TANEEM ULLAH JAN

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RESEARCH INTERESTS

I am interested in building artificial intelligent machines that can see and learn towards more generalised goals. Modelling new algorithms, techniques for optimisation and evaluation especially at the intersection of computer vision and natural language processing for assorted fields, is where I always find myself inclined more.

EDUCATION

University of Engineering and Technology Peshawar, Pakistan Sep. 2018 – Sep. 2022
Bachelor Studies in Computer Science

Advisor: Dr. Zakira Inayat
Thesis: HTML Code Generation from Images with Deep Neural Networks
CGPA: 3.58/4.0

Government College Peshawar, Pakistan Sep. 2016 – June. 2018
Intermediate in Computer Science

Core Subjects:

- Mathematics
- Computer Science
- Physics

WORK EXPERIENCE

NAECO Blue GmbH Aug. 2021 – Nov. 2021
Intern Machine Learning Engineer *Bad Schwartau, Germany*

- During internship, the main task was to find a weather API so that the teams don't need to overlook any other resources for any kind of data. I talked to different organisations and then tested out their weather API models for forecast and historical data, in terms of annually, monthly, weekly, daily, hourly and minutely.
- My testing and analysis model made the company decide on API services, I recommended. The data pipeline I developed for the company, the analytical charts, models and graphs, they were following to find the best spatial and temporal resolution data for a specific location.
- Using my data pipeline mode, I reduced the development time by almost half of the time due to automating the tasks of finding the best relevant data for a specific geographical location.
- *Outcome*: Learnt to document what I work – to work in a team, collaboration – the applied deep learning models in industries, outside academia.

UET Peshawar AI Lab Jan. 2022 – Oct. 2022
Student Research Assistant *Peshawar, Pakistan*

- Worked with Dr. Zakira Inayat on the data generation models, image processing through deep neural networks. Extensively drive the studies around the mathematical model optimisations too, to improve the consistency of machine learning models.
- Studied and implemented various deep learning architectures for tasks such as object detection, localisation and classification.

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 dimensions 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 – Present

- 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.
- Trying to achieve the results for a machine which at a time can see and speak, towards generalisation.
- ***Dataset***: Prebuilt dataset :: Harvard im2markup.
- *Stacks Used*: Python, TensorFlow, Keras, OpenCV, NumPy.

Deep Image In-Panting: Generative Vs. Recurrent Models *web* Oct. 2022 – Present

- Improving context encoders by executing several major training tricks on GAN and remodel the network to WGAN.
- Comparative testing of encoders and discriminators based on top of state-of-the-art models against basic CNN architectures is carried out.
- Proposed a Row–Flattened LSTM from PixelCNNs to show a simpler model can achieve good results.
- The L_2 loss acquired here by our proposed model is above 7.5 as compared to others with highest of 6.9.
- ***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
Developer Tools:	Jupyter Notebooks, TensorBoard, WandB Monitoring Dashboards
Platforms:	MacOS, Windows

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 Sep. 2022 – Present
Coursera

TensorFlow Developer Professional Certificate from deeplearning.ai June. 2021
Coursera

MISCELLANEOUS

- Ranked second, Intermediate Computer Science, Government College Peshawar Batch 2016^{th} July 2018
- Ranked second, BS Computer Science Batch 18^{th} University of Engineering and Technology Oct. 2022