

## EDUCATION

### University of Engineering and Technology Peshawar, Pakistan

*Bachelor Studies in Computer Science*

Sep. 2018 – Sep. 2022

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

*Advisor:* Dr. Zakira Inayat

*CGPA:* 3.58/4.0

## PROFESSIONAL EXPERIENCE

### AI Research Advisor

Sep. 2024 – Present

[VOLV AI](#)

- Directing the AI research initiatives in 3D computer vision, focusing on advancing digital human synthesis and virtual try-on technologies for garments and makeup.

### Research AI Engineer

Jan. 2023 – Dec. 2023

[BHuman AI](#)

- Led the development of personalized Generative AI for 1-to-infinity conversational videos.
- Developed advanced audio-driven lip-sync models, the company's flagship product & revenue source.
- Researched and implemented state-of-the-art models in image animation, facial motion transfer, and face-swapping.

### Undergraduate Research Assistant

Jan. 2022 – Oct. 2022

*Advisor:* Dr. Zakira Inayat

[CS&IT AI Lab UET Peshawar](#)

- Developed supervised neural network solutions for image processing and implemented generative models for automated image captioning tasks.
- Contributed to literature reviews and code writing in research projects on contextual intelligence and image similarity.
- Implemented mathematical optimization techniques like SVD, LU Decomposition, and Cross-Entropy Minimization.

### Intern Machine Learning Engineer

Aug. 2021 – Nov. 2021

[\[web link\]](#)

[NAECO Blue GmbH](#)

- Developed analytical functions and machine learning models for selecting optimal spatial and temporal resolution of weather data for solar and wind energy predictions and insights.
- Conducted research and evaluated weather models and their APIs to support the company's data needs. This led to the implementation of a data pipeline that reduced research and development time by nearly 50%.

RESEARCH  
PROJECTS

**LipSyncFace: High-Fidelity Audio-Driven and Lip-Synchronized Talking Face Generation**

*Advisor: Dr. Zakira Inayat*

June 2024 – Present

- Developed a two-stage framework for audio-driven talking face generation, addressing the challenge of visual quality in lip synchronization.
- Proposed a face generation network to encode visual face information and synchronize lip movements with audio.
- Implemented a rendering decoder to render high-fidelity videos more precisely in lip-sync with lower inference time.

**lipsync2: Talking Face Generation with Most Accurate Lip Synchronization**

Aug. 2023 – Dec. 2023

- Developed a GAN framework for audio-driven lip synchronization, which generates talking faces.
- Implemented a pre-trained discriminator that evaluates the generated faces for whether audio signals and lips are in sync.
- Achieved 10% improvements on Lip-Sync Error Confidence (LSE-C) and 6% improvements on Lip-Sync Error Distance (LSE-D).

**face2face: One-Shot Talking Head Video Generation from a Source Image**

Jan. 2023 – Apr. 2023

- Developed a refinement-based motion transfer method to generate realistic, dynamic talking head videos from a single image, driven by input videos.
- Worked on a pre-trained unsupervised motion synthesis module to estimate hidden motion using flexible grids, addressing the challenge of pose gaps between source and target images.
- Achieved superior performance on benchmarks, exhibiting improvements of 5 – 10% on animation metrics compared to existing approaches.

**face-swapping: Swapping Faces in a Video from a Source Image**

May. 2023 – Aug. 2023

- Developed an image reenactment and image manipulation framework capable of generating realistic face swapped videos from a single image.
- Proposed an identity injection module for transferring the identity information of the source face into the target face at the feature level.

PUBLICATIONS

**Taneem, U. J.**, and Ayesha, N., Beyond CNNs: Encoded Context for Image Inpainting with LSTMs and Pixel CNNs. 2024. ICTIS-24 and IJIST (VOL. 6 NO. 5 Special Issue 2024). [\[link\]](#)

**Taneem, U. J.**, and Zakira, I. HTML Code Generation from Images with Deep Neural Networks. 2022. JEAS UET Peshawar. [\[link\]](#)

SKILLS

- **Programming Languages:** Python, C++, MATLAB, MySQL, L<sup>A</sup>T<sub>E</sub>X, Bash Scripting
- **Frameworks/Packages:** PyTorch, TensorFlow, Keras, NumPy, OpenCV, Scikit-Learn
- **Developer Tools:** Git, WandB Monitoring Dashboards, GCP, AWS (*Model Training*)

AWARDS &  
HONORS

- **Young Undergrad Researcher Award** for Bachelor Thesis in Computer Science (2022)
- **Ranked 2<sup>nd</sup>**, BS Computer Science; Batch 18<sup>th</sup> University of Engineering & Technology (2022)
- **Ranked 2<sup>nd</sup>**, Intermediate Computer Science, Government College Peshawar Batch 2016<sup>th</sup> (2018)

EXTRA-  
CURRICULAR  
ACTIVITIES

**Language Ambassador for Pashto at Cohere For AI's AYA Project**

(2023)

**Head of the Technical Team at Google Developer Student Club**

(2020-22)

- Arranged meetups, technical talks, and delivered presentations on the impact of AI in education and healthcare at different student societies and clubs.