

# Muzammil Nawaz Khan

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## PROFESSIONAL SUMMARY

Junior AI Engineer with a strong foundation in Computer Vision and Data Science. Currently optimizing workforce analytics at CareCloud by automating complex data pipelines. Proven researcher with award-winning experience in biomedical image segmentation (Winner, COMPPEC 2025). Skilled in Python, PyTorch, and deploying logic-driven solutions for real-world problems.

## PROFESSIONAL EXPERIENCE

### CareCloud

Junior AI Engineer

July 2025 – Present

Remote / On-site (Update as needed)

- Data Extraction Scripting:** Developed Python scripts to interface with Hikvision NVR systems, successfully fetching raw logs of employee facial matches for processing.
- Logic Implementation & Filtering:** Designed and implemented data cleaning rules to remove duplicate records and filter out non-attendance related movements, ensuring only valid check-ins were recorded.
- Attendance Data Integrity:** Transformed noisy raw camera data into structured, accurate attendance records, directly enabling the HR system to track employee productivity and presence reliably.

### Risetech

AI Research Intern

July 2024 – August 2024

Islamabad, Pakistan

- Neurofusion Project (FYP):** Spearheaded the development of a 3D brain tumor segmentation system using the BraTS20 dataset. Benchmarked 3D U-Net against SegFormer3D, selecting the latter to achieve **85%+** accuracy.
- Awards & Recognition:** Won **1st Place at COMPPEC 2025** and received the Departmental Silver Medal (2nd Best FYP) for technical complexity and innovation.

## TECHNICAL SKILLS

**Languages:** Python, C++, Java, MATLAB, SQL

**Machine Learning:** PyTorch, TensorFlow, Scikit-learn, Keras

**Computer Vision:** OpenCV, CNN architectures (U-Net, SegFormer), Image Segmentation

**Tools:** Git, NumPy, Pandas

## KEY ACADEMIC PROJECTS

### Retinal Image Segmentation | Python, OpenCV

- Developed a method for segmenting retinal structures using multi-level thresholding and morphological operations to enhance vessel visibility for medical analysis.

### Braille Digits Recognition | Python, OpenCV

- Built a Python/OpenCV system to recognize Braille characters through dot pattern analysis and noise filtering.

### Cat Dog Classification | TensorFlow, Keras

- Implemented CNN models comparing architectures with/without pooling and dropout to demonstrate effective regularization techniques.

### Skin Image Segmentation | Python, OpenCV

- Designed a segmentation system using Connected Component Labeling (CCL) and thresholding, achieving high accuracy via post-processing refinement.

## EDUCATION

### National University of Sciences and Technology (NUST)

Bachelor of Computer Engineering (CGPA: 3.25)

Islamabad, Pakistan

Nov. 2021 – July 2025

## CERTIFICATIONS

IBM Deep Learning Professional Certificate (Coursera) – Includes PyTorch, Keras, and TensorFlow