Muhammad Usama Irfan

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WORK EXPERIENCE

Machine Learning Engineer (NLP), Algo.ai **Present**

Projects:

- **Named Entity Recognition and Intent Classification:** perform the task of identifying relevant entities present in natural language text and process them and using these entities classify the intent which is a report associated with the business question asked by the user.
- **Natural Language Query Engine:** convert the identified business question into entities and then those entities are translated into DAX query to retrieve results from the Analysis Service.
- **Conversational AI Agent:** an AI powered chat bot using Microsoft Bot Framework, enhanced with ability of chit-chatting with user using GPT-3 and NLQE to interact with the user and answer any business-related queries that a user has.

Machine Learning Engineer, Senarios Pvt Ltd **6 Months**

Projects:

- **Gift Recommendation Engine:** led development for building a recommendation system for recommending Brands based on user demographic features using some latest Deep Learning framework like GCN, that we used for Matrix Completion.
- **Named Entity Recognition:** detect relevant entities in the data like Agent name, Customer Name, Address, Phone no etc. After detection of entities the next step was of detecting intent of the utterance.
- **Image Similarity Engine:** create a similarity engine to retrieve top-k results for given image from a collection of images. Used CNN based approaches to get features from images and then similarity metric for comparing distance between images.

Research Fellow, Intelligent Machines lab, ITU **8 Months**

Projects:

- **Detecting Toxicity in Urdu Language:** identify toxic words that can be defined as curse words, abusive language or hate speech in Urdu language. Such identification can help us reduce bullying on social media and other platforms and perpetrators can be taken action against.
- **Detection of Anomaly in X-Rays:** was aimed to identify anomalous samples from a given data distribution at test time. During training the model is trained on Normal medical data and learns the normal space with which we compare the test sample whether if it belongs to the distribution or not, if not then it will be considered as anomalous sample.

Freelance Data Scientist **1.5 years**

Tasks:

- Performing tasks related to Data Cleaning and Preparation, Data Analysis and Data Visualization. Performing classification and prediction tasks on data using Machine learning and Deep Learning techniques.
- Worked on projects involving some Text Classification tasks, Sentiment analysis, NER, Neural Punctuation, and Object detection for guns in images.
- Worked on Punctuation correction project using BERT for Turkish language.

EDUCATION

Masters in Computer Science **2019 – 2022**

Information Technology University (ITU), Lahore

Major Subjects:

Deep Learning | Computer Vision

Bachelors in Computer and Information Science **2015 - 2019**

Pakistan Institute of Engineering and Applied Science (PIEAS), Islamabad

Major Subjects:

Computational Intelligence | Pattern Recognition | Artificial Intelligence

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PROJECTS

06/2020 - 07/2020 **Covid-19 Tweets Sentiment Analysis**

The Goal of this project was to perform sentiment analysis on Covid19 related tweets from different regions of the world to see how people felt about the pandemic and analyze the trend of emotions in different regions of the world during the Global Pandemic.

05/2020 - 06/2020 **Chest X-ray Analysis**

The aim of this project was to perform classification task on Covid-19 chest X-ray data. The aim was to classify samples into three categories namely normal, pneumonia and Covid-19.

10/2018 - 12/2018 **Learning to See in the Dark**

The objective of the project was to understand and work on a deep learning model for enhancing the image quality of low exposure images using CNN.

CORE TECHNICAL SKILLS

Data Wrangling, Exploratory Data Analysis, Machine Learning, Classification, Regression, Clustering, Computer Vision, NLP, Deep Neural Networks, Recommendation Systems.

Language: Python

Data Preparation: Pandas, Numpy, NLTK, PIL, Scipy

Data Visualization: Seaborn, Matplotlib, Plotly

ML Framework: Sklearn

Deep Learning Frameworks: Pytorch, Tensorflow, Hugging face, Colab, OpenCV

CERTIFICATES	Introduction to Data Science in Python (Coursera). Introduction to Tensorflow for Artificial Intelligence. Machine Learning and Deep learning Python for Data Science (IBM).
CO-CURRICULAR ACTIVITIES	Member of Institute of Electrical and Electronic Engineer (IEEE). Part of Management team for IEEE event CUST. Participation in Sports events (Football). Interest in Painting and Sketching.
REFERENCES	Available on Request.