CSUM | CENTRE SPATIAL DE L'UNIVERSITÉ DE MONTPELLIER

FONDATION VANALLEN UNIVERSITÉ DE MONTPELLIER

Internship offer

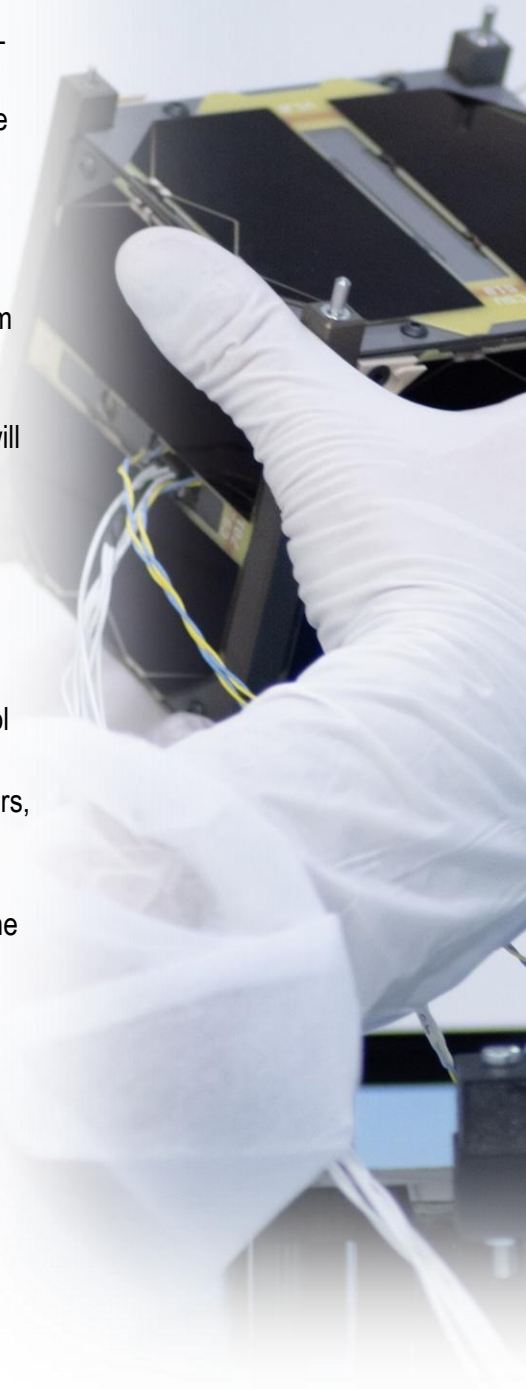
Hardware Engineering for TCS

cometes

FRANCE 2030

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 focuses on the Thermal Control System (TCS) development.

Main activities related to your mission:

- Based on the feedback from ROBUSTA-3A, CSUM's first 3U CubeSat, define the hardware requirements for the Thermal Control System (TCS) of the 12U CubeSat nanosatellite.
- Search for and select TCS components: heater drivers and actuators, and temperature sensors suitable for space environments.
- Adapt the CSUM SoM for thermal control purposes.
- Estimate the power consumption of the heaters and contribute to the satellite power budget.
- Design the TCS hardware for integration into the flatsat 12U.
- Define the TCS operating modes and failure handling (e.g. sensor failure, heater stuck on).
- Start the design of the thermal control algorithm.
- Write the test reports and the interface control document.
- Integrate the TCS into the 12U EPS and the flatsat.

Level: 2nd year of Master Degree or equivalent.

Duration: 4 to 6 months

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

- Proficiency in PCB design software tools (Altium, KiCad or similar).
- Knowledge of analog electronics and sensor signal conditioning.
- Basic knowledge of heat transfer and thermal control principles.
- Experience in embedded programming (C/C++ on microcontrollers or SoM).
- Experience using measurement equipment, such as oscilloscopes, SMUs, power supplies and thermal chambers.
- Experience using a version control system (Git or similar).
- English – minimum: able to hold a technical discussion with experts and write documentation.
- Ability to produce clear technical reports and presentations.

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

Stipend: 4.50 euros/worked hours for duration between 308 and 924 hours, 35 hours/week.

Preferred starting date: March 2027

Supervisor: Sara VEGA MARTINEZ, sara.vega-martinez@umontpellier.fr

How to Apply?: https://csum.umontpellier.fr/emplois-stages/

(Use the form to submit your CV and cover letter)