Ayoub El-Niss

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PROFESSIONAL EXPERIENCE

Jordan Open Source Association, *Data Scientist* 2024 – present

- Fine-tuning pre-trained language models, including transformer-based architectures, to accurately detect gender-based hate speech in diverse Arabic dialects on social media.
- Developing and implementing deep learning architectures to classify and detect gender-based hate speech.
- Building piplines for data extraction, pre-processing, cleaning and annotation.
- Conducting data collection and preprocessing, including text normalization and dialect identification.
- Analyzing model performance and conducting error analysis to improve accuracy and precision.
- Utilizing natural language processing techniques to enhance text classification.

Jordan University of Science and Technology, 2023 – present

Artificial Intelligence Researcher

- Spearheaded the development of a pioneering deep federated learning model, achieving an 85% reduction in false positive rates for Multimodal disaster event classification (text and images).
- Engineered a deep learning model architecture optimizing performance and achieved a 20% increase in efficiency.
- I first authored and published a research paper at a peer reviewed international conference, contributing to the advancement of artificial intelligence.
- Working on projects focused on optimizing generative adversarial networks (GANs) to reduce statistical heterogeneity in federated learning.
- Proposed a new aggregation approach that reduces training rounds by 67% and increases accuracy by 10% compared to other well known approaches like FedAvg.

EDUCATION

Jordan University of Science and Technology, *BS in Computer Science* 2020 – 2024

Cumulative Average: 3.6/4.0.

PUBLICATIONS

Ayoub El-Niss, Ahmad Alzu'bi, and Abdelrahman Abuarqoub. 2023., 2023

Multimodal Fusion for Disaster Event Classification on Social Media: A Deep Federated Learning Approach. In Proceedings of 7th International Conference on Future Networks & Distributed Systems (ICFNDS'23). December 21-22, 2023, Dubai, UAE. (ICFNDS). ACM, New York, NY, USA.

This paper explores the use of federated learning to classify disaster events on social media using captioned images. I leveraged a federated learning framework, incorporating deep embeddings from BERT models and image features from ResNet. Through collaborative efforts among decentralized clients, the model achieves an accuracy of 85.1% and F1-score of 85.2%, contributing to the field of federated learning for disaster event classification and analysis.

PROJECTS

Menu Query RAG, *Enhanced Menu Inquiry System with RAG Model* 2024

A menu query system powered by the RAG (Retrieval-Augmented Generation) model facilitates seamless menu item inquiries.

Weather Image Classification 2023

The project includes exploratory data analysis, development and evaluation of a multi-class classification deep learning model to detect weather conditions in images, and the development of an API to serve the trained model.

Bitcoin Cryptocurrency Market Analysis 2022

Conducted a comprehensive analysis of the cryptocurrency market, evaluating key factors such as market trends, competitor performance, currencies with growth potential.

SKILLS

Programming Languages — *C++/ Python*, **Framworks** — *Flower, PyTorch, Pandas, NumPy, Matplotlib, Seaborn, scipy.stats, Scikit-Learn, TesnorFlow, FastAPI, and Streamlit.*, **Tools** — *Git/ Github, LInux, Bash, Docker*, **AI/ ML Techniques** — *Deep Learning, Federated Learning, Data Analysis, Data Synthesis, Generative AI, Computer Vision, and NLP*