Jack Halford

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Education

42 programming school - Paris

08/2016–Present

- C (iso and GNU extensions), Rust
- well versed in POSIX/UNIX philosophy
- x86, in-depth knowledge of i386 topology
- exposure to linux development
- tcp/ip, client/server basics
- while at 42 I rewrote the following : `libc`, `bash`, `malloc`, `printf`, `nmap`, `ping`, `traceroute`, `ftp`

ENS Cachan - B.Sc. physics

09/2015–06/2016

- Quantum mechanics
- Special relativity
- Statistical physics
- Computational physics (`fortran, python`)
- Mathematics : complex analysis, hilbertian algebra
- Experimental physics : optics, analog electronics, lasers

2 year preparatory course (PTSI - PT)

09/2013–06/2015

- Mechanical engineering basics
- Automatic control theory, signal processing
- Classical physics
- Mathematics (real analysis, linear algebra, discrete probability)

Work experience (2 previous interships)

Tempow (startup) – Paris

04/2016–09/2016

- Development of custom a bluetooth stack that connect to multiple speakers
- Integration of our custom bluetooth 5.0 protocol in android at OS level
- Ported the stack to `arm64-linux` for benchmarking on raspberry pi
- Succesfully helped pitching the product at `CES Asia` (Shanghai - mai 2017) and `MWCA` (San Francisco - sep 2017)

IMPMC - Université Paris 6 Jussieu

05/2015–06/2015

- 5 week intership in a solid state physics lab
- Tight-binding modeling of rhombohedral graphene for study under exotic conditions (high temperature/pressure)
- Introduction to fortran's `lapack/blas` libraries to produce high performance calculations

Projects

Posix shell Leading a team of 5 students to develop a fully fledged shell in C, including shell scripting, job control. Next to development, I am responsible for management of the team.

Coilgun Built a coilgun as an undegraduate project, alongside a complete simulation in `Matlab Simulink` to adjust parameters to optimise efficiency. Final version shot 50g steel bullets at 120km/h

x86 kernel Currently writing a kernel from scratch in Rust targeting the `i386` architecture. I'm responsible for implementing paging, interruptions and hardware multitasking. I'm still learning and development is ongoing as a project for 42.

Skills

Programming	solid knowledge of C, Rust, some experience shell scripting and python
Kernel/OS	accustomed to i386, adaptable and willing to learn new architetures. Working proficiency with `qemu` and `gdb`
Networking	tcp/ip/bluetooth knowledge, interested in large scale problems and novel network protocols
Code quality	healthy habits regarding coding conventions, documentation and testing, experience using `git` with teams
Languages	fluent in english and french