Fatimah Tahira Husain

Ontario, Canada | +1 548 384 4056 | fatimah.husain2000@gmail.com | www.linkedin.com/in/fatimah-t-husain

SUMMARY

A Mechatronics Engineer with a master's in electrical and computer engineering, having hands-on experience in Control System Design, PLC Programming, Embedded Systems, PCB Design, Circuit Analysis and Robotics. Passionate about developing robust solutions through collaboration with cross functional teams and contributing to continuous improvement. Experienced in working on interdisciplinary challenges, applying creative problem solving. Highly adaptable, collaborative, and results-driven, committed to support the development of high-quality engineering solutions.

SKILLS

Programming: Python, MATLAB/SIMULINK, C++, Embedded C, PLC Programming (Ladder Logic)
Technical Areas: Control Systems, Sensor Integration, Robotics, Embedded Systems, Machine Learning, Data Analysis, PCB Design, Optimization
Tools: Proteus, Fusion 360 (Eagle), Arduino Microcontrollers, RSLogix, SolidWorks, Workspace 5, LabVIEW, IBM SPSS
Soft Skills: Team Collaboration, Critical Thinking, Problem Solving, Multi-tasking, Quick Learner, Adaptability, Good Communication, Attention to Detail

EDUCATION

University of Waterloo — Waterloo, Ontario, Canada
MEng Electrical and Computer Engineering, CGPA: 87.6 % — *August 2025*

National University of Science and Technology — Islamabad, Pakistan
Bachelor of Mechatronics Engineering, CGPA: 3.89/4.0 — *June 2023*

PROFESSIONAL EXPERIENCE

NaqCoDE Technologies PvT LTD
Design Engineer (Control Systems Team*)* — *July 2023 – July 2024*

- Designed **control system with sensor-actuator feedback loops** for UAV stability and reliability.
- Conducted **simulations in MATLAB/Simulink**, validating control performance.
- Collaborated with engineers across electrical, mechanical, and software disciplines to meet project specifications.
- Prepared **design proposals and documentation**, leading to successful client acceptance of multiple UAV projects.

National Institute of Electronics
Automotive Lab Intern — *July 2021 – Aug 2021*

- Designed and tested a **BLDC motor controller for EV conversion**, integrating circuit design and microcontroller programming.
- Used Proteus and Arduino for **schematic capture, simulation, and performance validation**.
- Conducted debugging and hardware testing using lab instrumentation.

Robotics and Automation Club
Mentor and Mechanical Team Lead — *September 2022 – June 2023*

- Led seminars and workshops on robotics design, embedded systems, and control software.
- Guided student teams in building functional robotic platforms and circuit prototypes

PROJECTS

Path Planning of Mobile Manipulator for Pick-and-Place Task

- Designed control Lyapunov functions and control barrier functions for navigation and obstacle avoidance.
- Synthesized the control input for the mobile platform using a quadratic program formulation to achieve safe navigation

Design and Development of Wall Climbing Robot for Cleaning and Inspection of Boiler Walls

Capstone Project (Group leader)

- Implemented a PI-based speed control using Arduino microcontroller for precise movement of the robot.
- Integrated a camera system for real-time inspection and a water jet for automated cleaning of boiler walls.
- Designed and manufactured PCB of the electric circuit for the integration of motors, power supply, sensors, and microcontroller.
- Conducted testing and refined electrical characteristics for efficient operation

Developed an Indigenous Fruit Plucking Robot - National Engineering Robotics Contest - NERC 22

- Developed autonomous robot; integrating sensors and servo actuation via embedded control systems
- Designed a PCB, integrating Arduino microcontroller, IR sensors, and DC Motors for precise line following.
- Integrated servo motors and brushes to automatically remove fruits from branches, improving harvesting efficiency.
- Programmed and optimized the robot's movement for accurate, autonomous operation along designated paths.

CERTIFICATIONS

- **5 PLCs in a Day-AB, Siemens, Schneider, Omron & Delta,** Udemy (On going)
- **UR5 Collaborative Robot Workshop,** National Centre of Robotics and Automation, NUST

ACHIEVEMENTS

- Received **Silver Medal** for second highest GPA in bachelors program.
- **Winner NERC 22** Indigenous category (Pakistan's biggest Robotics Contest).
- **Top in north** Pakistan in Cambridge International A Level Mathematics.
- Received **Gold medal** in A level and O level