



Maxime Pointet

Lead Embedded Software Engineer



31 years old
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EXPERIENCES

Lead Firmware Engineer

Hestii - Since June 2023 - Full-time - Nantes - France



- ▶ Startup environment — Full ownership of the firmware stack for 14 months
Led firmware development in a startup building an embedded system that combines smart heating and distributed computing.
Cross-functional role involving software architecture, hardware contributions, energy optimization, and system integration.
- ▶ In-depth study of Bitcoin mining mechanisms: SHA-256, Stratum, proof of work
 - ▶ Reverse engineering of the BM1397 ASIC without official documentation (based on community resources and internal exploration)
 - ▶ Modification of the open-source mining software CGMiner, followed by a complete rewrite in Rust, optimized for thermal regulation and energy efficiency
- ▶ Driver development:
 - ▶ Linux Kernel: creation, modification, extension, open-source contributions.
 - ▶ Rust (embedded-hal): drivers for I2C/UART/GPIO to handle temperature, voltage, and current sensors, ADCs, and GPIO expanders.
- ▶ Embedded system on Linux Yocto:
 - ▶ Creation of layers, targets, patches, and recipes for various products and test benches.
 - ▶ Migration from Yocto 4.0 Kirkstone to 5.0 Scarthgap.
- ▶ Software architecture & communication protocols:
 - ▶ Design and implementation of the firmware architecture (design, protocols, regulation).
 - ▶ Internal protocol based on ZMQ, MQTT, and Protobuf.
 - ▶ Development of internal tools for debugging, validation, and production testing.
- ▶ CI/CD & industrialization:
 - ▶ Setup of CI/CD pipelines (GitHub Actions, Docker, release-please) for Rust & C projects.
 - ▶ Design of hardware test benches and firmware validation processes.
- ▶ Hardware contribution & system architecture:
 - ▶ Active involvement in hardware architecture decisions (pinout, system constraints, device tree).
 - ▶ Close collaboration with electronics, mechanical, and product teams.
- ▶ Technical stack: Rust, C, Python, Linux Yocto, Git, GCC, VSCode, Ubuntu, GitHub Actions, Docker, Maturin, Pyo3, ZMQ, MQTT, Protobuf, BLE, Tailscale, Notion.
Crypto : SHA-256, Stratum, CGMiner, Bitcoin, ASIC, Blockchain

Software Engineer

Kickmaker - June 2022 to June 2023 - Full-time - Nantes - France



- ▶ Hired during the early months of the Nantes agency launch, I joined a project team for a Boston-based client (Symbolic), a company designing autonomous robotic systems for large-scale smart warehouses.
- ▶ Embedded robotics development:
 - ▶ Worked on the autonomous transport robot operating within warehouse aisles.
 - ▶ Embedded Linux, C++17 software, communication via MQTT and RabbitMQ.
- ▶ Fault Injection System:
 - ▶ Design and development of a hybrid service integrated into the firmware and used by validation tools.
 - ▶ Enables controlled fault injection into the robot's behavior for testing, simulation, and robustness purposes.
 - ▶ Development in C++ for the embedded side, Python for the external tooling, with active contribution to software architecture.
- ▶ Internal assignment since July 2022:
 - ▶ Participation in an internal working group on Cloud and DevOps technologies: AWS, Azure, GCP, Ansible, Terraform, Docker.
 - ▶ Delivered a company-wide training on cybersecurity and IAM (Identity and Access Management) in the cloud.
- ▶ Communication & CI:
 - ▶ Remote collaboration with international teams.

SKILLS

Langues informatiques

- ▶ C ★★★★★
- ▶ Rust ★★★★★
- ▶ C++ ★★★★★
- ▶ Python ★★★★★
- ▶ Shell ★★★★★
- ▶ Flutter/Dart ★☆☆☆☆
- ▶ HTML ★☆☆☆☆
- ▶ C# (Unity 3D) ★☆☆☆☆
- ▶ Assembly (ARM V7, ARM Cortex) ★☆☆☆☆
- ▶ Java EE (Spring Batch, Maven) ★☆☆☆☆
- ▶ SQL (PostgreSQL, Oracle SQL) ★☆☆☆☆
- ▶ VHDL ★☆☆☆☆
- ▶ JS ★☆☆☆☆
- ▶ CSS (CSS 1) ★☆☆☆☆
- ▶ PHP ★☆☆☆☆

