

TANEEM ULLAH JAN

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RESEARCH INTERESTS

I am interested in developing artificially intelligent machines that can learn towards more generalised goals. Modelling new algorithms, techniques for optimisation and evaluation especially for code generation and domain adaptation approaches for machine translation applied to programming and code optimisation.

EDUCATION

University of Engineering and Technology Peshawar, Pakistan

Sep. 2018 – Sep. 2022

Bachelor Studies in Computer Science

Advisor: [Dr. Zakira Inayat](#)

Research Thesis: HTML Code Generation from Images with Deep Neural Networks

CGPA: 3.58/4.0

Relevant Coursework:

- Artificial Neural Networks (A)
- Computational Intelligence (A-)
- Data Science (A-)
- Calculus and Linear Algebra (A)

Government College Peshawar, Pakistan

Sep. 2016 – June. 2018

Intermediate in Computer Science

WORK EXPERIENCE

NAECO Blue GmbH

Aug. 2021 – Nov. 2021

Intern Machine Learning Engineer [web](#)

Bad Schwartau, Germany

- During internship, firstly have to research and find a weather models and their APIs so that the teams don't need to overlook any other source for any kind of data. I talked to different organisations and then tested out their APIs with my intelligent machine vision models for forecast and historical data, in different intervals.
- My testing and programmed research model made the company decide on Weather Models and the API services, I recommended. The data pipeline I developed for the company, the analytical charts, models and graphs, they started to follow for finding the best spatial and temporal resolution data on the map for specific location.
- Using my implemented data pipeline model, I reduced the research and development time by almost half due to automating the tasks of finding the best relevant imagery data for a precised geographical location.
- *Outcome:* Learnt to study and research on real world use of intelligent machines. Learnt to document what I implement and find out – also learnt to work in a team, collaboration on the applied ML in industries.

CS&IT AI Lab UET Peshawar

Jan. 2022 – Oct. 2022

Student Research Assistant

Peshawar, Pakistan

- Worked with [Dr. Zakira Inayat](#) on the deep generative models, transformers for vision and text and image processing through deep neural networks. We also extensively drive the studies around mathematical optimisations and evaluation techniques, to improve the consistency of machine learning models.
- Studied and implemented various deep learning architectures for tasks such as data generation, machine translation and classification. Developed the intuitions and tried implementing various SOTA models to reproduced the results. Extensive work on mathematical representation and optimisation models were carried out.

RESEARCH PROJECTS

HTML Code Generation from Images with Deep Neural Networks [web](#) Dec. 2021 – Aug. 2022

- Applying the machine translation and image captioning techniques to convert images into words and sentences with the use of deep neural networks.
- Inspecting and featuring images with Convolutional Auto-Encoder, to encode them into lower dimensional space and features.
- Decoding and mapping those lower level features with Sequential Networks to generate HTML codes.
- The results achieved are higher and more accurate than the paper comparatively, published with 77%.
- **Dataset:** Custom dataset created.
- *Stacks Used:* Python, TensorFlow, Keras, OpenCV, NumPy, Matplotlib.

LaTeX– Formula Code Generation from Images [web](#) Sep. 2022 – Nov. 2022

- Combining both Computer Vision and NLP tasks to generate mathematical formulae from images.
- The convolutional encoder captures and extracts inner features from images.
- LSTM based decoder then tries to generate the LaTeX code from the passed token vectors along with Soft Attention Mechanism to enhance the performance.
- A BLEU score of 78% is achieved accompanying by 62% of image edit distance.
- **Dataset:** Pre-built dataset :: Harvard im2markup.
- *Stacks Used:* Python, TensorFlow, Keras, OpenCV, Pillow, NumPy.

Deep Image In-Painting: Generative Vs. Recurrent Models [web](#) Nov. 2022 – Present

- Improving context encoders by executing several major training tricks on Generative Adversarial Networks and remodel the network to Wasserstein–GAN.
- Comparative testing of encoders and discriminators based models on top of state-of-the-art models against basic CNN architectures is carried out.
- Proposed a Row–Flattened LSTM from Pixel–CNNs to show how a simpler model can achieve good results.
- The L_2 loss acquired here by this proposed model is 4.26 as compared to the others with lowest of 5.27.
- **Dataset:** Prebuilt dataset :: CIFAR10.
- *Stacks Used:* Python, TensorFlow, Keras, NumPy.

SKILLS

Languages:	Python, C++, MATLAB, MySQL, LaTeX
Frameworks/Libraries:	TensorFlow, Keras, NumPy, OpenCV, Scikit-Learn, (Mastering PyTorch and JAX)
Developer Tools:	Git, Jupyter Notebooks, TensorBoard, WandB Monitoring Dashboards

PROFESSIONAL CERTIFICATES

Deep Learning Specialization from deeplearning.ai Nov. 2020
Coursera

Machine Learning from Stanford University Jan. 2021
Coursera

Mathematics for Machine Learning from Imperial College London Oct. 2022 – Present
Coursera

MISCELLANEOUS

- Ranked second, Intermediate Computer Science, Government College Peshawar Batch 2016th July 2018
- Ranked second, BS Computer Science; Batch 18th University of Engineering and Technology Oct. 2022
- Remain the head of technical team at Google Developer Student Club for two years Sep. 2020 – Oct. 2022
- Invited talks at student societies and clubs for *AI in Education and Healthcare* Jan. 2021 – Aug. 2021