Omar Kthiri

Embedded Software Developer

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Summary

Embedded Linux Developer experienced in system-level software, Yocto-based build systems, and automation. Skilled in C/C++, Python, and Linux device integration, with strong focus on secure, reliable, and optimized firmware for connected systems.

Education

Computer Engineering

Esprit

Aug 2023 — Present

Bachelor's in Automation and Industrial Computing

Higher Institute of Technological Studies of Nabeul

Dec 2019 — Jun 2022

Technical Skills

C/C++, Python, Linux (Embedded & System), Yocto Project, Device Drivers & BSP, STM32 (MCU/MPU), Raspberry Pi, DLMS/COSEM, IoT Protocols (MQTT, Modbus, HTTP/HTTPS), Docker, Git/GitLab/GitHub/SVN, QT C++, Automation & Scripting, Cybersecurity & Penetration Testing

Soft Skills

Analytical Thinking, Collaboration, Problem Solving, Adaptability, Time Management

Additional Skills/Interests

Fast typing (80 words per minute), Fast learning, Google Dorking

Languages

Arabic, English, French

Certifications

- Python (Basic) - HackerRank
- EFE Soft Skills Certification

Work Experience

SAGEMCOM   Aug 2023 — Present

Embedded Software Engineer

Global provider of smart metering and critical energy/telecom solutions focused on reliability and performance.

- Developed embedded software on Linux (Yocto) and STM32 platforms.
- Handled Linux bring-up: Yocto customization, device tree, and STM32MP integration.
- Used low-level interfaces (I2C, SPI, UART, GPIO) in embedded workflows.
- Implemented real-time features on FreeRTOS for STM32H5.
- Integrated DLMS/COSEM protocol for smart meter communication.
- Set up secure MCU–MPU inter-processor communication.
- Automated build/test/deploy pipelines with Python and Bash.
- Performed peer code reviews to ensure code quality, compliance, and best practices.
- Contributed to Agile/Scrum processes with Git, Jira, and GitLab CI/CD.

Freelancer.com   Jun 2021 — Aug 2023

Software Developer & IT Solutions Specialist

Freelancer.com is a global freelance platform connecting businesses with freelancers. It allows companies to post projects in various fields.

- Developed C/C++ desktop and embedded applications for Linux and Windows systems.
- Created automation scripts in Python and Bash to streamline workflows.
- Performed penetration testing and security hardening on client systems.
- Produced cybersecurity documentation and technical reports for clients.

Kromberg & Schubert   Jan 2021 — Feb 2021

Training Internship

Kromberg & Schubert focuses on the development and production of complex wiring systems for the automotive industry

- Assisted with wiring and testing necessary for establishing a new production line.
- Collaborated with the team to eliminate failures and ensure proper system operation.

Projects

Yocto Project - Raspberry Pi Zero 2 W Build   Aug 2025 — Present

https://github.com/YonK0/let_him_cook...

Custom embedded Linux distribution using Yocto for Raspberry Pi

- Built custom layers, defconfig, and device tree overlays for embedded targets.
- Integrated drivers, security (dm-crypt, SELinux, dm-verity), and OTA updates (RAUC).

- Automated builds with KAS, Docker, and sstate-cache optimization for reproducible environments.

Hotel Management System (Qt C++)

May 2025 — Jul 2025

https://github.com/YonK0/HMS

Desktop application for hotel management using Qt6 and SQLite.

- Developed UI modules for reservations, guests, and billing with real-time statistics.
- Implemented efficient data handling and clean software architecture.

Automated Server Robot - AI & IoT Integration

May 2024 — Jun 2024

https://github.com/YonK0/project_mission_entreprise_2024

Autonomous restaurant assistant combining AI emotion recognition, robotics, and IoT automation.

- Integrated TensorFlow model for emotion detection to personalize customer interaction.
- Implemented UART communication between Raspberry Pi and Arduino for navigation and control.
- Automated workflows using Node-RED and MQTT for real-time IoT communication.

Stephan Plöger, UBonn C-Linux Study Pool Batch 5 - Freelancer.com

Jul 2022 — Aug 2022

Software security project focused on fuzzing and vulnerability testing of C/C++ applications.

- Performed fuzzing tests using libFuzzer and AFLfuzzer to discover vulnerabilities in C/C++ code
- Discovered and reported key security vulnerabilities
- Automated continuous fuzzing for efficient bug detection

Smart Juice Blender - Automated Beverage Mixing System

Jan 2022 — Jun 2022

Final Year Project (PFE)

Automated juice blending system using Raspberry Pi for customized healthy beverages with precise control.

- Developed embedded system with GPIO, PWM, I2C communication and relay control
- Implemented real-time control algorithms with multithreading and state machine design
- Integrated Alexa voice control using Node-RED and MQTT
- Designed embedded HMI with SPI/I2C display integration