Youssef Reda

Junior AI Engineer

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Profile

AI Engineer specializing in chatbot development, RAG systems, reranking models, and data retrieval optimization. Experienced in deploying and fine-tuning AI models, implementing routing techniques, and leveraging prompt engineering to improve natural language understanding. Skilled in managing large datasets, optimizing retrieval pipelines, and integrating diverse data sources to build efficient, data-driven solutions.

Education

Bachelor of Electronics & Communication Engineering, Alexandria University   2019 – 2024
Alexandria, Egypt   **CGPA: 2.89**

Skills

- **Programming:** Python, SQL, Java, C++, C
- **Libraries:** Numpy, Pandas, Scikit-learn, TensorFlow
- **Tools:** Jupyter, PowerBI, MATLAB, Git
- **Data Science:** NLP, ML, LLMs, ETL, LangChain

Courses

- Data Scientist Nanodegree (Udacity)
- Machine Learning Specialization (Coursera)
- NLP with attention models (Coursera)
- Tools and Agents with LangChain (Deeplearning.ai)

Work Experience

Data Science Intern – Hindsight Technology Solutions (Remote, Dubai)
Nov 2024 – Present

- Developed a high-accuracy **Fake News Classifier** (F1: 0.9913): ⌂
  - **Data Collection:** Scraped real news, generated fakes using LLMs, and incorporated Kaggle datasets.
  - **Model Selection:** Evaluated transformer models (BERT, MPNET).
  - **Deployment:** Integrated with **Streamlit** for single/batch article classification.
  - **Automation:** Built inference script for single/batch article classification, with unit tests.
- Improved runtime of a **700-class video classifier** by 40%, combining CLIP-based vision and audio models via parameter optimization and error analysis.

Projects

- **Emergency Assistance & Parking System (Graduation Project)**
  Enhanced Autonomous Automotive Safety Through Facial and Awareness Recognition, mentored by Valeo. Utilized machine learning, deep learning, and image processing techniques with TensorFlow and OpenCV for facial recognition and road image processing.

- **Chatbots**
  Developed chatbots using FAQ and product datasets, leveraging web scraping for data extraction. Implemented a **RAG system** (Retrieval-Augmented Generation) with **LangChain**, incorporating **routing techniques** to optimize query handling and API integration. Deployed the solution across **Facebook comments, messages, and WhatsApp** for real-time user interaction.

- **Starbucks Capstone Challenge (Udacity Nanodegree)** ⌂
  Developed a machine learning system using **K-Means clustering** and **Random Forest** to recommend personalized offers based on customer demographics.

- **Recommendations with IBM** ⌂
  Built a recommendation system using **rank-based**, **collaborative filtering**, and **matrix factorization** techniques to enhance recommendation accuracy.

- **Disaster Response Pipeline Project** ⌂
  Built an **NLP-based pipeline** to classify disaster messages with machine learning. Deployed a **Flask web app** for real-time classification.

Extra-Curricular Activities

IEEE SSCS Alexandria Student Chapter, PR (Public Relations) Head   2021 – 2023
Alexandria, Egypt

Languages

English (C1, IELTS 7.0), Arabic (Native)