Syed Furqan Ali

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EDUCATION

- **NUST School of Mechanical and Manufacturing Engineering** — Islamabad, Pakistan
  Masters in Robotics and Intelligent Machine Engineering; — *Feb. 2024 – Dec 2025*

- **NUST College of Aeronautical Engineering** — Risalpur, Pakistan
  Bachelors of Electronics and Avionics Engineering; GPA: 3.07 — *Nov. 2018 – Sept. 2022*

- **The City School PAF Chapter** — Karachi, Pakistan
  Cambridge International A Levels; Grades: 2A*s, 3As — *Sept. 2016 - July. 2018*

ADDITIONAL COURSES

- **Neural Networks and Deep Learning:** DeepLearning.ai

- **Improving Deep Neural Networks: Hyperparameter Tuning, Regularization and Optimization:** DeepLearning.ai

- **Structuring Machine Learning Projects:** DeepLearning.ai

- **Convolutional Neural Networks:** DeepLearning.ai

- **Sample-based Learning Methods** University of Alberta, Alberta Machine Intelligence Institute

- **A Complete Reinforcement Learning System (Capstone):** University of Alberta, Alberta Machine Intelligence Institute

FINAL YEAR PROJECT

- **Reinforcement Learning Agent for Jamming Mitigation(FYP):** Design and Development of a Reinforcement Learning based Jamming Mitigation agent that would interact in a Communication Jamming environment and learn to employ the optimal Jamming Mitigation Scheme.

PROJECTS

- **Automobile Detection using YOLO:** Implemented the "You Only Look Once" (YOLO) algorithm to detect cars in a car dataset provided by "Drive.ai". Incorporated non-max suppression to enhance accuracy and intersection over union for better precision. Our system effectively handles bounding boxes.

- **Image Segmentation Using U-Net:** Implemented semantic image segmentation on the CARLA self-driving car dataset. Applied sparse categorical crossentropy for pixelwise prediction.

- **Face Recognition:** Implemented one-shot learning to solve a face recognition problem by applying the triplet loss function to learn a network's parameters in the context of face recognition.

- **Art Generation with Neural Style Transfer:** Implemented Neural transfer using an algorithm created by Gatys et al to merge style and content of two images.

- **Traffic Police Radar:** A traffic police radar consisting of a KLD-7 radar kit assisted by MATLAB for speed measurement and over-limit detection.

- **Low-Pass Microwave Filter:** Design, Simulation, and, Fabrication of Low-Pass Microwave filter using *Keysight Pathwave ADS*. Designed to be a 5th order, 3dB Equal ripple (Chebyshev) filter with a 2.5 GHz cutoff frequency, 50 Ω Characteristic Impedance, and FR4 substrate

- **IIR filter for cleaning ECG signals:** Designing an IIR Notch filter on MATLAB that removes sinusoidal interference caused by harmonics of 60Hz power signal from a corrupted ECG signal.

- **Whistle Detector Switch:** An Arduino-controlled relay switch, programmed to listen to a whistle through a connected microphone, validate it as a genuine whistle, and command the switch to turn on or off.

- **Line Following Robot:** PID controller based Line following Robot that uses sensory data from its camera

- **8 bit Shift Register** Assembly and configuration of a 8 bit Shift register to facilitate data flow in data buses of an 8-bit computer.

SKILLS

- **Languages**: Python, Matlab, Tensorflow, Keras, PyTorch