

Ahmad Mustafa Anis

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EDUCATION

International Islamic University, Islamabad, Pakistan

Sep 2018 - June 2022

Bachelor of Science in **Computer Science (CGPA: 3.43/4.00)**

EXPERIENCE

Machine Learning Engineer @ RedBuffer

April 2022 - Current

- Improved an 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 CO2 Emissions into a Machine Learning Pipeline.
- Reduced the injury risk by up to 95% using several Computer Vision techniques for a mining ship.
- Boosted Accuracy to 85% from 30% for Logo Recognition during a cricket match using CLIP by OpenAI.
- Created a Fact Verification and Identification Pipeline from an article while keeping a record of all citations and sources. Fine-tuned open-source LLMs like LLAMA v2, Dolly-3B, GPT-Neo using PEFT (LoRA, QLoRA) as well as close-source GPT-3.5. Optimized the Pipeline by making it 200% fast via introducing MultiThreading. Used External Knowledge Base for RAG (Retrieval Augmented Generation).
- Research and Development for different Pose Estimation models for Illegal Bowling Angle Detection in Cricket.
- Communicating technical and analytical project updates with the clients and keeping them in the loop.
- Writing original articles related to Machine Learning for [Redbuffer's Medium](#) gaining over 8000 thousand views.

Software Engineer (Deep Learning and Computer Vision) @ WortelAI.

Dec 2021 – March 2022

- Created a real-time Search Engine based on Deep Learning using CLIP by OpenAI, Qdrant, and Elasticsearch.
- Performed Multi-label Text Classifier using BERT and PyTorch for 1500+ labels and sub-labels.

Deep Learning and Computer Vision Intern @ WortelAI.

July 2021 – Dec 2021

- Created a Safety Clothes Detection for Factory workers using Yolov5 to protect them in their workplace.
- Trained a Real-time Celebrity Detection and Classification using 3DDFAv2, ResNet50, and 172GB Dataset.

Contributing Editor @ KDNuggets.

Sep 2020 – July 2021

- Wrote 30+ original articles gaining over 410,000 views related to Machine Learning on KDNuggets. Profile [Link](#).

Teaching Assistant @ International Islamic University, Islamabad.

Nov 2020 – Jan 2021

- Taught Object-Oriented Programming Concepts in Lab-1 of Students of CS F19 at IIUI.

Research Interests

- MultiModal Deep Learning models including:
 - Self-Supervised Contrastive Deep Learning Models such as CLIP, BLIP, GLIP
 - Visual Questioning Answering and Image Captioning Models such as LLAVA, InstructBLIP
- Fundamental Improvements in Deep Learning Architectures
- Deep Learning Interpretability

Research Projects

- Instruct Localized and Spatial Reasoning for Visual Questioning Answering Models: Current Visual Question Answering do not possess complex localized and spatial reasoning in instruct format. I am working on creating a benchmark dataset that will introduce localized and spatial reasoning for Visual Question Answering Models and evaluate them. [On-going]
- Evaluation of SAM (Segment Anything by MetaAI) before and after fine-tuning on 360 Panoramic Images. [On-Going]
- A Survey Paper on NeRFs. [On-Going]
- A Deep Learning Ensemble Approach to Detecting Unknown Network Attacks: Worked on training and developing Ensemble of different Deep Learning Models to detect Network Attacks. I collaborated with Dr. Rasheed Ahmed on this project. Link: <https://www.sciencedirect.com/science/article/abs/pii/S2214212622000771>

Personal Projects

Celfie AI

- Building a Selfie generator with anyone worldwide using SOTA Image Generation models. We are using [FastComposer](#) and the backend is served on AWS.

MURA Classification

- Independent Research for detecting normal/abnormal x-rays on the MURA dataset by Stanford using Transfer Learning on different models such as DenseNet. [Github](#)

Vehicle Detection, Recognition, and tracking on roads

- Detecting and recognizing the vehicles on the streets in real-time using Yolov5, SORT for Vehicle Tracking, & PostgreSQL for Database. [GitHub](#)

Deploying Deep Learning model (FastAPI, Heroku, CI/CD, Git/Github)

- Deployed a Deep Learning-based NLP Model to Heroku using CI and CD via GitHub. Wrote an Article [link](#), and had a podcast on it: [link](#).

Volunteer Experience

Volunteer Researcher & Regional Community Lead @ *Cohere for AI* Nov 2022 - Current

- Organizing multiple sessions on Machine Learning with experienced researchers from the Asian community. We have invited multiple guest speakers from Stanford University, UC Berkley, Carnegie Mellon University, Cambridge University, Allen Institute of AI, NTU Singapore, and others.
- Gave multiple sessions on various topics such as CLIP by OpenAI, SimCLR, & SimCLRv2 by GoogleAI.
- Organized a Research project on Retrieval Augment Generation led by a Research Manager at Google.
- Started a study session for the [NYU Deep Learning](#) course taught by Professor Yann LeCun.
- Urdu Language Regional lead for AYA, a Multi-Lingual Open Science instruction Tuning project
- Working on multiple ongoing projects with community members.

Blogs and Technical Writing

- [Medium](#)
- [KDNuggets](#)
- [CNVRG](#)

Interviews & Podcasts

- [Interview with AtomCamp](#)
- [Podcast with Adventures in Machine Learning on OCR](#)
- [Podcast with Adventures in Machine Learning on Model Deployment](#)

CERTIFICATIONS, Achievements, & Community work

• Courses & Certifications:

Microsoft MTA 98-381 Introduction to Programming Using Python, Machine Learning Coursera, Deep Learning Specialization 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

• Members:

Community Lead at [Cohere for AI](#), AWS Community Builder, [AYA Urdu Language Lead](#)

• Achievements:

- 5 kyu on [Codewars](#)
- Platinum badge on [KDNuggets](#)
- 2300+ points on [StackOverflow](#)
- 10,000+ followers on [LinkedIn](#)

TECHNICAL SKILLS

- **Programming languages:** Python, C++, Rust, Java, JavaScript.
- **Libraries/Frameworks:** SkLearn, NumPy, Pandas, Flask, Django, FastAPI, Keras, TensorFlow, PyTorch, OpenCV
- **Databases:** MySQL, PostgreSQL
- **Tools:** Git, GitHub, GitLab, Docker, Markdown, Jupyter Notebook, Anaconda, Visual Studio Code, Pep8

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