Adrien CHARDON

✉ adrienchardon AT mailoo.org
cv.nodraak.fr

Adrien is a software and electronics engineer, with an expertise in embedded and critical systems. He is interested in robots, launchers and inter-planetary probes. He cares about code quality, automation and open source software.

Work Experience

Lead Software Engineer

REFLEX AEROSPACE
2024-01 - Present
Berlin, Germany

- *Leading a team of 5 software engineers, I participate in the development of the complete avionics of a 150 kg satellite for LEO (SIGI mission):*
- **Management tasks** breaking down large features into manageable tasks, planning of tasks and management of expectations to meet projects deadlines, directing and helping other SW engineers to fulfill their tasks, mentoring junior SW engineers.
- **Technical tasks**: understanding customer's needs and constraints, designing the SW architecture, performing code reviews, leading the development of internal tools and processes, implementing features and fixing bugs.

Senior Software Engineer - SIGI satellite

REFLEX AEROSPACE
2023-04 - Present
Berlin, Germany

- *Contributing to the SIGI mission, Reflex's first demonstrator. The mission, a 120 kg satellite to be launch in fall 2024, will prove the avionics (designed and manufactured in-house), as well as fly a customer payload.*
- **Architecture and development** of the software, with a focus on mission-level features (internal communication bus, TM/TC-ground chain, datapool, thermal/power/etc subsystems, integration of Matlab/Simulink-generated code).
- **Testing and quality assurance**: bring-up of hardware, SIL and HIL testing, development of a custom embedded systems testing framework, code reviews.
- **Technologies**: ARM microcontrollers (Zynq Ultrascale+, TMS570), RTEMS, NASA cFS, C, Python, Rust, Git, CMake.

Software Engineer - ASTRIS kickstage

PTS
2021-01 - 2023-03
Berlin, Germany

- *The ASTRIS kickstage is a 5 tons spacecraft developed by ArianeGroup to be flown on Ariane 6 to provide additional capabilities and flexibility to payloads. In collaboration with ArianeGroup,* ***PTS designed the full avionics of ASTRIS*** *up to PDR. The PTS developed avionics covered the* ***electronics of the OBC****, the power, data acquisition and valves and pyros control subsystems, as well the* ***low-level software of the OBC, and complete software of the other subsystems****.*
- Within the software team, I contributed to the following topics:
- **Architecture and design**: requirements flow down, functional architecture decomposition, design of the CANopen-based internal bus of the avionics.
- **Documentation** (following ECSS standard): software unit and validation test plans (SUITP / SVTP), software design document (SDD) and interface control documents (ICD) ; With a focus on the IOs drivers (UART, CAN, SPI), Datapool and Telemetry pipeline.
- **Implementation and integration**: ARM µcontrollers BSP (Zynq 7020, SmartFusion2), RTOS (RTEMS), drivers (UART, CAN, SPI). Version control and CI (Git and GitLab), maintaining three execution targets for different levels of tests (x86/Linux, ARM/QEMU, ARM/Zynq), code coverage (GCOV), static analysis (Cppcheck, SonarQube, MISRA), unit tests (VectorCast).

Adrien CHARDON

✉ *adrienchardon AT mailoo.org*
cv.nodraak.fr

Software Engineer - Exomars

GMV
2019-04 - 2021-01
Madrid, Spain

- **Exomars rover**: as the **main technical responsible**, I developed and validated a middleware to interface the autonomous navigation libraries (CNES) with the rover platform (Airbus UK). During development, I configured a **CI pipeline to ensure high quality code and up to date reports**: running automated test on x86 and SPARC, tracking coverage and static analysis results, and automatically generating documentation.
- **Exomars cruise and descent modules**: I **helped in the development of the GNC**: coding, bug fixes, testing, validation, and improvement of the software quality metrics.
- **Skills:** programming (embedded C, Python), unit and integration testing (VectorCast, Tsim, Leon 2 FT on Rasta board), quality tools (Cppcheck, Gitlab CI, code coverage), software development standards (MISRA-C, ECSS-40B).

Project Leader (Student) - Smallsat ECE3Sat

ECE PARIS
2017 - 2018
Paris, France

- In collaboration with a team of 25 people, I designed and built a **nano satellite** in order to study a new de-orbit technique using Earth's magnetic field.
- **I managed the team** (5 people) responsible for the satellite architecture and the on-board computer. **We implemented the on-board communication bus** with CAN and ASN.1 to ensure a reliable communication between the subsystems.
- **Skills:** distributed architecture design, sizing and µcontrollers choice, team management and coordination.

Education

Degrees

2018 — **Advanced Master**, *TAS Astro: space systems design*.
ISAE-Supaero - Toulouse, France

2013 - 2018 — **Engineering Degree**, *Majoring in embedded systems*.
ECE Paris - Paris, France

2015 - 2016 — **Bachelor of Science**, *Electronics & IT*.
Aalborg University - Aalborg, Denmark

Languages

French — **Native**.
English — **Fluent (C2)**.
German — **Conversational (B2)**.
Spanish — **Conversational (B1)**.

Hobbies and Side Projects

Writing — https://blog.nodraak.fr
Side projects — Moon Lander GNC software written in Rust (Learn more on my blog, Source code)
Running performance analysis (Source code)
Sports — Running (HM: 1h29), swing dancing, roller/ice skating