Mohammad Hajjo

Software Engineer

LinkedIn | Portfolio

Summary

Results-driven Software Engineer with expertise in Java, Python, C/C++, Linux, and C#. Experienced in mobile applications, system design, and real-time hardware/software integrations. Skilled at tackling complex technical challenges and mentoring others. Passionate about building scalable user-focused digital solutions and eager to contribute to innovative engineering teams.

Technical Skills

Programming Languages: Java, Python, NetLogo, HTML, CSS, JavaScript, C, C++, C#, Assembly, MATLAB

Embedded Systems Frameworks: ESP-IDF, FreeRTOS, STM32Cube HAL, Zephyr RTOS, Mbed OS, Micropython

Libraries & Tools: Git, Docker, Visual Studio Code, Linux, SQL, Node.js, Bootstrap, Figma

Concepts: Multithreading, Concurrency, Real-Time Systems, Wireshark, Agile Development, Scrum

Experience

Teaching Assistant Aug 2023 – Jun 2024
MALMÖ UNIVERSITY *Malmö, Sweden*

- Assisted in embedded systems and programming labs, guiding students through coding, debugging, and hardware integration.
- Guided students in electronics, microcontrollers, and system design through individual support and feedback.
- Troubleshot complex hardware/software issues during practical sessions, ensuring smooth lab progress.

Private Tutor Nov 2023 – Jun 2024
STUDENTEA (org nr: 969792-3028) *Malmö, Sweden*

- Delivered personalized tutoring in mathematics, physics, and programming, adapting methods to individual learning styles.
- Supported students with test preparation, assignments, and conceptual understanding, leading to improved performance.
- Maintained strong student relationships, resulting in extended contracts and positive feedback.

Supervisor Jun 2021 – May 2025
ELEDA STADION *Malmö, Sweden*

- Oversaw kiosk operations during large-scale events, ensuring smooth service for thousands of visitors.
- Managed staff scheduling, task delegation, and on-site problem solving to maintain efficiency and customer satisfaction.
- Coordinated inventory logistics and enforced compliance with food safety and hygiene standards across multiple units.

Project

Multi-Threaded Chat System Spring 2024
Software Development Project *Java, Networking, Threads, OOP*

- Developed a client-server chat application supporting multiple concurrent users via multithreading and socket programming.
- Implemented message broadcasting, private messaging, and connection management with robust error handling.
- Applied object-oriented design principles to structure communication protocols and thread synchronization.

Letter Recognition for Handwriting on Embedded System Using a Machine Learning Model Spring 2025
Thesis Project *Python, PyTorch, ESP-IDF, ML*

- Built a real-time handwriting recognition system on ESP32-CAM using a custom-written CNN.
- Optimized model with quantization and data augmentation to meet embedded memory and performance constraints.
- Developed a fully standalone, low-power embedded system with on-device image capture, processing, and display.

Distributed Firefighter Coordination System Fall 2024

Software Engineering Project *ESP32, C, Embedded Systems, Networking, Threads*

- Designed and implemented a peer-to-peer mesh communication system on ESP32 devices using ESP-NOW.
- Enabled real-time status updates, task assignment, and location sharing across multiple nodes without central infrastructure.
- Optimized communication reliability and latency for large-scale deployments in emergency scenarios.

Distributed Intelligent System Fall 2024

Software Engineering Project *Git, Distributed Systems, Intelligence / ML, Networking, NetLogo*

- Designed and implemented a multi-node system with agents exchanging information over message queues / gRPC, coordinating tasks in a distributed environment.
- Incorporated machine-learning modules for decision making / prediction at edge-nodes with limited compute, balancing load and accuracy.
- Handled fault tolerance: node failures, retries, message ordering, consistency, etc.

Computer & Internet Technology Projects Fall 2023

Systems Development *C, Networking, Protocols, OS Concepts*

- Implemented network protocol modules (e.g. TCP, UDP, HTTP) to simulate data transfer and error recovery.
- Built tools for packet inspection, message routing, and congestion control in a simulated network environment.
- Integrated layered architectures demonstrating interaction between application, transport, and network layers.

Algorithm Implementation and Optimization Spring 2022

Algorithmic Development Project *Java, Complexity Analysis, Recursion*

- Implemented and benchmarked multiple sorting algorithms (merge sort, quicksort) with O(n log n) performance and measured runtime vs inputs.
- Developed recursive algorithms for tree traversal and graph DFS/BFS, handling cycles and disconnected components.
- Analyzed space/time trade-offs and optimized memory usage by in-place operations and tail recursion elimination.

Education

Malmö University Malmö, Sweden

B.S. OF SCIENCE IN ENGINEERING IN COMPUTER SCIENCE *Aug 2022 – Jun 2025*

Additional Information

Driving licence: B (Manual)

Forklift licence: Certified operator

Languages: Swedish (native), English (fluent), Arabic (native), Turkish (intermediate)

Certifications:

* C# for .NET Developers
* Agile Development and Scrum
* Google Tools of the Trade: Linux and SQL
* Google Foundations: Data, Data, Everywhere
* Microsoft Secure Access with Azure Active Directory
* Software Engineering: Modeling Software Systems using UML