Mohamed GALY

Embedded Systems Engineer
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PROFESSIONAL SUMMARY

Embedded Systems Engineer with a Master's Degree (Diplôme d'Ingénieur) from École Centrale d'Électronique Paris and professional experience in the automotive industry with Stellantis, Magna Steyr, and AVL. Over three years within a powertrain electronics team, I developed AUTOSAR-compliant embedded control software in close collaboration with cross-functional teams, delivering production-ready solutions for vehicle platforms. My work also included defining and validating diagnostic specifications compliant with UDS (ISO 14229), managing diagnostic databases, and performing ECU diagnostic testing, reprogramming, and validation across multiple vehicle programs. In addition, I contributed to the commissioning of E/E architectures on HIL systems using dSPACE, configuring test environments and developing automated test cases to support validation activities. I subsequently continued strengthening my technical skills through personal projects, developing bare-metal drivers on STM32, working with Real-Time OS, designing PCBs with KiCad, and building small IoT systems. I am now eager to contribute my expertise in embedded software, electronics, and real-time systems to challenging engineering projects.

TECHNICAL SKILLS

Programming Languages: C, C++ (Embedded & OOP), Python, Java.
Systems: Embedded Linux (Buildroot, BusyBox, Yocto), Bare-Metal, FreeRTOS, Zephyr RTOS.
Protocols: CAN, UDS (ISO 14229), SPI, I²C, UART, MQTT.
Model-Based Design: MATLAB/Simulink, Stateflow.
PCB & Electronics: KiCad, Altium (PCB Review), Proteus.
Tools: STM32CubeIDE, MPLAB X, Vector CANoe, VS Code, Git, CMake, GDB, JIRA.
Web Development: Java Spring Boot, REST APIs.

PROFESSIONAL EXPERIENCE

Independent Embedded Systems Development

GalyTEK | Leoben, Austria | Nov 2023 – Present

Medical recovery period following an accident (Nov 2023 – Jan 2026), with continued technical skill development.

- Developed and deployed GalyTEK (galytek.com), a full-stack personal platform built with Java Spring Boot and Thymeleaf, to document embedded systems projects and share technical insights with the embedded systems community.
- Developed bare-metal and FreeRTOS projects on STM32F4/F7, including low-level peripheral drivers (USART, SPI, I²C, CAN, ADC, DMA, PWM), motor control, and CAN-bus multi-node communication.
- Built GUI applications using LVGL and TouchGFX on STM32F4/F7, and developed IoT prototypes with HC-05 and ESP32/ESP8266 modules.
- Implemented Embedded Linux on BeagleBone, building custom images with Buildroot/Yocto, writing device drivers, and interfacing peripherals at the hardware level.
- Designed PCB schematics and layouts in KiCad.
- Completed advanced courses in Embedded C/C++, Embedded Linux, PCB design, and safety-critical systems.

Development Engineer Methodology

AVL | Graz, Austria | Aug 2023 – Oct 2023

- Supported the commissioning of E/E architectures on Hardware-in-the-Loop (HIL) systems.
- Specified wiring harness requirements between ECUs and dSPACE HIL systems.
- Configured dSPACE tools (ConfigurationDesk, ControlDesk) for open-loop testing.
- Created fully automated test cases and test documentation.
  Received a formal letter of recommendation recognizing outstanding performance.

Diagnostic & Validation Engineer Automotive R&D
Magna Steyr | Graz, Austria | Jan 2022 – Jul 2023

- Contributed to defining diagnostic specifications for ECU suppliers in compliance with ISO 14229 (UDS) standards.
- Validated diagnostic databases and parameter sets delivered by ECU suppliers.
- Performed ECU diagnostic testing using Vector CANoe and OBD testers on bench setups and vehicles.
- Contributed to ECU flashing and reprogramming validation across multiple vehicle platforms.
- Reviewed technical documentation and developed test scenarios for diagnostic feature validation.
- Managed test tickets, tracked bugs, and documented results and change requests in JIRA.
  Recognized by the Department Manager for the quality of work delivered.

Embedded Software Engineer – Apprentice
Stellantis Group | Paris, France | Sep 2018 – Aug 2021

- Developed two AUTOSAR-compliant actuator control systems in MATLAB/Simulink, including an electronic expansion valve controller for electric vehicle battery thermal management and a vehicle climate control system.
- Built a vehicle diagnostic system model in Simulink, allowing engineers to efficiently validate the diagnostic behavior of their software modules in the Model-In-the-Loop (MIL) testing environment.
- Planned and led technical meetings with cross-functional teams to align on specifications and track progress.
- Contributed to the full V-cycle, from requirements definition and coding through testing and vehicle validation.
- Collaborated with cross-functional teams in an agile environment using JIRA.
  Recommended by the Powertrain Electronic Team Manager for strong involvement in development, ability to analyze upstream specifications, and delivering optimized MATLAB/Simulink solutions.

Telecommunications Engineering Intern – FTTH Project
AJEEL | Paris, France | Apr 2018 – Jun 2018
Final-year internship as part of the DUT GEII program.

- Performed FTTH (Fiber to the Home) deployment mapping studies and network design planning.
- Used telecommunications information systems for network design and deployment planning.
- Updated technical schematics based on field modifications.

EDUCATION

Master's Degree (Diplôme d'Ingénieur) – Embedded Systems Engineering
École Centrale d'Électronique (ECE), Paris, France | 2021
3-year academic–industrial apprenticeship at Stellantis Group.
Embedded C/C++, Real-Time Systems, Embedded Linux, Control Systems, DSP, Electronics.

International Academic Program – Computer Science & Management
INSEEC U., London, United Kingdom | 2019
Statistics and Probability, Java Programming, Artificial Intelligence.
Management Theory, Finance, Teamwork, Public Speaking.

DUT GEII – Electrical Engineering & Industrial Computing
Université Paris 13 – Sorbonne Paris Cité, Villetaneuse, France | 2018
Electrical Engineering, Electronics, Power Electronics, VHDL, Microcontrollers, Telecommunications, Electromagnetic Compatibility (EMC). Programming: C, C++, Java.

LANGUAGES

English: Professional. **French**: Fluent. **Arabic**: Fluent. **German**: Basic (in progress)

CONTINUING EDUCATION & CERTIFICATIONS

CANoe for CAN [compact] – Vector
Udemy & EmbeddedExpert: Advanced Embedded C/C++, Safety-Critical Systems, Data Structures for MCUs, Embedded OOP Design Patterns, Linux Device Driver Programming (Beaglebone Black), PCB Design.

HOBBIES & SPORT

Kickboxing, Robotics, Traveling, Photography, Fishing.