Roméo Maignal

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I am a bachelor student in Computer Science at EPFL in Switzerland. Previously, I've worked as a system engineer for a CubeSat mission within the EPFL Spacecraft Team. My interests include open-source softwares, systems engineering, low-level programming and cyber-security.

Work Experience

EPFL Spacecraft Team ⬈ | Lausanne, Switzerland
System Engineer for the CHESS Mission | Sept 2023 - Febr 2025

- Contributed to the mission's PDR by writing the Interface Control Document for 4 different subsystems following ECSS standards.
- Defined system requirements for CubeSat data/power transmission and the payload's architecture, weight and dimensions.
- Conducted tests and simulations to verify the performance and reliability of the telecommunication components.
- Successfully troubleshot and resolved technical issues that arose during the satellite's design review such as misplacement of crucial mechanical interfaces.

Education

École Polytechnique Fédérale de Lausanne | Lausanne, Switzerland
Bachelor in Computer Science | Sept 2022 - June 2026

- Relevant courses : Computer Architecture, Computer Systems & Network, Intro to ML, Software Construction, Digital System Design, Object Oriented Programming, Theory of Computation, Data-Intensive Systems, Computer Language Processing, Human-Computer Interaction

Notable Projects

Aircraft Flights Tracking Software ⬈

- Developed a FlightRadar24-like software from scratch in Java over a period of four months. It involved various engineering fields (data transmission, aircraft data interfaces, ADS-B communication, aircraft location settings, cryptography).
- Tools used: Java, JavaFX, JUnit, JVM, IntelliJ, ADS-B Antenna

Conway's Game-of-Life in RISC-V Assembly ⬈

- Implementation, on a GECKO board, of John Conway's famous Game of Life, in RISC-V assembly language.
- Tools used: RISC-V, GTKWave, MemoryView

Scala Web App ⬈

- Multiplayer web game application written in Scala. It Implements a famous board game and use a client-server architecture to connect multiple players. I made use of scala state machines and json serialization/deserialization functions.
- Tools used: Scala, Metals, SBT

Interface Control Documents ⬈

- ICDs for the telecommunication subsystems of a CubeSat. It involved learning the specific requirements for CubeSat development and adhering to ECSS standards to give the project good technical directives.
- Tools used: Overleaf, LaTeX, FusionCAD

Haystack Store File System ⬈

- Scalable file system for big data, inspired by Facebook's Haystack Storage system. It offers a cheap and higher performance solution to the user image storage space problem.
- Tools used: C, GCC

Competences

Languages: C, Java, C++, Scala, Python, Javascript/Typescript, RISC-V Assembly, Verilog, VHDL, LaTeX

Tools: Git, Github, VSCode, IntelliJ, Overleaf, GTKWave, OnShape, Blender ; **Frameworks/Platforms:** React, Next.js, Node.js

Skills: Functional Programming, Object-Oriented Programming, Memory and Network Oriented Programming, Algorithms, Data Structures, Machine Learning

Non-Technical Work Experience

CSNB | Brive, France
Seasonal Boat Rental Manager | July 2020 - July 2023

- Summer job at a lake sports facility. Rented and repaired various boats. Led summer camp children in different activities.