

# Thomas Campistron

## Education

2017–2019 **MSc in Computer Science**, *University of Lille*, France.

*Relevant coursework:* Virtualization and cloud computing, distributed systems, system architecture, OS design and development, system programming, computer architecture, compilation, cryptography

2014–2017 **BSc in Computer Science**, *University of Lille 1*, France.

*Relevant coursework:* Oriented Object Programming, Functionnal Programming,, optimization, programming language theory, database

## Work Experience

Mar–Aug **Evaluation of the P4 Language for DDoS mitigation**, *Worldline*, Lille.

2019 Worldline is one of the European leader of digital payments. The first aim of this internship was to test a new language called P4. This language stands for “Programming Protocol-Independent Packet Processors”. Our test case was to implement a SynCookie Proxy and to test it against handmade XDP or DPDK handmade solution.

Apr–Aug **Optimizing the access of the Firewall rules**, *StormShield*, Lille.

2017 Stormshield is a European leader in digital infrastructure security, they sell hardware Firewalls. My internship was about optimizing the access of the Firewall rules. Rules are now accessible in read-only by multiple daemons at the same time without any mutex, memory or loading time and in  $O(\log_2(n))$  instead of  $O(n^2)$ .

- Implementing a cache based read-only system (allowing parallelization)
- Providing a first proof of concept to benchmark the new system against the current system
- Providing an API as close as possible as the old system without mutexes and faster
- Updating the C codebase to use the new system (> 20 000 LoC)

## Languages

**C** < 100 000 LoC *My professional experience at StormShield was almost entirely in C (some C++ to do the benchmarking). I also used a lot of C for my personal project and during my education. I worked with OpenMPI, valgrind, gdb, SDL2, AFL. I also did a bit of IoT. It was my main to go language until I discovered Rust.*

Ruby, Python < 10 000 LoC *Mostly used to avoid Java when it was possible or today when I need a POC fast. I know how to extend ruby with C and I did a little bit of C ffi in python. I developed a JIT compiler for a subset of a language in ruby.*

Haskell, ASM, Go, VHDL < 2000 LoC *I enjoy these languages but do not work with a lot.*

**Rust** < 50 000 LoC *I absolutely love Rust. I mostly did personal project with it. I developed a chip-8, brainfuck and Argh! interpreters. I'm also working on a fully bare-metal (20 bytes of assembly) Rust crate to easily program a teensy3.2. Currently, I'm doing the Advent of Code in Rust.*

## Technologies

- Software
- Linux (5 years): It was my main OS for a long time mostly with Debian and Archlinux
  - FreeBSD (1 year): The Firewall during my internship at StormShield were running on FreeBSD. Today I manage my personal server on FreeBSD but I never used it as my main distribution
  - macOS (2 year): My current laptop
  - Development: Vim, ISE (one of the FPGA IDE)
  - Tool: Latex, Git
  - Adminsys: VMWare, Docker, BSD Jails

## Personal

**Interests** I enjoy thinking of high performance and parallelized code. I also like bare-metal embedded system (even if I'm not that good at reading the constructor specs). Language is also a domain that gets a lot of my attention, I hope one day I'll be able to work as a language developer.

**Travel** I love to travel, so far I visited:

- USA – Chicago: 2 months
- Japan – Tokyo-Kyoto: 1 month
- Ireland – Dublin: 2 weeks
- Norway – Bergen: 1 week
- Finally, I went back to Japan for the 2 last months (September–November 2019) right after my graduation!

**Music** I spend most of my time listening to jazz, funk, rock or metal.