Ahmad Mustafa Anis

+92-314-5617800 | https://ahmadmustafaanis.github.io/ | linkedin.com/in/ahmad-anis | github.com/ahmadmustafaanis | ahmadanis5050@gmail.com

EDUCATION

International Islamic University
Islamabad, Pakistan

Bachelor of Science in Computer Science — *September 2018 – September 2022*

- CGPA: **3.43**/4.0
- Key Courses: Advanced Computer Programming, Object Oriented Paradigm, Data Structures and Algorithms, Operating Systems, Database Technologies, Artificial Intelligence

AI For Global Goals — OxML
Oxford, UK

Oxford ML Summer School, MLx Fundamentals — *May 2024 – Jun 2024*

- Key Topics: Mathematics of ML, Factorisation techniques, Generalization / Robustness, Optimisation, Representation learning, Generative AI

Presidential Initiative for AI — PIAIC
Islamabad, Pakistan

AI Developer Program — *Sep 2019 – Apr 2022*

- Key Topics: Python, Machine Learning, Deep Learning, AWS

EXPERIENCE

Deep Learning Engineer
Mar 2024 – Current

Roll AI

- Enhanced plain bokeh to Depth based bokeh for realistic effects using Depth Estimation and Segmentation.
- Working on Deep Learning based Active Speaker Detection.
- Working on automated thumbnail generation using Diffusion models.

Machine Learning Engineer
April 2022 – Mar 2024

Red Buffer

- Improved OCR latency from 0.6 FPS to 16 FPS on the CPU for streaming devices to blur sensitive information.
- Integrated Real-Time Dashboards using Dash and Plotly for CO_2 Emissions into a Machine Learning Pipeline.
- Reduced injury risk by achieving 95% accuracy using Computer Vision techniques for a mining ship.
- Boosted Accuracy to 85% from 30% for Logo Recognition during cricket matches using CLIP by OpenAI.
- Created a Fact Verification and Identification Pipeline from articles, fine-tuning open-source LLMs like LLAMAv2, Dolly-3B, GPT-Neo and using MultiThreading for a 200% speed increase.
- Developed a Generic Chat With PDF with Dynamic LLM, indexing, vector DB, Multi-Hop Search, and Smart Prompts, using LLama Index.
- R&D for Pose Estimation models for Illegal Bowling Angle Detection in Cricket.
- Communicated technical and project updates with clients.

AI Fellow
December 2023 – February 2024

PI School of AI

- PI School of AI selects a batch of the best engineers from all over the world to turn them into AI specialists via a 2-month fellowship worth 12,500€.
- Extracting Key Information from long context transcripts using Open Source Large Language Models (**MistralLite, Mixtral8x7B**) that can run on consumer hardware.

Software Engineer (Deep Learning and Computer Vision)
Dec 2021 – March 2022

WortelAI

- Created a real-time Search Engine using Deep Learning with CLIP by OpenAI, Qdrant, and ElasticSearch.
- Performed Multi-label Text Classification using BERT and PyTorch for 1500+ labels.

Deep Learning and Computer Vision Intern
July 2021 – Dec 2021

WortelAI

- Developed Safety Clothes Detection for Factory workers using Yolov5.
- Trained a Celebrity Detection and Classification system using 3DDFAv2, ResNet50, and a 172GB Dataset.

Contributing Editor
Sep 2020 – July 2021

KDNuggets

- Wrote 30+ original ML articles, accumulating over 410,000 views.
- Profile Link

Research Interests

- **Complex Reasoning** with (Vision-)Language Models

- **Representation Learning**

- Deep Learning **Interpretability**

Publications

Consent in Crisis: The Rapid Decline of the AI Data Commons [Under Review, **NeurIPS**'24]
- Authors: Shayne Longpre, Robert Mahari, Nikhil Singh, Manuel Cherep, [10 authors], **Ahmad Mustafa Anis**, [30 authors] Daphne Ippolito, Sara Hooker, Jad Kabbara, Alex Pentland

DistAYA [On-going]
- Leading the AYA Expedition efforts for the project DistAYA. We aim to create small multilingual LLMs distilled from large multilingual LLMs.

Instruct Localized and Spatial Reasoning for Visual Question Answering Models [On-going]
- Working on creating a benchmark dataset that will introduce localized and spatial reasoning for Visual Question Answering Models and evaluate them.

