Mohammad EL-MUSLEH

Embedded Software Developer

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Embedded Software Developer with 4+ years of experience in C#, C++, and embedded systems.
Specialized in developing robust solutions bridging hardware and software layers.

SKILLS

Programming: C, C++, C#, Python, MATLAB & Simulink, VHDL, HTML, CSS, JavaScript, SQL
Embedded Systems: ARM Cortex-M3/M4 (STM32), FreeRTOS (tasks, mutexes, semaphores), HAL design, Interrupts,
Communication Protocols: CAN, UDS, UART, I2C, SPI, TCP/IP, Bluetooth, REST APIs
Testing & Debugging: Visual Studio, Unit Testing, Model- & Hardware-in-the-Loop, CANalyzer, Oscilloscope
Software Architecture & Quality: SOLID principles, Layered Architecture, Modular Firmware Design
Tools & Platforms: Git, Keil μVision, STM32Cube, PCB Design, Docker, Azure

EXPERIENCE

Freelancer
Software Engineer

Nov. 2024 – Present
Wernau (Neckar), Germany

- Developing a Bluetooth Multipoint Hub for seamless audio switching between multiple sources and one headset.
- Utilizing GenAI to automate unit test generation, ensuring full coverage of critical edge cases and logic branches.
- Contributed to open-source projects to strengthen collaborative development and real-world coding proficiency.

ALTEN GmbH
Software Engineer

Feb. 2022 – Oct. 2024
Coburg, Germany

- Developed a firmware update tool utilizing C++ and C# .NET, enabling synchronous updates via CAN interface.
- Performed low-level debugging using CAN interfaces to resolve complex timing and synchronization issues.
- Managed full-lifecycle requirements, ensuring 100% traceability between requirements and hardware test execution.
- Debugged and unit tested multithreaded applications in Visual Studio within agile sprints.
- Collaborated with cross-functional engineering teams across five countries to resolve 70% of field-reported issues.

Bosch Thermoteknik AB
Software Engineer

Mar. 2021 – Jan. 2022
Tranås, Sweden

- Designed and maintained multithreaded C# applications used by 100+ service technicians across Europe.
- Reduced flashing time 75% by increasing CAN baud rates from 125 to 500 kbps, quadrupling throughput.
- Applied SOLID principles to refactor legacy code, improving maintainability for future integration of new hardware.

NEVS AB
Software Engineer

Feb. 2020 – Dec. 2020
Trollhättan, Sweden

- Developed a novel methodology for test case generation based on research in automotive system validation.
- Masters Thesis: Automated test case generation from system requirements in automotive environments.

EDUCATION

Uppsala University (Ranked 87th globally, QS)
Master of Science in Embedded Systems

Sep. 2018 – Nov. 2020
Uppsala, Sweden

- Core areas: Microcontroller Programming, Embedded Linux, Wireless Communication, and Control Systems.
- Advanced topics: Model-Based Design, FPGA/Programmable Logic, Networked Embedded Systems.

Near East University
Bachelor of Science in Computer Engineering

Sep. 2014 – Jun. 2018
Nicosia, Cyprus

- Focus on computer architecture, digital systems, and object-oriented software development.
- Awarded half-tuition scholarship and multiple certificates of honor for academic excellence.

Languages

Arabic: Native

English: Full Professional Proficiency (C1 level; C2 Receptive)

German: Intermediate (Goethe-Zertifikat B1)

PROJECTS

Elevator Control System using STM32 MCU (Model-Based Design)   Sep. 2019 – Nov. 2019
Uppsala University

- Developed a 3-floor elevator controller using MATLAB/Simulink and state-machine logic.
- Configured STM32 peripherals in STM32Cube; simulated, flashed, and debugged firmware in Keil μVision.
- Validated system performance using Model-in-the-Loop (MIL) and Hardware-in-the-Loop (HIL) testing.

Elderly Health Monitoring using IMU Sensors (Signal Processing)   Nov. 2019 – Feb. 2020
Uppsala University

- Processed accelerometer and gyroscope data in MATLAB to perform step detection and position estimation.
- Applied RMS filtering and sensor fusion techniques to reduce noise and identify movement anomalies.

Slidarr MIDI Instrument (Embedded C)   Mar. 2019 – Jun. 2019
Uppsala University

- Built a real-time musical instrument prototype using TM4C/Arduino and Embedded C.
- Implemented the MIDI protocol for low-latency tone generation based on sliding touch inputs.

CERTIFICATIONS, WORKSHOPS & AWARDS

Prompt Engineering in Python (OpenAI API) | *Packt (Coursera)*   Mar. 2025

Generative AI and LLMs Architecture | *IBM (Coursera)*   Mar. 2025

CodinGame Certifications: C, C++, C# | *CodinGame*   Jun. 2024

Winner: Carlsberg Hackathon | *Carlsberg Group*   Nov. 2020

Machine Learning A-Z (Python & R) | *SuperDataScience (Udemy)*   Jun. 2019

3D Printing Workshop | *E2E Uppsala*   Apr. 2019

Additional Information

Driving License: Category B

Mobility: Open to nationwide relocation and travel

Work Authorization: Opportunity Card / Chancenkarte (§ 20a Abs. 3 AufenthG)

Notice Period: None (Available immediately)