Joao Pedro Miranda Marques

Automotive Embedded Engineer | ECU Software, AUTOSAR, Vehicle Systems

Budapest, Hungary | EU Blue Card | Berlin / Remote

+36 20 511 3075 | jpmm2209@gmail.com

linkedin | github

Profile

Automotive Embedded Engineer with hands-on experience developing production-grade ECU software for steering and powertrain applications, plus a broader track record building embedded systems from hardware through firmware. Background spans Embedded C/C++, MISRA C, AUTOSAR, AURIX TriCore, FreeRTOS, and low-level interfaces including CAN, SPI, I2C, and UART. Strong safety and reliability mindset shaped by debugging, unit testing, CI-backed verification, and field validation of systems that interact directly with sensors, actuators, and vehicle environments.

Skills

Software	Embedded C | C++ | MISRA C | Python | Git | Shell / Bash
Automotive & RTOS	AUTOSAR | ECU software | AURIX TriCore | FreeRTOS | MCU architecture
Vehicle & Interfaces	CAN | SPI | I2C | UART | BLE | Sensor / actuator integration
Validation & Debug	Unit testing | Trace32 | Tessy | JTAG | Oscilloscope | Signal analyzer
Tools	Jenkins CI/CD | MATLAB | Simulink | PlatformIO | EasyEDA
Languages	Portuguese (native) | English (professional) | German (beginner) | Chinese (beginner)

Experience

Thyssenkrupp Automotive - Embedded Software Engineer *Apr 2025 - Present / Hungary*

- Develop middleware-layer ECU software for steering systems in a large-scale safety-critical automotive program, contributing to coding, debugging, testing, and traceable delivery workflows.
- Support cross-team software integration and issue analysis in a production environment where reliability, determinism, and interface quality are essential.

Hofer Powertrain - Embedded Software Engineer *Jul 2023 - Mar 2025 / Hungary*

- Configured AUTOSAR Basic Software (BSW) for Infineon AURIX TriCore ECUs and contributed to ECU firmware development in Embedded C / MISRA C.
- Debugged low-level SPI communication with signal-analysis tools and supported unit-test verification, traceability, and CI pipeline automation with Jenkins and Tessy.

NHL Stenden WAC Labs - Research Intern in Control Engineering *Sep 2022 - Jun 2023 / Netherlands*

- Designed and implemented a closed-loop automation and data-acquisition stack for electrospray research, integrating laboratory hardware, Python control logic, and repeatable test execution.

Vitau Automation - Intern as Embedded Systems Developer *Jan 2022 - Jun 2022 / Brazil*

- Built ESP32-based embedded systems for client projects spanning automation, sensing, and remote monitoring, covering firmware, integration, and supporting software interfaces.

Supermix Concreto - Intern as Embedded Systems Developer *Jan 2021 - Jan 2022 / Brazil*

- Owned firmware, electronics, and system integration for a digital hydrometer used on concrete mixer trucks, including PCB revisions, BLE communication, sensor / actuator interfaces, calibration, and field trials.
- Developed an ESP32 dual-core FreeRTOS stack with FSM-based control, UI, and runtime resource analysis to support reliable real-time water dosing under component wear.

CPE Jr. - Student Engineering Consultancy *Jan 2020 - Jan 2021 / Brazil*

- Progressed from developer to electronics lead and Product Owner, coordinating delivery work and applying Scrum and Kanban practices in a high-turnover engineering consultancy.

Education

Universidade Federal de Minas Gerais - UFMG *2017 - 2023 / Brazil*

B.S. in Control and Automation Engineering

- Strong foundation in control engineering, embedded systems, electronics, and real-world system integration.

Selected Project

Project Octopus *github.com/jueta/Project_Octopus*

- Developing a custom miniature camera platform around ESP32-S3, combining low-power firmware, enclosure design, prototyping, and scalable hardware thinking.