Technical Skills

Programming Languages: Python, C++, Rust, Java, JavaScript
Libraries/Frameworks: PyTorch, Tensorflow, PyTorch Lightning, Distributed Training, OpenCV, Flask, Django, FastAPI
Databases: MySQL, PostgreSQL
Tools: Git, GitHub, GitLab, Docker, Markdown, Jupyter Notebook, Anaconda, Visual Studio Code, Pep8

Personal Projects

Celfie AI
- Developing a Selfie generator that allows users worldwide to generate selfies using state-of-the-art Image Generation models.
- Utilizing FastComposer for multi-subject generation and serving the backend on AWS.

Musculoskeletal Radiographs Classification
- Detecting normal/abnormal X-rays using the MURA dataset by Stanford.
- Applying Transfer Learning with models such as DenseNet, ResNet-101.
- Code

Multimodal Semantic Search Engine
- A mini search engine that can perform
  * Text-to-Image search
  * Image-to-Image search
  * Image-to-text search
- Code
- Write-up

Vehicle Detection, Recognition, and Tracking on Roads
- Implementing real-time vehicle detection and recognition using Yolov5, and SORT for vehicle tracking.
- Managing data with PostgreSQL database.
- Code

Deploying Deep Learning Model
- Deployed a Deep Learning NLP Model to Heroku with continuous integration and deployment from GitHub.
- Podcast with Top End Devs
- Code

Volunteer Experience

Research Contributor | *Data Providence Initiative | MIT Media Lab*   Dec 2023 – Present
- Auditing large language model training data to determine how access to web data has shifted over time. Working to measure concepts such as cultural representation and advocate for AI transparency.

Volunteer Researcher & Regional Community Lead | *Cohere for AI*   Nov 2022 – Present
- Organizing sessions on Machine Learning, featuring experienced researchers from the Asian community with guest speakers from Stanford University, UC Berkley, Carnegie Mellon University, Cambridge University, Allen Institute for AI, NTU Singapore, and others.
- Delivered presentations on topics like CLIP by OpenAI, SimCLR, and SimCLRv2 by GoogleAI.
- Coordinated a Research project on Retrieval Augment Generation under the guidance of a Research Manager at Google.
- Initiated a study group for the NYU Deep Learning course by Professor Yann LeCun.
- Serves as the Urdu Language Regional lead for AYA, a Multi-Lingual Open Science instruction Tuning project.
- Collaborating on multiple ongoing projects within the community.

Fellowship Lead | *Bytewise Limited*   Mar 2023 – May 2023, June 2024 – Aug 2024
- **NLP Lead** (June 2024 - Aug 2024): Mentoring 20 students and professionals, oversee curriculum and training for NLP, ensuring practical experience and application readiness.
- **Data Science** Lead (Mar 2023 - May 2023): Mentored over 50 students, devised a curriculum, followed up on progress and challenges, facilitated project and job opportunities for participants.

AWS Community Builder | *Amazon Web Services*   Aug 2022 – Apr 2023
- Collaborated with local AWS Community to organize events and awareness about AWS services.

Blogs and Technical Writing

Medium

KDNuggets

CNVRG

Interviews & Podcasts

Interview with AtomCamp discussing the motivation and advice in Machine Learning for beginners

Podcast with Adventures in Machine Learning how to optimize and improve **OCR** systems

Podcast with Adventures in Machine Learning on how to deploy Deep Learning models with **FastAPI**

Certifications, Achievements, & Community Work

Courses & Certifications:
- Microsoft Technology Associate (MTA) 98-381 Introduction to Programming Using Python
- Machine Learning by Coursera
- Deep Learning Specialization by Coursera
- AI for Everyone
- Getting Started with TensorFlow 2 by Coursera
- NYU Deep Learning by Yann LeCun
- Mathematics for Machine Learning by Imperial College London

Achievements:
- 5 kyu on Codewars
- Platinum badge on KDNuggets
- 2300+ points on StackOverflow

Referrals

Dr. Muhammad Nadeem (Assistant Professor at International Islamic University, Islamabad)
Email: nadeem@iiu.edu.pk

Dr. Tariq Sadad (Assistant Professor at the University of Engineering and Technology, Mardan)
Email: tariqsadad@uetmardan.edu.pk

Aqsa Kausar (Head of AI at RedBuffer)
Email: aqsa.kausar@redbuffer.ai