

# Muhammad Taqi Raza

+92-3184154411 | [taqiraza126@gmail.com](mailto:taqiraza126@gmail.com) | [linkedin.com/in/muhammad-taqi-raza](https://linkedin.com/in/muhammad-taqi-raza) | [github.com/TaqiRaza512](https://github.com/TaqiRaza512)

## SUMMARY

I bring over two years of experience in Python and key libraries such as PyTorch, TensorFlow, and OpenCV. My focus is on training machine learning models to achieve high accuracy, with a deep interest in the mathematics and optimization techniques.

## EDUCATION

### Bachelor of Science in Computer Science

Information Technology University, Lahore

September 2020 - July 2024

Lahore, Pakistan

**Relevant coursework:** Computer Vision (A-) and Deep Learning (A-)

## EXPERIENCE

### Associate Computer vision Engineer

Hazen.ai

July 2024 - January 2025

Lahore, Pakistan | Saudi-Arabia

- I trained a variational autoencoder model for a vehicle license plate OCR recognition system tailored to the Middle Eastern countries, as commissioned by the Saudi Arabian government's AI sector (SDAIA).
- Instead of training the model on a limited real dataset, I generated a synthetic dataset of 84 million license plates. I employed various techniques, including image augmentation, to handle varying conditions.
- Given the high accuracy required for OCR tasks, the model was tested on real-world data, where it delivered an impressive 98% accuracy.

### Technical Content Intern

Educative, Inc

June 2023 - August 2023

Lahore, Pakistan

- Authored 60+ tutorials on deep learning and robotics, reaching over 1 million learners globally.
- Received praise for content clarity and depth, and earned certifications for excellence during the program.

### Game Development Fellowship

Mindstorm Studios

July 2021 - Sep 2021

Lahore, Pakistan

- I worked on the development of a Unity game called "Clean Street" based on the concept of "runner + modifier".
- The player, equipped with a vacuum and a transparent expanding bag, collects wrappers while navigating the street.

## SIDE PROJECTS

### Poverty Detection Using Satellite Imagery

Dr. Mohsen Ali

- Trained ResNet-18 to uncover asset index patterns from already collected satellite imagery dataset.
- Prepared a poster presentation on poverty detection using satellite imagery, showcasing the result of different trained models like VGG-16, ResNet-18, and Vision Transformer models.

### Lane Departure system in self-driving cars

- Implemented a lane detection pipeline using HSV color space, Gaussian filtering, and Canny edge detection.
- Designed dynamic Region of Interest (ROI) and applied Hough Transform with linear regression to identify lane lines.

### Safe Navigation for Multi-agent Robotics System

Dr. Usama Mehmood

- Worked on the implementation of an advanced navigation algorithm for multi-agent robotic systems ensuring 100% collision-free paths for robots in dynamic environments.
- Currently preparing a research paper for submission to IEEE Robotics and Automation Letters, including comparisons with state-of-the-art algorithms to highlight its superior performance.

## SKILLS

**Programming Languages:** Python, C++

**Frameworks and Libraries:** PyTorch, TensorFlow, OpenCV, Docker