Cyril Barbel

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EDUCATION

EPITA, LE KREMLIN BICETRE, FRANCE *2020 - 2025*
GISTRE - Real Time And Embedded Systems Engineering

EXPERIENCES

FPGA Engineer Intern *AIX-EN-PROVENCE, FRANCE*
Avantix *March 2025 - August 2025*
- Super Sampling Rate Fast Fourier Transform design in **HDL**.
- Implementation and benchmark of radix-2, radix-4, radix-8, radix-16 and split-radix in **HDL**.
- Port of Neural Network from Pytorch to hardware component with **Brevitas** and **FINN**.
- Worked with **ADS9** and **ADRV9029**, evaluation boards, including signal generator integration.

C/UNIX Assistant *LE KREMLIN-BICÊTRE, FRANCE*
EPITA *July 2024 - March 2025*
- Assisted over 600 students during their first semester of the engineering program.
- Training before each workshop.
- Stress testing of the python project designed to harmonize the coding skills of new students.

Backend Developer *BRUSSELS, BELGIUM*
AMA European Consulting *September 2023 - January 2024*
- Backend development of an existing application and design of a new database architecture.

Student Researcher *LE KREMLIN-BICÊTRE, FRANCE*
LRE EPITA *January 2023 - July 2023*
- Researched on static-dynamic **genericity** for **hierarchical image representation**.
- Implementation of **alphatree** in static-dynamic genericity in Pylene in **C++**.

PROJECTS

Object detection, tracking and prediction [C++] *4 weeks*
Object detection with AI on **Raspberry Pi 3B+**, tracking and trajectory prediction.

Linux driver for MFRC522 [C] *4 weeks*
Creation of a **Linux driver** for RFID reader `MFRC522`.

Background/object separation [C++ - CUDA] *2 months*
Implementation of a background and object separation algorithm on **GPU** in **CUDA**.

GAP Project [ARM - STM32 - C] *4 weeks*
Development on **STM32** board in C, integrating the `libgapcom` library and communicating with the `gapcli` host via **I2C**. Implementation of a gyroscope, a logger and a **self-test** routine.

GameBoy Cartridge [Kicad - Soldering] *2 months*
Creation of a **PCB** for a GameBoy cartridge. Use **Kicad** for schematics and PCB before soldering components.

ARM Monocycle processor [VHDL] *3 months*
Design, simulation and testing of a single-core processor with a subset of the ARM instruction set. Design in **VHDL** and test on **FPGA**.

SKILLS

Programming: VHDL, C, C++, Bash, CUDA, Nix, Python, Rust, ASM x86, LaTeX, TCL
Technologies: STM32, FPGA, Docker, Git, Make, Linux, NixOS, YOCTO, Raspberry Pi, KiCad, ModelSim, Vivado
Languages: French: Native speaker, English: TOEIC 980