Tariq Jamil

AI Engineer | Data Scientist

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Dynamic Data Scientist & AI/ML Engineer with extensive experience in leveraging advanced machine learning, deep learning, natural language processing and generative-AI techniques to drive strategic, data-driven decisions. Proficient in building predictive models and extracting actionable insights, with expertise in Python and statistical modeling. Skilled in translating complex technical concepts for diverse teams, fostering collaboration, and driving innovation. Ready to contribute to LLM agent development and deployment, utilizing a strong foundation in NLP and analytical problem-solving to build intelligent, context-aware systems for real-world applications.

Key Skills

Machine Learning | Deep Learning (CNN | RNN)

LLM Agents (Langgraph, MS Autogen, Agno, CrewAi)

Open Source LLMs (LLama3 | Granite | Phi | Deepseek | Mistral, etc.)

Proprietary LLMs (GPT-4 | GEMINI, etc.)

Langchain | Llama Index | Haystack

Computer Vision | GAN | YOLO | OpenCV | Deep SORT

Video Action Classification | Anomaly Detection

Python | Flask

TensorFlow | PyTorch | Scikit-Learn

Conventional ML | PyCaret

Transformers | Huggingface

Librosa | Audio Classification

Recommender Systems | ByteTrack | Kalman Filter

Mediapipe | Openpose | MM-Pose

AutoML | Optuna Optimizations

AI in Aviation | AI in Agriculture | AI in Finance

Blog Writing

Professional Experience

ML Research Associate
Missouri University of Science & Technology, USA -- Remote   (Contract, Sep 2024 – Jun 2026)

As part of my role, I am contributing to a cutting-edge research project in the field of education technology. My core responsibilities include implementing and optimizing machine learning pipelines to drive project success. I work closely with a distinguished PhD Professor who leads the project, leveraging their expertise and guidance to enhance our research outcomes.

In addition to my technical contributions, I am actively involved in identifying and pursuing funding opportunities. This involves researching potential grants and preparing detailed applications to secure the necessary resources for the project, a crucial part in sustaining our research and ensuring its continued advancement.

By applying my expertise in machine learning, I aim to make a meaningful impact on the project and the broader field of education technology.

TensorDot Solutions
Founder | Principal MLE
Karachi, Pakistan - July 2024 - Present
Founded 'TensorDot Solutions', (iris registered) for provision of services to clients specifically requiring company contract.
Aimed at providing services in the following industry domains.
- ✓ LLM Applications Leveraging LLM Agents
- ✓ AI in Aviation | Healthcare | Education
- ✓ AI Consultancy in Research & Development
- ✓ AI Curriculum Development | Mentoring | Tutoring
- ✓ AI Career Path Mentoring

Projects / Activities:
** The position of 'Research Associate' is on TensorDot Solutions company contract, and became cause of founding.
** "**LLM Agents from Scratch**" Workshop (26Oct2024) at Computer Vision Africa Forum (link)

NLP Curriculum Developer
AI School (Jadooai.com), *CA, USA*   *(3-month contract)* June 2024 – Aug 2024

Successfully developed complete NLP boot-camp syllabus and curriculum, ranging from basics of NLP to advanced LLMs, RAG and Agents as part of 3-months of contract. The bootcamp outline is available at www.jadooai.com .

Following were covered along with the coding exercises.
- Python Primer, Basics of NLP.
- Text preprocessing, Vectorizations and Embeddings.
- NLTK/Spacy based NLP applications of classification, NER.
- Transformers in details, Hugginface Models, and basic applications
- LLMs, Local Loading techniques, and Inference
- Langchain, Haystack Chatbot/RAG application development
- RAG from Scratch, without using frameworks
- AI Agents from scratch and with MS Autogen, Langgraph, CrewAI
- NLP Interview Preparation.

