Ivan Imbert

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Low-Level, Real-Time & Embedded Systems Engineer | C/C++/Rust

Passionate about real-time and embedded systems, I specialize in C/C++ development (with Rust basics) for constrained environments: microcontrollers (ARM, Arduino), FPGA, and real-time OS (FreeRTOS).
My experience includes AUTOSAR software validation (at eMotors) and hands-on technical projects such as designing a single-cycle ARM7TDMI processor in VHDL, building a full Tiger compiler in C++, developing a POSIX-compliant shell, and optimizing algorithmic problems like Sudoku solvers.
Seeking a low-level/embedded position where technical performance and innovation meet real-world challenges.

Experience

Real-Time Development Engineer, EMotors – Paris — Feb 2025 – Aug 2025

Research on a new tool for validating the real-time behavior of inverter software. (AUTOSAR, Vector, Git)

Teaching Assistant (ACDC/YAKA/ACU), EPITA – Kremlin-Bicêtre — Sep 2022 – Feb 2025

Lectures and lab supervision for a class of 600 third-year students. (C, C++, Java, C#, OCaml, JS, SQL)

Backend Development Engineer, SPIDEO – Paris — Sep 2023 – Jan 2024

Development of a new content recommendation algorithm for a backend API. (Java, MongoDB, Git)

Projects

Single-Cycle ARM7TDMI Processor : VHDL, Modelsim, Quartus

Design and synthesis of a single-cycle processor, including binary instruction decoding, simulation, and FPGA implementation.

Tiger Compiler : C++, Flex, Bison (team of 4)

Developed a full compiler for the Tiger language, covering lexing, parsing, semantic analysis, and assembly code generation.

42sh : C, Shell, Meson (team of 4)

Built a POSIX-compliant shell from the ground up, implementing core features and automating workflows with GitLab CI/CD.

Sudoku Solvers : Java, C++, CMake, Valgrind

Designed and optimized sudoku-solving algorithms: prototyped in Java for validation, then implemented in optimized C++ (procedural programming).

Education

Computer Science Engineer, EPITA (CTI Certified) – Kremlin-Bicêtre — Sep 2020 – Aug 2025

English-speaking program, major in systems/real-time/embedded

Study Abroad Semester, Centria UAS – Kokkola, Finland — Jan 2022 – Jun 2022

First Aid Certification (PSC1) — 2018

Technologies

Languages: C, C++, Bash, Ada, Cuda, Rust, VHDL, Java, C#, Python, Haskell, Assembly

Tools: Git (GitLab, GitHub), Make, CMake, Docker, clang-format, VS code, Vim, STM32CubeIDE, Eclipse

Platforms: Linux, Arduino, ARM, FreeRTOS, ROS2

Databases: SQL, MongoDB, ElasticSearch, Neo4j

Languages

- **French:** Native
- **English:** C1 | TOEIC: 945/990

Additional Activities

- **Teaching:** Former board member and tutor for EPITA's academic support association (5 to 100 students per class)
- **Team Competitions:** 4th place + Special Innovation Award in "Course en Cours" 2017