



# Mohammad Irfan

## Electrical Engineer

Detail-oriented Electrical Engineering student with a strong foundation in digital logic design and hardware description languages. Proven experience in developing video processing pipelines and implementing complex systems on FPGA platforms. Seeking to leverage expertise in Verilog and RTL design to contribute to innovative hardware acceleration and Digital IC design projects.

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📍 Mianwali, Pakistan

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## SKILLS

Verilog HDL RISC-V Architecture

Digital System Design

Hardware-Software Integration

Problem Solving Vivado

Windows Linux

## CERTIFICATES

### AI and High Performance Computing for Self Employment Track (One-Week Training)

Centre for AI and Big Data, Namal University Mianwali

### Supercomputing and AI for Tech Entrepreneurs (Summer School)

Centre for AI and Big Data, Namal University Mianwali

### Indigenous And Secure Digital System Design For National Progress (Summer School)

Centre for AI and Big Data, Namal University Mianwali

### NAMALTECH EXPO 2024 , 2025 and 2026.

Namal University Mianwali

## LANGUAGES

### English

Limited Working Proficiency

### Centre for AI and Big Data, Namal University MianwaliUrdu

Professional Working Proficiency

## EDUCATION

### Bachelor of Science in Electrical Engineering

Namal University Mianwali

2022 - 2026 | Mianwali, Pakistan

## WORK EXPERIENCE

### Work-Study Student

Centre of Artificial Intelligence and Big Data, Namal University Mianwali

Jul 2025 - Aug 2025 | Mianwali, Pakistan

#### Accomplishments / Tasks

- Worked on the basics of FPGA design and programming, gaining hands-on exposure to digital hardware implementation.
- Learned and applied RISC-V based single-cycle processor concepts, including instruction execution and verification.
- Explored the integration of open-source hardware tools for FPGA-based system design.

## PROJECTS

### Single Cycle Processor

Lead

Designed a Single Cycle RISC-V processor in Verilog, verifying the data path by executing C programs compiled via the GCC toolchain.

### Pipeline Processor

Lead

Implemented a 5-stage pipeline processor with hazard handling, fully capable of executing complex binaries generated by the GCC compiler.

### FPGA Implementation

Lead

Interfaced peripheral modules with an FPGA board using Verilog to process real-time data signals and display output.

### Density-Aware Mammography Classification

Role

Developed a dual-stream neural network fusing ResNet18 image features with clinical metadata for cancer detection, achieving 88.09% accuracy on the Vin Dr-Mammo dataset.

### Line Following Robot

Role

Built a robot using Arduino Uno and IR sensors to follow a predefined path.

## FINAL YEAR PROJECT

### Design and Development of Video Processing Accelerator on FPGA

Lead and Role

Implementation of a Real Time Object Detection System via DVP OV5640 Camera on Xilinx FPGA.