AI~ML Trainer (visiting faculty) | ISP Panel Supervisor

NED University, Karachi, Pakistan, Karāchi, Sindh, Pakistan   *October 2023 - todate*

- Designed and taught graduate-level courses in Artificial Intelligence, covering topics such as Deep Learning, LLMs, Python, and Computer Vision
1. "Foundations of Generative AI / Python" class, of Batch 1, of Post Grad Diploma program in Generative AI (Jan 2024-Mar 2024)
2. "Deep Learning" class for Batches 3 & 4 of PGD in "DS & AI" program. (Oct-2023 to Dec-2023)
3. Supervised 20+ Independent Study projects of PGD (DS AI) students (2024-2025)

Freelance AI~ML Engineer | DATA Scientist

Freelance, Karachi, Pakistan   *January 2021 - Present*

Managed multiple customer projects, ensuring timely delivery and high client satisfaction at Upwork, Freelancer.com & with private clients, involving following AI stack and domains:

- Computer Vision | contributed to a successful pioneering marketing startup https://trueinsights.tech/
- Video Action Detection | Sign Language MASL2000 (using ViT | Swin Transformer | TimeSformer)
- Data Visualization | Business Intelligence - Student Assignments
- Topic Modeling | LDA | BERT-Topic
- Deep Neural Networks | PyTorch Tutoring
- LLM Applications | LLM Finetuning (LLAMA2 | Mistral) | Legal dataset
- NLP Spacy | NER - Named Entity Recognition
- Large Scale Data Preprocessing | Video Object Annotation
- Intrusion Detection from Security Cameras stream | OpenCV (Cv2) | DLIB | Face Recognition
- Yolo Object Detection | Counting | Segmentation
- Audio Classification using Librosa liberary | Youtube Video downloading and transcription
- Mediapipe | Actions classification using Attention-Transformer mechanism

MLE | Chapter Lead - Omdena UAE

Omdena   *July 2023 - Present*

- Leading AI Innovation Projects, with collaborators coming from global Omdena community. •
  Projects Led:
1. Nov 2023-Dec 2023: Abudhabi Open Data Intelligence: Falcon (LLM) Analytical Voice-Enabled Chatbot
- The project, Abu Dhabi Open Data Intelligence, aimed to harness the power of Falcon, an LLM developed by the Technical Innovation Institute in Abu Dhabi, to enhance analytics capabilities and insights derived from Abu Dhabi's open data (https://data.abudhabi/opendata/).
- The end-product was a Voice-enabled bot, accepting user spoken queries on OpenDatasets, fetches data from the AOD site, interpret the intended visualization requirement using Falcon LLM + Langchain function, and display the visualizations. The project was deployed on GCP cloud for limited time using community supported resources.
- https://www.linkedin.com/posts/tj-yazman_omdena-activity-7122240988240093184-7DF8/

MLE - Omdena Challenge: Histopathology Liver Cancer Detection

Omdena   *April 2023 - June 2023*

The project was aimed at developing an AI application for Hepatocellular Carcinoma Histopathology Detection XAI & App Deployment.

- I had the role as Lead Coordinator, to support the project lead, in overseeing
- Conducted comprehensive analysis and interpretation of histopathology samples to identify abnormalities and diseases.
- Utilized cutting-edge technology and imaging techniques to enhance the accuracy and efficiency of histopathology detection.

MLE - Omdena Challenge: Vehicle Inspection and Damage Detection

Omdena   *January 2023 - March 2023*

- The goal of this real-world AI challenge was build an AI application for Insurance Company use case, to recognize a vehicle, validate the accidented vehicle authenticity as per recorded images, carry out inspection to identify scratches, dents, and damages to parts with the severity of each damage type by analyzing Geo-tagged video and pictures of the car concerned.
- I had a role Lead Coordinator, supporting the project lead to automate vehicle inspection process, reducing manual intervention by 70%
- Collaborated with a team of data scientists and domain experts to refine and optimize vehicle damage detection models
- Conducted thorough testing and evaluation of machine learning models to ensure high performance and reliability in real-world scenarios
- Presented findings and recommendations to stakeholders, including visualizations and metrics to demonstrate the effectiveness of the developed models.
- The project successfully adopted by the startup [MyCover](#).

MLE - Road Defect Detection using AI (UAE Chapter Challenge)

Omdena   *October 2022 - December 2022*

- The project focused on developing an AI solution for road safety by identifying road defects using image data and computer vision AI algorithms specifically designed for UAE roads.
- As the Team Lead for 'Data Collection, Preprocessing, and EDA tasks, I overseen the collection of relevant data, preprocessing, and exploratory data analysis, the essential steps a successful AI model development.
- Collaborated with a team of engineers and data scientists to collect and analyze large datasets of road imagery to train AI models for defect detection.
- Conducted thorough testing and validation processes to ensure the reliability and efficiency of the AI-based road defect detection system in real-world scenarios.
- Project Lead: Dr. Moath Awawdeh (https://www.linkedin.com/in/moathawawdeh)
- Dr. Yasmeen Abu Kheil (https://www.linkedin.com/in/dr-yasmeen-abu-kheil)

