

Faizan Saleem Siddiqui

Embedded Systems Engineer | Research Scholar - AI/ML

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📍 Saddar, Rawalpindi 🔗 LinkedIn

Professional Summary

- Experienced Embedded Systems Engineer with a robust foundation in designing and implementing innovative system-level solutions. As an M. Phil Scholar at Quaid-i-Azam University, I lead pioneering projects in AI, ML, and reinforcement learning for drones and robotics, harnessing advanced expertise with a wide range of microcontrollers and cutting-edge technologies.
- **Core Competencies:** Embedded C/C++, RTOS (FreeRTOS), Microcontrollers (STM32 F-Series, L-Series, ESP32, ESP8266, ARM, Raspberry Pi, Arduino UNO, ATMEL MEGA), DSP/FPGA Integration, CSS/HTML/Java Web UI.
- **Key Achievements:** Designed an Autonomous Tank Robot with ML models, developed intelligent vehicle automation and monitoring systems, and served as a researcher with SPIE for digital signal processing innovations.

Technical Expertise

- **Embedded Systems:** STM32 (F-Series, L-Series), ESP32, ESP8266, Arduino UNO, Raspberry Pi, ATMEL MEGA, RTOS (FreeRTOS), ARM Processors, DSP/FPGA/SoC, NRF, GPS Module, IMU Sensor, ESP32-CAM AI-Thinker.
- **Programming & Tools:** Embedded C/C++, MicroPython (Thonny IDE), TensorFlow Lite (ESP32), Edge Impulse, IDEs (Keil, ESP IDF, STM CubeMX, Arduino IDE, MATLAB, Proteus, PSpice), Logic Analyzers, Oscilloscopes, Multimeter, Function Generator, Soldering Station, CSS, HTML, Java.
- **Expertise Areas:** Signal Processing, Industrial Automation, Home Automation, Digital Communication, IoT Device Integration, Real-Time Systems, PCB Design.
- **Interfacing and Protocols:** SPI, I2C, UART, IP Protocols, APIs, JSON, HTTP, CAN, Modbus, USB, Ethernet.
- **Cloud:** Google Firebase, Arduino Cloud, Blynk IoT.

Professional Experience

Total Experience: 2+ Years

- **Embedded Systems Engineer** July 2025 Present
CNGL Engineering Co., Rawalpindi, Pak.
 - Worked on STM32 and ESP32 for IoT projects, enabling communication with user interfaces and updating information in real-time systems.
 - Supervised projects related to IoT device integration and sensor interfacing.
- **Teaching Assistant - Statistical Pattern Recognition & OOP** March 2025 July 2025
Quaid-i-Azam University, Islamabad, Pak.

- Taught subjects of pattern recognition, C/C++, digital logic design, and signal processing, supervising completion of projects on microcontroller interfacing using ESP32, Arduino with sensor integration, and cloud connectivity.
 - Assisted supervisors and professors in delivering relevant projects from students on embedded systems and digital communication.
- Visiting Faculty - Microcontrollers & Embedded Systems** August 2024 Feb 2025
Quaid-i-Azam University, Islamabad, Pak.
 - Delivered curriculum on C/C++ and STM32, covering microcontroller interfacing, digital communication, and digital signal processing with hands-on projects.
 - Supervised semester projects of students, ensuring completion of embedded systems designs.
- Research Assistant - Autonomous Vehicle Engineering Design** Oct 2023 Aug 2024
COMSIP Lab, Quaid-i-Azam University, Islamabad, Pak.
 - Designed an autonomous vehicle using STM32, developing an Autonomous Vehicle from scratch with Embedded Systems and Artificial Intelligence, comprising 4 independent vehicles and a specialized communication network (details available upon request).
 - Implemented 4 Machine Learning Models on real-time embedded systems, including Stop/Not Stop Image Detection, Lane Detection, and Weather Prediction using environmental sensors.
- Project Manager - AI Content & Development** July 2023 December 2023
M365 Connect Company, Latvia (Remote)
 - Managed a team of 9 to develop C/C++-based embedded content and AI solutions for system-level applications.
 - Supervised projects on automation and IoT device integration.
- Machine Learning Researcher** May 2022 Aug 2022
Quaid-i-Azam University, Islamabad, Pak.
 - Worked on Python and machine learning projects, focusing on image classification problem-solving using Decision Tree, Random Forest, and Support Vector Machine models with Jupyter Notebook and Anaconda.
 - Supervised projects related to AI and ML, including image classification and model optimization.

R and D Skills

- Innovative Prototyping: Skilled in designing and prototyping IoT solutions with ESP32 and Bluetooth mesh networks.
- System Optimization: Expert in analyzing and enhancing the efficiency and stability of embedded systems.
- Documentation Mastery: Proficient in creating detailed design documents and process guidelines for RD projects.

Education

- M. Phil Electronics** 2024 - 2026
Quaid-i-Azam University, Islamabad CGPA: 3.5

- Researching AI, ML for drones, and reinforcement learning with C/C++.
- Exploring DSP/FPGA for system-level innovations.

- **Bachelor of Science in Electronics**
Quaid-i-Azam University, Islamabad

2020 - 2024
CGPA: 3.8

- Specialized in Embedded Systems, Microcontrollers, and C/C++ programming.
- Mastered hardware debugging for system-level designs.

Key Projects

- **Environmental Sensor Design with ESP32 & ThingSpeak**
Link
- **Autonomous Tank Robot with ML Models**
Link
- **FSK Transmitter & Receiver with STM32**
Link
- **ESP32-Controlled Tank UI**
Link
Developed a CSS/HTML/Java-based web application to control 3 tanks, each with its own ESP32, via Wi-Fi.
- More Projects: [GitHub Repository](#)

Certifications

- IBM AI Engineering Specialization: [Link](#)
- Self-Driving Cars Specialization: University of Toronto [Link](#)
- Autonomous Vehicle Engineering: University Da Napoli [Link](#)
- Machine Learning Specialization: [Link](#)
- IBM Cyber Security Analyst: [Link](#)
- Social Media Management: Meta [Link](#)

Professional Profiles

- GitHub: <https://github.com/FaizanSSDQ>
- LinkedIn: [Technical Profile](#)
- Coursera: <https://www.coursera.org/user/1e6cd83c443f34068237bbe620e70bc0>
- Credly: <https://www.credly.com/users/faizan-saleem-siddiqui.9f0fefda>

References

- Dr. Naeem Bhatti - Supervisor - nbhatti@qau.edu.pk
- Dr. Aqeel Ashraf - Head of Department - aqueel@qau.edu.pk