

Isham Rashik

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I have been residing in Dubai, UAE since 1997, where I completed my entire education, from primary school to obtaining a Master's degree. I possess more than 5 years of professional experience which involves usage and building of state of the art technology. Currently, I work as **Data Scientist**. My expertise has facilitated **data-driven decision-making** across a variety of sectors, including **Finance, Telecommunications, Sustainability and Information Technology**. With a reputation for dedication, adaptability, and strong collaboration skills, I am considered an invaluable asset to any team.

Key Skills

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| • Programming | Python, C, C++, JavaScript |
| • Machine Learning / Deep Learning | PyTorch, Tensorflow, Keras, Scikit-Learn |
| • Natural Language Processing | HuggingFace - Transformers, NLTK, Inflection, spaCy, Gensim, OpenAI, LangChain, Llama-Index |
| • Computer Vision and Image Processing | OpenCV, FastAI, PIL, YoloV7, TorchVision |
| • Video & Audio Processing | TorchAudio, FFMPEG, PyDub |
| • API Endpoints | FastAPI, AWS, HuggingFace Space |
| • Database | MongoDB, MySQL, PostgreSQL, Graph Database - Neo4j |
| • Web Scraping | Requests, BeautifulSoup, Selenium |
| • Data Analysis and Manipulation | Pandas, Numpy, Scipy, Excel |
| • Version Control | Github |
| • Project Management Tools | Jira, Notion |
| • Infrastructure as Code | Terraform |

Experience

January 2024 - Present

VBRL Holdings Inc, Dubai UAE - *Data Scientist*

- Assigned with fine-tuning a LLM responsible for generating perfect **SPARQL** queries that is to be used on web browsers and mobile phone device. Chose **Mistral 7B** for this task to be fine-tuned.
- Created dataset including pair of natural language prompt and **SPARQL** queries with help of **OpenAI API**. Applied standard data preparation and cleaning techniques to make sure we have as much clean data as possible.
- Another local LLM was used - **Llama3.1:8B, Llama3.1:70B, Falcon2:11B, Mixtral 8x7B**, for giving the result in natural language that is fetched by **SPARQL** query from Wikidata API and also takes in user prompt which is initially prompted to the fine-tuned LLM.
- Heavy **Prompt Engineering** was involved for second LLM such that it doesn't use its internal knowledge to answer prompt entered by user if the **SPARQL** query doesn't return proper response and made it adhere to only generate response from query results.
- For best user experience, developed streaming chatbot on **Streamlit** such that the user doesn't have to wait for whole result looking at the screen.
- Created an automated pipeline for transforming text, PDF, and CSV files into Neo4j graph database structures using advanced prompt engineering techniques. Additionally, implemented a natural language processing system capable of translating complex, conversational queries into Cypher, enabling sophisticated interactions with the Neo4j database.
- Performed **LoRA Training** of Flux Dev - Text to Image Generation model for a character mascot required for memecoin. OpenAI API was used for captioning images in the dataset. The trained adaptor was then used in the ComfyUI workflow.

- Inference and Fine-Tuning are performed over inhouse **RTX-4090** GPUs.

August 2023 - November 2023

Spotnik Technology, Dubai UAE – *Freelance Data Scientist*

- Devised strategic plans for three key projects, focusing on enhancing **pedestrian walkability**, **happiness**, and **sustainability scores** within urban zones.
- Employed industry-standard **data engineering** techniques to construct comprehensive datasets for each project, ensuring robust analysis and insights.
- Engineered a scalable **MLOps** framework, integrating continuous integration and delivery (CI/CD) pipelines with **Mage AI** for seamless data orchestration and **MLFlow** for meticulous hyperparameter tracking. This framework was pivotal across all projects.
- Leveraged **Terraform** for efficient **AWS Cloud** resource management, deploying dockerized models on **EC2** instances with **FastAPI**, and developed intuitive UIs using **Jinja Templates** for ML endpoint evaluation.

July 2022 - November 2023

NewsReels Information Technology, Dubai UAE – *Data Scientist*

My role is to develop, and deploy robust **Machine Learning (ML)** models using **PyTorch** and **HuggingFace** libraries, preprocess data for achieving desired results from models to be trained, design stable **API** endpoints, and construct **ETL** pipelines to streamline data integration. Throughout the process, continuously optimized model performance and inference speed to achieve exceptional results.

