

EMMANUEL Y. YOVO

Embedded Firmware Engineer (C/C++) · Energy & Transportation Systems

Strasbourg, France · florentyovo0@gmail.com · +33 6 69 95 33 96 · linkedin.com/in/yawo-yovo · github.com/DarkBrain-LP

PROFESSIONAL SUMMARY

Embedded software engineer with hands-on experience in real-time firmware development for energy and industrial systems. Skilled in low-level C/C++ programming on ARM Cortex-M4 platforms, control-command algorithms, and RTOS-based multi-task architectures. Proven ability to work at the intersection of hardware and software, from power electronics control to IoT connectivity stacks. Seeking a full-time position in embedded systems to contribute to next-generation energy or transportation equipment — open to relocation worldwide.

TECHNICAL SKILLS

Embedded Dev: C, C++, Assembly (ARM), Python, Go, IAR Embedded Workbench, Matlab/Simulink
RTOS & Frameworks: FreeRTOS, Micrium OS, ESP-IDF, Embedded Linux
Hardware & MCUs: ARM Cortex-M4 (STM32, Infineon XMC4500), FPGA (Xilinx Zynq-7/Kintex-7), ESP32
Protocols & Network: CAN, CANopen, LIN, Modbus (TCP/RTU), MQTT, gRPC, I2C, SPI, HTTPS
Control Systems: PID with anti-windup, Clarke/αβ transform, droop control, frequency analysis, digital control
Tools & Quality: Git, GitLab CI/CD, SonarQube, UML/SysML, Jira, Confluence
Languages: French (native), English (professional — C1)

PROFESSIONAL EXPERIENCE

Embedded Software Engineer — Power Electronics (Internship) Feb 2026 – Jul 2026
SOCOMEK SAS, Huttenheim, France — Transforming a UPS into a high-performance test current source

- Developed low-level control algorithms in C on Infineon XMC4500 (ARM Cortex-M4) for power conversion management.
- Implemented current regulation loop (Clarke/αβ transform + PI anti-windup) under strict real-time constraints using hardware Capture & Compare timers.
- Validated control logic in simulation with Matlab Coder/Simulink prior to experimental validation on a test bench, in compliance with industrial electrical safety standards.
- Built strong working knowledge of UPS architectures: rectifiers, inverters, bypass, 4th leg, booster/charger stages.

Embedded Software Engineer — IoT & Instrumentation (Contract) Mar 2025 – Sep 2025
TECHNOPURE SAS, Belfort, France — Connected air purifier: data acquisition, remote control, component lifetime tracking

- Designed a multi-task software architecture in C under FreeRTOS (ESP-IDF framework) on ESP32.
- Implemented I2C and PWM drivers for sensor acquisition (CO₂, ozone, ammeters) and fan-speed measurement via GPIO pulse counting.
- Developed a dual-stream communication stack: HTTPS for device authentication, MQTT for telemetry and remote control.
- Implemented low-level relay control for an ozone generator and remote power management.
- Built a component-lifetime tracking algorithm with secure non-volatile storage (NVS) persistence.

R&D Junior Engineer — Embedded Control Systems (Internship) Sep 2024 – Feb 2025
EDF R&D, Palaiseau, France — Microgrid Power Management System (PMS)

- Developed the PMS control-command algorithm for a microgrid in Go and Python.
- Built a digital twin (batteries, PV panels, generator) for control logic validation and simulation.
- Applied CI/CD pipelines and static code analysis (SonarQube) to ensure robustness of safety-critical code.
- Implemented inter-system communication via Modbus and gRPC.

SELECTED TECHNICAL PROJECTS

- Multi-ECU Automotive Network — FreeRTOS/CAN/LIN on STM32F407 (github.com/DarkBrain-LP/freertos)
- Autonomous Mobile Robot — ROS, Wi-Fi/KNN positioning, SLAM navigation (github.com/DarkBrain-LP/autonomous_turtlebot)
- Robot Servo-Control — LEGO EV3, Kalman filtering, PID tuning (github.com/DarkBrain-LP/ev3-robot-sensors)
- Elevator Control-Command — LabVIEW, FPGA + Real-Time on NI myRIO (github.com/DarkBrain-LP/ascenseur_labview)

EDUCATION

M.Sc. in Complex Systems Engineering — Mechatronics (Double Degree) 2025 – 2026
UTBM, France — Real-time control systems, servo control, signal processing

Engineering Degree — Computer Science (Embedded Systems & Robotics) 2023 – 2026
UTBM, France — Embedded systems, robotics, model-driven engineering

B.Sc. in Software Engineering 2020 – 2023
Institut Africain d'Informatique, Togo — Software development, database management