

Omar Essam

Artificial Intelligence Research Engineer

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Technical Skills

Proficient:

- Python
- PyTorch (+ PyTorch lightning)
- Docker
- Transformers
- Pandas
- XGBoost
- Scikit-Learn

Comfortable:

- Scala
- GCP
- Spacy
- SQL

Familiar:

- PySpark
- Kubernetes
- MLFlow
- Streamlit
- RDF Ontologies

Courses

- Functional Programming Principles in Scala [Fall 2021]
- CS224W: Machine Learning with Graphs [Fall 2021]
- CS224n: Natural Language Processing with Deep Learning [Summer 2016]
- CS224U: Natural Language Understanding [Spring 2021]
- Fast.ai: Practical Deep Learning for Coders [Fall 2019]
- Computer Vision [Fall 2016]
- Bioinformatics [Spring 2017]

Education

BEng., Computer Engineering
Ain Shams University
2012 - 2017 | Cairo, Egypt

Summary

Artificial Intelligence Research Engineer with 4 years of experience in researching, planning, and building data driven solutions for problems in the healthcare domain. I specialize in Natural Language Processing and Understanding (NLP & NLU) where the goal is to extract and interpret information from unstructured data.

Experience

August 2018 - Present **Artificial Intelligence Research Engineer** Mendel.ai

- Transformed real world clinical data into a machine readable format using NLP techniques: In domain Named Entity Recognition and Relation Extraction
- Achieved a state-of-the-art clinical de-identification engine that is HIPAA compliant using a combination of Sequence tagging using LSTM + CRF and rule based systems
- Engineered metrics to evaluate crowd sourced annotations and measure Inter-rater Reliability along with directing annotators to the correct guidelines
- Collaborated with physicians, oncologists, pharmacists, vets, and other domain experts in order to tailor AI based solutions that can transform, query, and understand raw clinical documents

[Python](#), [PyTorch](#), [Keras](#), [XGBoost](#), [Transformers](#), [Spacy](#), [Ontologies](#)

July 2012 - Present **Freelance AI Engineer** Upwork

- Implemented NLP APIs using state-of-the-art transformers like BERT, T5, MarianMT. Also implementing text classification, document similarity, question answering, and text summarization
- Achieved better than random stock market prediction strategies using ML

[Transformers](#), [FastAPI](#), [Flask](#), [DeepPavlov](#), [PyTorch](#)

June 2016 - October 2016 **Data Science Intern** Cognitev

- Engineered a product linkage system using ML to merge data coming from different sources
- Deployed an Aspect Oriented Sentiment Analysis PoC using Recursive Neural Tensor Networks
- Create data collection/normalization/cleaning pipelines from multiple sources

[Scikit-learn](#), [XGBoost](#), [D3.js](#), [Stanford CoreNLP](#), [Pandas](#)

Projects

August 2016 - **Arabic and Multilingual NER**

June 2017 Graduation Project

- Researched and achieved a working zero shot NLP model that is capable of doing multilingual NER and evaluated it on Arabic Zero-Shot Cross-Lingual NER Using Orthogonal Transformations of Word Embeddings

[Keras](#), [Numpy](#), [Django](#)

July 2017 - **Kaggle Competitions** Kaggle

- Competed in various regression, classification, and NLP Kaggle competitions and reached top 20 contenders.

[XGBoost](#), [CatBoost](#), [LightFM](#), [Keras](#), [PyTorch](#), [Scikit-learn](#)

Publications

- Wesam H AlSabban, Saud S Alotaibi, Abdullah Tarek Farag, Omar Essam Rakha, Ahmad A Al Sallab, and Majid Alotaibi. Automatic categorization of islamic jurisprudential legal questions using hierarchical deep learning text classifier. International Journal of Computer Science Network Security, 21(9):281–291, 2021.
- Amr A Munshi, Wesam H AlSabban, Abdullah Tarek Farag, Omar Essam Rakha, Ahmad A Al Sallab, and Majid Alotaibi. Towards an automated islamic fatwa system: Survey, dataset and benchmarks. 2021.