CSUM | CENTRE SPATIAL DE L'UNIVERSITÉ DE MONTPELLIER

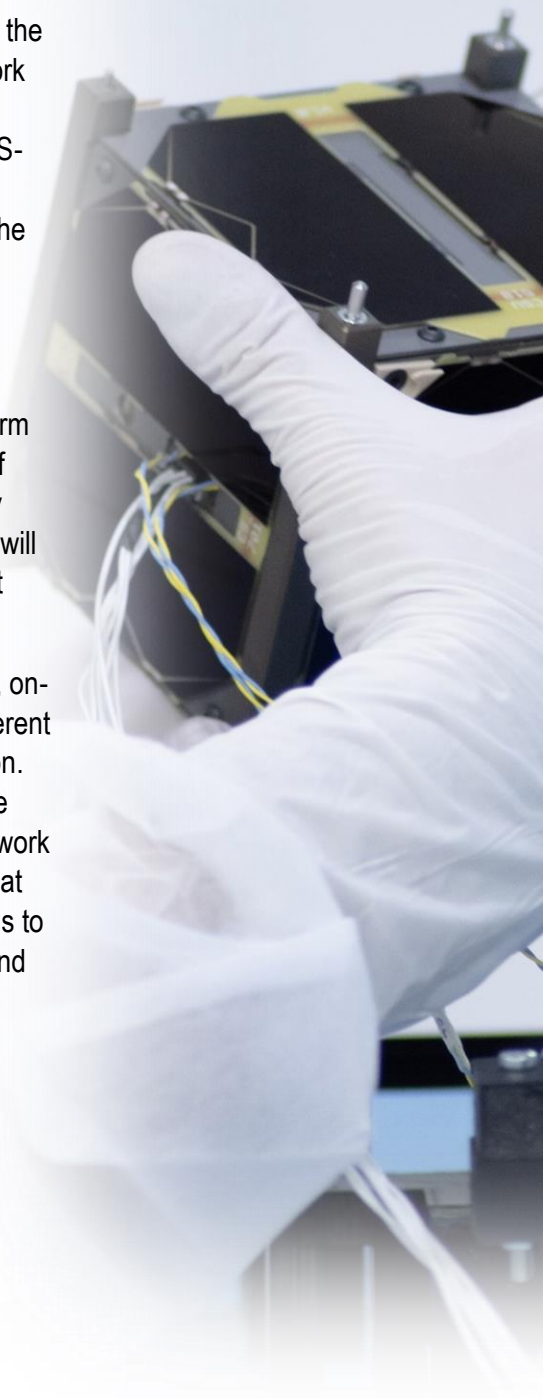
FONDATION VANALLEN UNIVERSITÉ DE MONTPELLIER

Internship offer

Python software developer/engineer for satellite configuration database web application

Context

The University Space Center of Montpellier (CSUM) is the French leader in the development and operation of nanosatellites developed by students. It has acquired in-depth competences in the field of design, manufacturing, testing and operation of nanosatellites and their subsystems, as well as in the area of space project management and product assurance in the framework of university space projects. The CSUM has an AIT (Assembly Integration and Test) Facility, a CDF (Concurrent Design Facility) and both UHF and S-band Ground Stations. The CSUM develops its own 1U to 12U CubeSat nanosatellite platforms with the support of the Van Allen Foundation and the French and European space agencies.



Internship description

Objectives: CSUM is developing and currently in phase B of a 12U platform designed to accommodate complex payloads from our partners. A team of interns will contribute to finalizing the preliminary design of the platform by capitalizing on the lessons learned from CSUM's numerous missions and will support the development of subsystems up to the implementation of a first functional model called FlatSat.

This offer focus on the ground software. The CSUM has several satellites, on-ground for the test and in-orbit. All these satellites, which can be from different platforms, have different configurations. We need to store this configuration. All the satellites will also be based on the same protocol. We need to store the telecommands of the satellite somewhere. In this frame we started to work on a CSUM-made internal web application developed in Python Django that stores these data and help engineers retrieve it. The job of the internship is to continue the development of the project by finishing the first pre-version and add new features in compliance with the CSUM team requirements.

Main activities related to your mission:

- Define software specifications from the requirements gathered from the CSUM team.
- Analyze the specifications to design the software.
- Develop and test the software from the design.
- Write the documentation of the software.

Level: From Bac+1 up to Bac+5 in electronics, embedded systems, or similar. The mission's activities can vary depending on the level of the intern.

Duration: 4 to 6 months

Skills (it is not mandatory to have all of them)

- First experience (pro, scholar, or personal project) with Python
  Knowledge of the Django framework
- Skills in web back-end design and development in Python
- Skills in SQL data base design
- Understanding someone else's code
- Knowledge in networks (principles, packets, sockets, ports, …)
- Skills on Linux (bash, serial debugging, ...)
- Experience with GIT or similar version control system
- English – minimum: being able to have a technical discussion with experts and to write documentation
- Ability to produce clear technical reports and presentations
- Critical thinking, autonomy, curiosity and a desire to learn

Location: Centre Spatial Universitaire de Montpellier, Campus Saint-Priest, Montpellier, France.

Stipend: 4.35 euros/worked hours for duration between 308 and 924 hours, 35 hours/week.

Preferred starting date: March 2027

Supervisor: Amaury KNOCKAERT – Software team leader - amaury.knockaert@umontpellier.fr

How to Apply?

Send your application to amaury.knockaert@umontpellier.fr