Langues

- ▶ English (2014 -> Toeic : 875, 2016 -> Erasmus Certificat : C1) ★★★★★
- ▶ Spanish ★☆☆☆☆

EDUCATION

Real Time Embedded Systems

POLYTECH NANTES

October 2016 to February 2017

Final-year specialization – Embedded Electronics and Digital Technologies (ETN)
Real-time systems design
Embedded Linux
ASIC and FPGA circuit design
Systems engineering approach
Software architecture and modeling
Programming languages: C, C++, SystemC, VHDL

Embedded Electronics and Digital Technologies

POLYTECH NANTES

September 2014 to May 2016

First and second years of the Embedded Electronics and Digital Technologies engineering program – Polytech Nantes
Analog electronics
Digital electronics
Signal processing
Programming languages: C, Assembly, VHDL, Java, Oracle SQL
ARMv7 microprocessor systems
High-frequency electronics
Circuit design

- Contribution to continuous integration processes and project-related tooling.
- Technical Stack: C++17, Python, Linux embedd, MQTT, RabbitMQ, Git, Docker, CI/CD.
DevOps : Terraform, Ansible, Vault, GCP, AWS, Azure.

Embedded Systems Engineer and Software Developer

Ventilairsec - October 2019 to April 2022 - Full-time - Coueron - France



- Development, maintenance, and evolution of the embedded software for the company's products.
- Implementation of a continuous integration solution.
Participation in the development of experimental embedded software as part of industrial research partnerships focused on ventilation.
Development of a connected solution enabling secure remote control, updates, and advanced maintenance of products in experimental installations.
- Technical Stack : C/C++, Python, Bash. Git, Eclipse, Jenkins, CppCheck, Linux, Nxp, Arm Cortex M0

Embedded Software Engineer

Elephant Technologie - April 2019 to October 2019



Embedded software developer on assignment for Ventilairsec

- Refactored the embedded software of a remote control following a microcontroller replacement (PIC32)
- Developed an EnOcean communication driver in collaboration with the in-house team
- Developed EnOcean middleware capable of handling transmission and reception of MSC/VLD/4BS telegrams in a FreeRTOS environment

Embedded Software Engineer

Comap - January 2019 to April 2019 - Full-time - Nantes



Development of embedded software, measurements, testing, and qualification of electronic components

- C development of I2C drivers for temperature sensors and stepper motor control
- Optimization and analysis of product power consumption and battery life

Industrial IT Engineer

Apside - December 2017 to December 2018 - Full-time - Cholet



On assignment for Thales in Cholet

As part of the European Galileo project, developed and tested an application for a French-made receiver component.

Developed tests for embedded scheduling software running on an ASIC featuring a Leon 4 core (Sparc V8).

Developed hardware and software security patches at the low-level layer of the component.

Final-year internship



Sopra Steria - March 2017 to August 2017 - Internship - Carquefou - France

Development of a software qualification tool using PHP Symfony and shell scripting on Linux.

Data transformation from COBOL sources.

Specification-based development of technical and functional tools.

Languages: PHP, Shell, PostgreSQL, Java EE.

L2 MPMC - PEIP

UNIVERSITY OF NANTES / POLYTECH NANTES

September 2012 to June 2014

Preparatory program for engineering schools – Polytech, University of Nantes

Year 1: Mathematics, Computer Science, Physics, Chemistry

Year 2: Mathematics, Physics, Mechanics, Chemistry

Scientific Baccalaureate – Engineering Sciences track

LYCÉE ST GABRIEL/ST MICHEL

September 2011 to June 2012

Lycée St Gabriel/St Michel, St Laurent/Sèvres (85, FR)

Engineering Sciences

Mathematics specialization

Music

INTERESTS

Music

- Guitar
- Drums and African Percussion
- Piano

Association

- Member of Mensa France
- Participated in the 2018 French Robotics Cup
- Communication officer for the student union (2015–2016)
- Founder of the Photography Club at Polytech Nantes (2016)