MEHAR FATIMA

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TEACHING EXPERIENCE & INTERNSHIPS

Visiting Faculty — **NED University of Engineering and Technology, Karachi, Pakistan** — **Jan 2024 – Present**

- 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**

Intern — **JPCL (Jamshoro Power Company Limited)**

- Assist in the design, installation, calibration, and maintenance of instruments and control systems in accordance with the specifications and requirements of the instrumentation department.

Intern — **Colgate Palmolive Limited**

- 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.

Intern — **NTC (National Telecommunication Corporation)**

- 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

Masters in Data Engineering and Information Management (CGPA: 3.58) — **2021-2023**
NED University of Engineering & Technology — **Karachi, Pakistan**

- **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)

Bachelor of Engineering in Electronics Engineering (CGPA: 3.84) — **2016 - 2020**
Mehran University of Engineering & Technology — **Jamshoro, Pakistan**

- **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

- **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 & AWARDS

- 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

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

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