

# Natasha Kamal

Electrical Engineer

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content=profile&utm\_medium=android\_app

A BS Electrical Engineering student at Namal University, Natasha is proficient in digital system design, FPGA-based development, processor design, and embedded systems. She has hands-on experience with MIPI CSI-2 interfaces, Verilog and Iverilog. Passionate about solving real-world problems through hardware design, Natasha's Final Year Project involves the development of a MIPI camera interface for FPGAs, focusing on real-time video display, rice grain detection. Additionally, she has designed a RISC-V processor using Iverilog, verified through testbenches and analyzed with GTKWave. As a research and teaching assistant at the AI and Big Data Center, she contributed to innovative projects, conducted workshops, and handled administrative responsibilities. Natasha excels in problem-solving, teamwork, and communication, with expertise in Xilinx Vivado, Verilog, and IoT.

## EDUCATION

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Study Program

BS Electrical Engineering

11/2021 - Present

3.27/4

Courses

- Digital System Design

- Embedded System

- Computer Architecture

- Digital Logic Design

## WORK EXPERIENCE

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Researcher

AI and Big Data Centre

01/2024 - Present

Achievements/Tasks

- Worked on switch level, gate level and RTL level.

- Worked on Xilinx Vivado and FPGA.

Contact : Tassadaq Hussain - tassadaq.hussain@namal.edu.pk

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Teacher Assistant

Namal University Mianwali

05/2022 - Present

Achievements/Tasks

- Administrative Tasks.

- Assisted in organizing workshops and extracurricular activities.

Contact : Tassadaq Hussain - tassadaq.hussain@namal.edu.pk

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Internship

NTDC (220 kV)

07/2024 - 08/2024

Achievements/Tasks

- Observed high-voltage grid operations

- Gained exposure to power transmission and protection mechanisms.

- Prepared technical reports and broadened engineering perspective beyond digital and embedded systems.

Contact : Muhammad Salman - 03357401612

## SKILLS

Digital System Design

C++

C

MATLAB

MIPI CSI-2

Verilog

FPGA Design

Vivado

GTKWave

Linux

RISC-V Processor Design

## PERSONAL PROJECTS

Development of MIPI Camera Interface for FPGAs

- Interfaced MIPI camera (Pcam 5C) with Zybo Z7020 FPGA to display real-time video on HDMI.

- Designed and implemented rice grain detection system.

- Applied image processing techniques to highlight detected grains in green.

Design and Simulation of a Single-Cycle RISC-V Processor

- Designed a single-cycle RISC-V processor using Verilog (Icarus Verilog).

- Developed stimulus for functional verification.

- Analyzed and debugged signal behavior using GTKWave waveform.

Line Following Car using EV3

Flyback boost Converter

- Designed and implemented it on PCB board.

## CERTIFICATES

Certificate of Appreciation – Processor Design Course

Recognized for active participation and completion of training in processor architecture and design

Certificate of Appreciation – Robotic Competition, Bahria University

Recognized for participation and teamwork in a university-level robotics challenge

Certificate of Participation–Two Day Soft Skills Development Training by PEEF

Trained in communication, teamwork, time management, and workplace professionalism