, Generativeai, Streamlit* — Nov. 2024

- Published research on transforming natural language into SQL queries using Generative AI, making database querying more accessible for non-technical users
- Explored two techniques: schema inference with prompt engineering and Retrieval-Augmented Generation (RAG) to reduce hallucinations and enable LLMs to generate accurate SQL queries
- Developed a Streamlit app for demonstration and provided both code and the research paper for public use

Multi-Model HAR | *Python, TensorFlow, Keras* — Sep. 2024

- Developed a multi-task functional model for two tasks. To classify actions across 40 classes (multi class), and to determine if more than one person is in the image (binary).
- Experimented with various pretrained models, using fine-tuning and transfer learning techniques
- Implemented different output layer configurations, including simple dense layers, branching layers, shared features, and common branches for multi-task learning

Technical Skills

Languages: Java, Python, C/C++, SQL (Postgres, MySQL), JavaScript, HTML/CSS, R
Frameworks: React, Node.js, Flask, FastAPI, Django, FastAPI
Developer Tools: Git, Docker, TravisCI, Google Cloud Platform, VS Code, Visual Studio, PyCharm, WSL, LaTeX
Libraries: scikit-learn, tensorFlow, torch, transformers, pandas, numpy, matplotlib

Awards

- *Outstanding Solution Implementation Guide, in NLP Projects Expo 2024* — Nov. 2024
- *Top performer at Level 1, of the EY Open Science Data Challenge 2023* — May 2023