Muhammad Ahmed

Data Scientist

Karachi, Pakistan
+923163801959
http://muhammad-ahmed.com, contact@muhammad-ahmed.com
Kaggle/Muhammad4hmed, Linkedin/Muhammad4hmed, Github/Muhammad4hmed

EXPERIENCE

Pioneer Corporation, Tokyo, Japan (Remote) - *AI Engineer*

OCT 2023 - PRESENT

- Worked on an audio keyword spotting project which will be deployed in Pioneer's bike assistant product.
- Working on an LLM driving assistant project which will be deployed in Pioneer's future products.

Retrocausal, Redmond, WA, USA (Remote) - *AI Research Engineer - Computer Vision and Machine Learning*

JUL 2022 - OCT 2023

- Conducted computer vision research and solved problems involving classification, object detection, and segmentation under *Dr. Quoc-Huy Tran*'s supervision.
- Contributed to research papers on self-supervised learning for video activity recognition, achieving a **2%** performance improvement and outperforming state-of-the-art methods in **2** publications.
- Explored video data generation in projects using latent diffusion models and conducted research on action recognition utilizing 2D human pose estimation, surpassing state-of-the-art methods by a **10%** margin.
- Implemented a zero-shot unsupervised video segmentation algorithm in a demo product to be presented to Apple and Siemens.
- Developed a Video based Large Language Model (LLM).

Pikky, India (Remote) - *Data Scientist*

DEC 2021 - JUN 2022

- Made a patented food recommendation engine from scratch and deployed it to real-time users.
- Developed a novel way of recommendation for food utilizing machine learning, natural language processing and computer vision techniques with accuracy of above **90%**.
- Worked with cross-functional teams: product managers, developers, and designers, to efficiently deliver and integrate data-driven solutions, adapting to shifting requirements and priorities in an Agile framework.

Retrocausal, Redmond, WA, USA (Remote) - *Software Engineer (Intern), Machine Learning Infrastructure*

NOV 2020 - DEC 2021

- I worked on building computer vision and artificial intelligence solutions for video data, such as object detection and improving existing solutions for action recognition under the supervision of *Dr. Zeeshan Zia*.
- Implemented a method of augmentation to boost the performance of the activity recognition method by **5%**.

EDUCATION

FAST National University of Computer and Emerging Sciences, Karachi, Pakistan- *Bachelor of Science in Computer Science*

AUG 2018 - JUN 2022

SKILLS

Data Science: Data Analysis, Machine Learning, Deep Learning, Computer Vision, Natural Language Processing.

Frameworks: PyTorch, TensorFlow, Scikit-learn, Keras, OpenCV, Pandas, NumPy.

Containerization & Cloud: Docker, Amazon Web Services, On-click services such as LambdaLABS.

Programming Languages & Fundamentals: Python, C++, SQL, Data Structures and Algorithms.

Soft Skills: English Communication, Problem-solving, Teamwork, Critical Thinking, Adaptability, Business Acumen.

ACHIEVEMENTS

Publications

1. Learning by Aligning 2D Skeletons in Time *Submitted at WACV 2024 [Demo Video]*
2. Unsupervised Frame-to-Segment Alignment for Temporal Activity Segmentation *Published at WACV 2024 [Demo Video] [Paper].*
3. Sequential Embedding-based Attentive (SEA) classifier for malware classification *Published at IEEE ICCWS 2022.*

Kaggle Competitions: Gold Medals

1. SOLO WIN: Novozymes Enzyme Stability Prediction (Protein Engineering) *Rank 2 out of 2482 teams.*
2. LLM - Detect AI Generated Text (Large Language Models) *Rank 3 out of 4358 teams.*
3. U.S. Patent Phrase to Phrase Matching (Phrases Similarity Prediction using Transformers) *Rank 10/1889.*

Kaggle Competitions: Silver Medals

1. Cassava Leaf Disease Classification (Image Classification using Computer Vision algorithms).
2. CommonLit - Evaluate Student Summaries (Text score prediction using LLM)
3. Hungry Geese (Game bot using Reinforcement Learning).
4. CommonLit Readability Prize (Passage complexity prediction using NLP Transformers).
5. G2Net Gravitational Wave Detection (Signals prediction from blackhole collision using signal processing).
6. Feedback Prize - Evaluating Student Writing (Predicted argumentative writing using NLP transformers).

Kaggle Competitions: Bronze Medals

1. Riiid! Answer Correctness Prediction (Tracked knowledge state of students using time series algorithms).
2. Mechanisms of Action (MoA) Prediction (Data Science & ML, Improved existing algorithm's accuracy).
3. OpenVaccine: COVID-19 mRNA Vaccine Degradation (Predicted the degradation in RNA using NLP).
4. Google Landmark Recognition 2020 (Recognize landmarks in images using Computer Vision algorithms).
5. Jigsaw Multi-languages Toxic Comment Classification Contest (Used bilingual NLP transformers).
6. Shopee - Price Match Guarantee (Matched products based on product descriptions, images, and other metadata with the help of unsupervised approach of making a model with different modalities).
7. SIIM-FISABIO-RSNA COVID-19 Detection (Detected COVID-19 cases from chest X-ray and CT images using Computer Vision algorithms).
8. PetFinder.my - Pawpularity Contest (Predicted number of "likes" that a photo would receive based on various features like metadata, image properties, and pet breed information using CV and NLP algorithms).

Other Data Science and Machine Learning Competitions

1. Globally *2nd Rank* in Qualifiers of International Data Analytics Olympiad (IDAO) 2022 - Secured 2nd rank among teams from institutes like Stanford, IIT, HSE University, University of Tokyo etc and qualified for World Finals to represent my country and university at Moscow, Russia.

2. **2nd** Rank in Geoffrey Hinton Hackathon (Data Science & ML) - After competing with professionals and students from top Indian universities like IIT and NIT.
3. **Top 10** finishes in **8** data science competitions from Dphi, HackerEarth, DataHack and MachineHack.
4. Have won local speed programming competitions and secured **8th** rank in ICPC regionals.

Records

1. Won a Kaggle Competition solo - 2023.
2. Became Pakistans first and only Kaggle Competitions Master - 2022.
3. Became Kaggle Competitions Expert - 3rd and youngest in Pakistan to achieve this rank - 2020.