MLE - Omdena Innovation Challenge: Detection of Cervical Cytology

Omdena   *August 2022 - October 2022*

- The project was aimed at developing Cervical Cytology Detection by examining pap slides using AI image classification/segmentation algorithms.
- Worked as Team Lead for 'Exploratory Data Analysis' () task, analyzing and exploring the selected datasets in order to gain insights and identify patterns that could contribute to the development of effective AI models.
- The Project ended in development of an AI application for Cervical Cancer Indentation, for real-world use-case in Zimbabwe's remote regions for priority appointments at distant located pathalogy labs.
- Collaborated with a diverse team of data scientists and healthcare professionals to optimize algorithms for detecting abnormalities in cervical cells.
- Conducted extensive data preprocessing and augmentation techniques to enhance model performance in detecting early signs of cervical cancer.

(previous experience)

Chief Engineer | Project Manager MRO IT System Implementation

Pakistan International Airlines   *June 2017 - December 2020*

Worked as Project Manager for end-to-end implementation of the MROIT Solution (like an ERP) a total care solution for aircraft maintenance compliance management, work package planning, audits control, business & marketing, inventory, training, qualification, maintenance data and documentation control. The core responsibilities & functions included:

1. Requirements analysis, RFP, international bidding, evaluation & selection of the solution,

2. Workflows design and development / process re-engineering for over 10 modules.

3. Training | Change management, Go-live risk mitigation, and user roles allocation.

4. Data migration, of over 15 years of flights data, dynamic inventory updates [aircraft times-sensitive] and maintenance records.

5. Integration with airline ERP, through API for HR and various administrative workflows. requirements

- In parallel, Worked as Head of Aircraft Component maintenance workshops, overseeing a team of over 300 employees and handling maintenance activities for 10,000+ components annually.

- Being holder of Form-4 position (a very responsible position in aviation maintenance organization), ensured quality maintenance of aircraft parts complying with national and international regulatory authorities & standards like Pak CAA, EASA, FAA, OSHAS, etc, and implemented a variafiable safety management system.

- ** Opted for voluntary retirement from PIA in December 2020 **.

Blog Writer

LinkedIn - Newsletter   *December 2022*

Researched and produced engaging blog content on the latest advancements and applications of AI technology in the aviation industry to inform and inspire readers. Special focus on operational safety, maintenance improvement and business value.

To-date Epsodes:

1. [Easa Readmap for AI Adaptation](#)

2. [AI in Airlines: Due Dilligence](#)

3. [AI in Airlines: Due Dilligence (r2)](#)

4. [Aviation Safety Management and Artificial Intelligence](#)

Education

Post-Graduate Diploma in Data Science with Artificial Intelligence December (2023)
NED University of Engineering and Technology at Pakistan

Capstone Project:

Development of Chatbot using Deep Learning (LLM: Falcon, Fine-tuning: Customer Services)

Subjects:

✓ Python - Basics to Advance

✓ Data Visualization

✓ Power-BI | SQL

✓ Machine Learning | Kivy | dJango | Flask | Streamlit | Deployment

✓ Deep Learning | Computer Vision

Bachelor of Engineering - BE in Aviation Electronics | Aerospace Technology (Dec 1991)
NED University of Engineering and Technology at Pakistan

Majors Include:

1. Digital Electronics

2. Electronics & Communications

3. Industrial Engineering | Quality Systems

4. Aerospace Technology

Certifications | Courses

IBM AI Engineering Professional Certificate (V2)

by IBM at Coursera platform (6 courses)
www.credly.com/badges/ebb0401a-25b2-4f69...

Machine Learning Course (Andrew Ng)

by Stanford Online at Coursera platform (11-weeks)
www.coursera.org/verify/EVZV45QKWTBS

Developing Industrial Internet of Things (3 course specialization)

by University of Colorado, Boulder at Coursera platform
www.coursera.org/verify/specialization/Y...

Certificate for Introduction to Computational Thinking and Data Science

by MITx at EdX platform
courses.edx.org/certificates/586f61b1ab2...

Certificate for Introduction to Computer Science and Programming Using Python

by MITx at EdX
courses.edx.org/certificates/08816eba1bc...

Data Science in Stratified Healthcare and Precision Medicine

by University of Edinburgh at Coursera platform
www.coursera.org/verify/HAZQ9QJBMWXG

Languages

English (Fluent, both written and spoken)\
Urdu / Hindi