

Zakriya Asif Paracha

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Software Engineer — Embedded Systems Background Rawalpindi / Islamabad, Pakistan

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SUMMARY

Software Engineer at Motive with a Computer Engineering background and hands-on experience across embedded systems, FPGA development, and robotics. Building backend engineering experience while working toward embedded and hardware-focused roles.

EXPERIENCE

L2 Software Engineer — Motive

Sep 2024 – Present

Ruby on Rails • Python • PostgreSQL • Redis • Git • REST APIs

- Developed and maintained backend services handling production traffic with high reliability.
- Debugged and resolved critical production issues, reducing downtime.
- Designed and implemented RESTful APIs for internal services.
- Optimized PostgreSQL/Redis query performance and caching strategies.
- Contributed to code reviews and deployment practice improvements.

Embedded Systems Intern — RISETech

Jul 2023 – Sep 2023

Nordic nRF52 • Zephyr RTOS • BLE • SAADC • C/C++

- Worked on an IoT healthcare device using the Nordic nRF52 DK with Zephyr RTOS.
- Integrated SAADC to acquire EMG sensor data, transmitted over BLE.
- Developed firmware to manage the MPU6050 sensor over I2C.
- Optimized embedded algorithms for performance and memory efficiency on ARM microcontrollers.
- Supervised and mentored junior interns.

Software Intern — BCUBE

Sep 2021 – Oct 2021

Python • PyQt • Device APIs

- Developed Python software to control a biometric device with a custom UI.

Assembly Language Tutor — Fiverr

Mar 2021 – May 2023

- Delivered 120+ projects, maintaining a 5-star rating across 50+ clients.

EDUCATION

BE Computer Engineering – NUST, CEME, Islamabad

Graduated Jun 2024

CGPA 3.66 / 4.0

- 30+ Coursera courses, including specializations in Development of Secure Embedded Systems (EIT Digital), Introduction to Programming the IoT (UC Irvine), and Computer Vision with Embedded ML (Edge Impulse).

SKILLS

LANGUAGES

C/C++, Python, Ruby, SQL, Go

EMBEDDED & SYSTEMS

Embedded C, RTOS (Zephyr), Embedded Linux Basics, Firmware Development

ARCHITECTURE

RISC-V, Computer Architecture, CPU Design Fundamentals

HARDWARE PLATFORMS

Arduino, ESP8266/32, Raspberry Pi, Nordic nRF52, Jetson Nano

CORE CS

Operating Systems, System Programming, System Design, Data Structures & Algorithms

LOW-LEVEL

Interrupt Handling, Memory Management, Boot Process Basics, I2C/SPI/UART

BACKEND & DATABASES

Ruby on Rails, Flask, REST APIs, PostgreSQL, Redis

TOOLS

Git, Linux, Docker

SELECTED PROJECTS

Tic-Tac-Toe with Minimax on FPGA

2023

Xilinx · Verilog · Spartan-6

- Single-player game implemented entirely on FPGA, displayed via VGA, using alpha-beta pruning to reduce the search tree.

Optimizing Warehouse Item Transportation using Multi-Hop Robotic Networks (FYP)

2024

Python • ESP8266 • MQTT • Angular

- Designed a fleet of ESP8266-based robots with region-segmented routing to eliminate collisions; built a Python backend and Angular dashboard for real-time control.

MQTT-Based IoT Device Network

2020

NodeMCU • Raspberry Pi • MQTT • App Inventor

- Built a network of NodeMCU and Raspberry Pi devices controlled via a custom Android app.

Ciphering/Deciphering and Compression Tools

2020–2021

C • Linux

- Implemented Block Cipher and Cyclic Block Cipher algorithms and a file/directory compression tool as polished Linux CLI tools.