

Muhammad Maarij

Software Engineer

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Profile

.NET-focused Software Engineer with professional experience delivering enterprise applications in **.NET C#, WPF, and ASP.NET**, complemented by cross-technology expertise in **Java Spring Boot** and **Python Flask**. Detail-oriented and committed to writing maintainable, efficient, and high-quality code, with a strong emphasis on organized architecture, comprehensive testing, and continuous improvement. Skilled at leading cross-border teams, aligning software with business objectives, and ensuring optimal performance in complex, data-driven systems.

Tech Stack

Frontend: WPF – ASP.NET – HTML – CSS – JavaScript

Backend: .NET (C#) – Python (Flask) – Java (Spring Boot, Maven) – C/C++

Databases and Messaging: MS SQL Server – MySQL – Redis – RabbitMQ

Tools & Technologies: Visual Studio – Git – DevExpress – Ceedling – GCov – OpenCV – ImageMagick – Arduino

Operating Systems: Windows – Ubuntu (Linux)

Familiar With: NodeJS – ReactJS – MongoDB – Rust

Experience

Software Engineer

Strategic Systems International (SSI), Lahore

August 2023 – August 2025

- **Fintech Application Development:**

Key Technologies: .NET C#, WPF, DevExpress, MS SQL Server, Git, Windows

- Spearheaded the development of a comprehensive financial management platform designed for managing personal and institutional finances as well as stock portfolios.
- Built the backend using microservices architecture in .NET C#, ensuring scalability, maintainability, and high performance.
- Developed the frontend in WPF with DevExpress, delivering a responsive and intuitive user interface tailored to complex financial operations.
- The application supported real-time financial tracking, investment analysis, and portfolio insights, enabling users to make informed financial decisions with ease.

- **Real-time Data Processing System ([Senswork GmbH](#)):**

Key Technologies: .NET C#, OpenCV, ImageMagick, Redis, RabbitMQ, Git, Ubuntu

- Designed and implemented a real-time inspection system for factory assembly lines using .NET C#, enabling accurate and efficient detection of manufacturing defects.
- Significantly enhanced image processing performance by optimizing an image compression service using ImageMagick and OpenCV, reducing processing time from several seconds to nanoseconds.
- Integrated Redis, an in-memory data store, to accelerate data access and reduce latency — critical to meeting the real-time processing requirements.
- Used RabbitMQ to manage asynchronous communication between services, improving the system's scalability, reliability, and throughput under high data loads.
- Achieved a production-grade system with excellent performance metrics, contributing to improved manufacturing quality control and operational efficiency for the client.

- **Manufacturing Execution System Rebuild ([COAGO MES – Grass GmbH](#)):**

Key Technologies: Java (Spring Boot, Maven), Keycloak, MS SQL Server, Git, Windows

- Led the Pakistani development team collaborating with Grass GmbH's German engineering team to rebuild the COAGO Manufacturing Execution System from the ground up.

- Served as the primary liaison between both teams, managing cross-border communication and ensuring technical alignment with business objectives.
- Mapped out development tickets, assigned tasks, and oversaw progress to maintain delivery timelines and quality standards.
- Contributed directly to system architecture and development using Java (Spring Boot, Maven), focusing on scalability, modularity, and seamless integration with existing manufacturing software.
- Replaced the existing JWT authentication implementation with Keycloak, improving security, maintainability, and integration with enterprise identity management solutions.
- **Embedded Systems Development Projects:**
Key Technologies: C, C++, Ceedling, GCov, Ubuntu, Arduino, Git
 - Developed the backend for a digital signage and advertising platform ([Teracue GmbH](#)) deployed on Linux embedded systems, ensuring seamless integration with front-end display logic and hardware interfaces.
 - Performed unit and integration testing for an embedded system powering an electronic wheelchair ([Hoss Mobility GmbH](#)), using Ceedling and GCov on Ubuntu.
 - Diagnosed and resolved critical issues in embedded modules, improving system stability, reliability, and overall safety for end-users.
 - Collaborated closely with firmware and hardware teams to align software functionalities with embedded hardware constraints.

Student Experience

Personal and Undergraduate Projects

August 2019 – July 2023

- **Personal Project – [Playmixer](#):**
 - Designed and developed a web-based music integration application that allows users to create and manage playlists combining songs from YouTube, SoundCloud, and Spotify.
 - Developed frontend in HTML, CSS, and JavaScript for responsive cross-device use.
 - Created backend in Python Flask for authentication, playlist sync, and real-time API integration.
 - Focused on enhancing user experience and media control by providing a centralized interface for fragmented streaming services.
- **Final Year Capstone Project – RNN/LSTM-Based AI Music Generator:**
 - Created a deep learning-based application that autonomously composes music using Recurrent Neural Networks (RNN) and Long Short-Term Memory (LSTM) models.
 - Trained the model on MIDI datasets to generate music sequences with a coherent sense of melody and rhythm.
 - Built full-stack solution with Python, TensorFlow (AI) and Flask (web interface), with live audio preview and customization features.
- **Other Notable Academic Projects:**
 - [AI-Based Number Plate Detection and Recognition System](#):
 - Created a computer vision system using OpenCV (C++) for detection and Python ML models for recognition.
 - Designed for real-world applications like automated tolling and security monitoring.
 - IoT and Autonomous Systems Projects:
 - Developed Arduino and C++ hardware-software systems including smart home automation, environmental sensors, and autonomous vehicles, focusing on sensor accuracy, efficiency, and real-time responsiveness.

Education

BS Computer Science

FAST National University, Lahore

August 2019 – July 2023

- Graduated with Honors (Cum Laude), 3.72 Cumulative GPA
- Dean's Honor List for 4 semesters, Rector's Honor List for 1 semester