TANEEM ULLAH JAN

Charsadda, Pakistan

email: taneemishere@gmail.com —— *web:* https://taneemishere.github.io

RESEARCH INTERESTS

Interested in formulating and developing intelligent systems with a special emphasis on domain adaptation techniques for a range of applications, including generalisation in many machine learning based automation tasks. In an effort to push the limits of AI, I am also into modelling new algorithms, approaches for optimisation and evaluation at the intersection of computer vision and natural language processing.

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

WORK EXPERIENCE

BHuman AI   Jan. 2023 – Present
Research AI Engineer   *New York, USA*

- Currently working on the development of personalised AI for 1–to–infinity conversational videos, utilising deep learning and computer vision to improve and innovate Image Reenactment and Neural Head Avatar technologies. The objective of this work is to bring the conversational videos to new heights by making it more natural and personalised.
- I have been collaborating with my colleagues in the AI Team to develop novel techniques and implement state–of–the–art methods in this field. Our collective efforts are aimed at publishing our findings and contributing to the advancement of this exciting area of research, and developing actual products around them all.

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

- Worked with Dr. Zakira Inayat on deep generative models, including transformers for vision and text, and image processing through deep neural networks. Conducted studies on mathematical optimisation and evaluation techniques to improve the consistency of machine learning models.
- I made valuable contributions in research related to Visual Entailment. Working with my advisor, I was able to successfully published my research thesis and one additional study in the UET JEAS 2022 journal. Through this experience, I gained valuable skills in research methodology, academic writing, and effectively communicating scientific findings which have prepared me for continued success in the field of research.

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

- Conducted research and evaluation study of intelligent and numerical weather models and their APIs to support the company's data needs, resulting in the implementation of a data pipeline that reduced the research and development time by almost half.
- Developed analytical tools and machine learning models to aid in the selection of the best spatial and temporal resolution data for specific locations. I have gained experience in the application of machine learning in industry and working in a collaborative team environment outside academia.

RESEARCH & PUBLICATIONS

face2face: One–Shot Talking Head Video Generation from a Source Image   Feb. 2023 – Present
- Using Neural rendering and Neural head avatars, I developed a project aimed at generating a realistic and dynamic talking head video from a single still image, using a video of your choice as the driving input.
- With this work, we achieved high resolution output videos, in $1080p$ without using StyleGAN and or any other similar models to enhance the low–resolution quality video instead of generating it directly.
- This work is done at **BHuman AI** by **Taneem Ullah Jan** solely from research to development and engineering, and is now in production stage, and soon will be live on the platform.

face-swapping: Swapping Faces in a Video from a Source Image   Mar. 2023 – Present
- Developing an image reenactment system based on one–shot learning and neural head avatars, capable of generating realistic and expressive face swapped videos from a still image as a driving input.
- This work aims to develop a framework for transferring the identity of any source face into a target while preserving the target face's unique mark–points such as eye contact and facial expressions, which is an improvement over previous methods that lack this ability, that too in high quality resolution.

Programming Code Generation from Documentations   *web* Jan. 2023 – Present
- Manipulating natural language to code generation approaches to generate code from official documentations rather than publicly available repositories, to avoid any licensing and maintain genuineness.
- With this we are taking a different approach from currently available code generation models that either learn the translation between input and output implicitly from naturally occurring patterns of inter–related natural language and code or learn directly from input–output pairs provided as training code data.
- Collaborative research, to be published once completed. By; **Taneem Ullah Jan** and Jillianne Kala.

Deep Image In-Painting: Generative Vs. Recurrent Models   *web* Oct. 2022 – Jan. 2023
- Improving context encoders by executing several major training tricks on Generative Adversarial Networks and remodel the network to Wasserstein–GAN. A comparative testing of encoders and discriminators based models on top of state–of–the–art models against basic CNN architectures is also carried out.
- Proposed a Row–Flattened LSTM from Pixel–CNNs to show how a simpler model can achieve good results. The $L2$ loss acquired here by this proposed model is 4.26 as compared to the others with lowest of 5.27
- **Taneem Ullah Jan** and Dr. Zakira Inayat **UET JEAS** 2023 (**Under review**)

HTML Code Generation from Images with Deep Neural Networks   *web* Dec. 2021 – Aug. 2022
- Applied machine translation and image captioning techniques to convert images into words and sentences with the use of deep neural networks. Inspected and featured images with Convolutional Auto–Encoder, to encode them into latent dimensional space and features.
- Decoded and mapped those lower level features with Sequential Networks to generate HTML code. The results achieved by this work are higher and more accurate than the paper comparatively, published with 77%.
- **Taneem Ullah Jan**, **UET JEAS** 2022 (**Approved**)

TECHNICAL SKILLS

Languages:	Python, C++, MATLAB, MySQL, LaTeX
Frameworks/Libraries:	PyTorch, TensorFlow, Keras, NumPy, OpenCV, Scikit–Learn, (Mastering JAX)
Developer Tools:	Git, WandB Monitoring Dashboards, Google Cloud Platform

AWARDS & HONOURS

- 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
- Young Undergrad Researcher Award for Bachelor Thesis in Computer Science   Oct. 2022
- Remain the head of technical team at Google Developer Student Club for two years   Dec. 2020 – Sep. 2022