

## TEACHING EXPERIENCE &amp; INTERNSHIPS

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| Lecturer | NED University of Engineering and Technology, Karachi, Pakistan | April 2025- Present |
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| Visiting Faculty | NED University of Engineering and Technology, Karachi, Pakistan | Jan 2024 – April 2025 |
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- Taught **Fundamentals of Data Science, Machine Learning, Parallel and Distributed Computing** and **Computer Architecture and Organization** course in **Computer Science & Information Technology** department.
- Conducted labs for **Microprocessor and Interfacing, Digital System Design, and Signals and Systems**

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| Intern | JPCL (Jamshoro Power Company Limited) |
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- Assist in the design, installation, calibration, and maintenance of instruments and control systems in accordance with the specifications and requirements of the instrumentation department.

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| Intern | Colgate Palmolive Limited |
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- Assist in the calibration, testing, and troubleshooting of electronic sensors and monitoring systems to ensure proper functioning and timely detection of faults in Colgate and Palmolive limited company.

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| Intern | NTC (National Telecommunication Corporation) |
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- Learning the installation, maintenance, and security of devices, as well as the management of network infrastructure from the data center to offices and residences in the city.

## EDUCATION

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| <b>Masters in Data Engineering and Information Management (CGPA: 3.58)</b><br>NED University of Engineering & Technology | <b>2021-2023</b><br>Karachi, Pakistan |
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- **Courses:** Cloud Computing (3.7/4.0), Distributed Systems (3.7/4.0), Data Analytics (3.7/4.0), Big Data Computing (3.4/4.0), Data Mining (3.7/4.0), Advance Database Systems (3.7/4.0), Data Security & Audit (3.7/4.0)

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| <b>Bachelor of Engineering in Electronics Engineering (CGPA: 3.84)</b><br>Mehran University of Engineering & Technology | <b>2016 - 2020</b><br>Jamshoro, Pakistan |
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- **Courses:** Artificial Intelligence (3.25/4.0), Computer Communication & Networking (4.0/4.0), Embedded Systems Design (3.5/4.0), FPGA Based System Design (3.87/4.0), Microprocessor & Microcontroller (3.87/4.0), Electronic Circuit Design (4.0/4.0), Computer Programming (4.0/4.0), Digital Electronics (4.0/4.0), Integrated Electronics (4.0/4.0), Sequential Circuit Design (4.0/4.0), Analog & Digital Communication (4.0/4.0), Probability & Random Signal (4.0/4.0)

## RESEARCH INTERESTS

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- **Robotics and path detection:** Application of machine learning techniques for indoor robot path detection and navigation in complex environments.
  - **Embedded systems and Machine learning:** Development and optimization of machine learning algorithms for real-time face recognition. Comparative analysis across different platforms to evaluate performance, accuracy, and resource utilization.
  - **Biomedical applications:** Research on mental health applications, particularly depression detection, using real-world datasets to develop predictive models and improve healthcare outcomes.

## HONOR &amp; AWARDS

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- Achieved 7th position out of 110 student's batch of electronics engineering
  - Got 3rd position in senior year project competition
  - Winner in robotics competition, Mehran University of Engineering and Technology, Jamshoro, Pakistan
  - Got 2nd position in robotics competition, Dawood University of Engineering and Technology, Karachi, Pakistan

## PROJECTS

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### **Depression Detection through speech analysis (Master's Thesis)**

Detecting depression through speech analysis using Python and artificial intelligence algorithms, particularly Support Vector Machines (SVM), which analyze patterns in the acoustic features of speech to classify depressed and non-depressed individuals.

### **FPGA Based Real Time Face Recognition System (Senior Year Project)**

Real-time face recognition using FPGA-based MyRIO device with minimum latency and more accuracy and compared to Raspberry Pi and MATLAB-based systems for performance analysis.

### **Indoor path detection (Data Science Internship Project)**

This project focused on developing a machine learning-based system for **indoor robot path detection** and navigation within a building. The solution aimed to enable autonomous navigation by identifying optimal paths and avoiding obstacles in real-time.

## Skills

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**Programming Languages:** Python, C++, MATLAB, Verilog, VHDL, Assembly Language

**Hardware Boards:** Arduino (Atmel, Atmega), RaspberryPi3b, FPGA-based MyRIO device, 8086 and 8088 microprocessor, 8051 microcontroller, FPGA board, Oscilloscope

**Simulation Software:** MATLAB, LabVIEW, Xilinx, Multisim, Proteus, DOSBox