- Trained **Text To Speech (TTS)** Model from scratch for both English (Indian Accent) and Hindi Languages based on VITs Algorithm that yields very realistic human sounding output. Fine-tuned Whisper **Speech-to-Text (STT)** model for Hindi Language achieved **Word Error Rate (WER)** of 12%.
- Dataset for **TTS** was created using custom voice, producing a 50-hours each English and Hindi datasets based on various news topics, ensuring the **TTS** could pronounce all words properly. Dataset for fine-tuning **STT** model was created using over 500 different speakers' recordings from various resources, totalling 100-hours.
- Utilized both **BERT** and **SpaCy** models for achieving very accurate results for multilingual **Keywords Classification** and **Extraction** tasks.
- Built and containerized API endpoints for custom and pre-trained **Machine Learning** models using **Docker** and **FastAPI** library and **AWS s3 storage** for intermediary storage of the output produced by ML Models.
- Developed a robust ETL Engine that extracts data from **NoSQL MongoDB** databases and updates other databases upon completion of automated jobs, streamlining data management and facilitating efficient workflows.
- Developed applications using **ChatGPT API** from OpenAI and utilized state-of-the-art **LangChain** and **Llama-Index** libraries for using the **Large Language Models** (gpt-4, chatgpt-3.5 turbo and text-davinci-003).
- Utilizing the **Prompt Engineering** technique, have achieved exceptional results from the **ChatGPT API** while *optimizing token usage*. This method has also been employed to generate exceptional beautiful digital art using **Stability Diffusion XL** Models, further demonstrating its effectiveness.
- Developed realistic **Text to Audio Voice Clone** system allows to replicate voice of an individual as well as allow to include expressions e.g. happy, sad, laughter via **Prompt Engineering** followed by creating its API. Comprehensive measures have been incorporated into the design to ensure ethical use and respect for privacy.
- Developed automated music generation system that makes use of **Music Prompts** generated by **ChatGPT API** as per the instructions stored in database and **AudioCraft** Library package.

Etisalat Service Holdings - Tamdeed Projects, Dubai, UAE - *Technical Support Specialist*

- Helped the business *maximize* revenue by identifying business insights and KPIs achieved on a given date, performing time series analysis using **Pandas** and **Plotly** for forecasting and create *interactive visualizations*.
- Developed an Employee Turnover Prediction Machine Learning Model using **Sklearn** in **Python**, monitored and improved continuously for accuracy.
- Predictive Maintenance Machine Learning Model was also developed using **Sklearn**, as we had many splicing machines - ribbon and fiber. Performance for each machine was observed and recorded at each of the activities. Based on our historical records, ML model was developed to predict in advance whether machines required maintenance or not.
- Before building the Machine Learning model, Data Handling was done using **Pandas** and **NumPy**, and Exploratory Data Analysis was done using **Seaborn** and **Plotly Python** libraries.
- Created various dashboards in **Tableau**, including cost and revenue analysis and **Key Performance Indicator (KPI)** dashboards for staff efficiency evaluation

Community Experience

- **CodersHQ AI/ML Community Leader (May 2024 - Present):** Currently, I have been leading the CodersHQ AI/ML (a government initiative) which is aimed at bringing all the tech enthusiasts and seasoned professionals. So far organized successful 9 technical events and have also taken the initiative to create the largest Github repository to learn Machine Learning and Artificial Intelligence: <https://github.com/CodersHQ-AI-ML-Community/ai-confluence>
- **Co-founder at Launchpad (October 2023 - Present):** One of the co-founders of Launchpad, which is a sub-community under CodersHQ. It aims to build SaaS product within 24 hours. I have been involved in providing AI solutions to this community initiative.

Self-Initiated Projects

- **Developed** a tool that takes YouTube Tutorial/Class Lecture links and directly converts into high-quality notes using Prompt Engineering and Gemini-1.5-Pro. Github link: <https://github.com/di37/youtube-notes-generator>
- **Multipdf Arabic Chatbot:** Created a **Question-and-answer** system for **Arabic documents** using the advanced **multilingual-e5-large-instruct** for exceptional text embedding and document retrieval especially for Arabic Language. The system leverages **GPT-4-Turbo** for accurate, context-aware answers in Arabic.
- **Personal Code Assistant - Ollama + Langchain + Streamlit:** Create a personal code assistant using a local open-source large language model (LLM) - **Codellama**, a fine-tuned version of **Llama2** specifically developed for coding tasks, along with **Ollama**, **Langchain**, and **Streamlit** to build a robust, interactive, and user-friendly interface. Github link: <https://github.com/di37/coding-assistant-codellama-streamlit>
- **Multimodal Question and Answer Application using Streamlit and Gemini Pro API:** Created a Question and Answer system that allows user to drag and drop **picture** and **video**, and ask either one question or multiple questions. Github Link: <https://github.com/di37/gemini-pro-vision-streamlit-application>
- **Instruction Tuning of Flan-T5-Large for Dialogue Summarization:** Instruction tuned **Flan-T5-large** model for dialogue summarization task. After comparing **rouge scores** before training and after training, and also comparing the outputs, there was a significant improvement in generating the summary based on given dialogues between one or more persons. Link: <https://www.kaggle.com/code/disham993/fine-tune-a-generative-ai-model-for-dialogue-summ>

- **Anime Protagonist Classifier:** Fine-tuned a Resnet50 model that can classify anime main protagonists from 12 different animes. Libraries used: **FastAI** and **Gradio**. HuggingFace Space: https://huggingface.co/spaces/disham993/anime_protagonist_classifier

Education

Heriot-Watt University, Dubai – *BEng. in Electrical and Electronics Engineering* GPA: 3.92/4.00

Manipal Academy of Higher Education, Dubai – *Masters of Business Administration – Finance and Operations Management* GPA: 8.64/10.00

Achievements

- Top Artificial Intelligence, Machine Learning, and Data Science Voice on LinkedIn - August 2023 - February 2024.
- Secured **Excellent Performance** in - Etisalat - Tamdeed Projects - 2020.
- Awarded with **Honours of the First Class** in Electrical and Electronic Engineering (EEE).