Internship proposal - Fall 2017

Electronic Design and Tests Engineer for IGOSat

Skills, key-words : Electronic, microcontroller, KiCad, electronic validation, embedded software, satellite.

Study level: 4th Year/ Master Degree

Duration : 6 months

Stipend : 554 € / months

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Internship description :

The Laboratories of Excellence (LabEx) UnivEarthS [1], set up by AIM (Astrophysics, Instrumentation and Modelling [2]), APC (AstroParticle and Cosmology [3]) and IPGP (Institut de Physique du Globe de Paris [4]) of Paris Diderot University [4], allowed the emergence of cross-cutting projects in these three laboratories.

Taking advantage of the strong involvement of these laboratories in numerous experiments and space instruments, a nanosatellite project developed by student was initiated by the LabEx UnivEarthS in October 2012, with the technical and financial support of the CNES (French Space Agency) and the Paris Diderot Space Campus [6]. More specifically, it is a question of developing, by 2018, a 3-unit CubeSat satellite (i.e. with a size of 10x10x30 cm [7]). This satellite, called **IGOSat**, will carry 2 payloads (a dual frequency GPS to study the ionosphere and a scintillator for the study of radiation belts)

The purpose of the internship is to participate in a functional bench («Flat-Satellite ») and Engineering Model of the 3U CubeSat. A large part of the satellite is home made and some prototypes have already been done for each sub-systems and currently integrated within the flat-sat. The role of the student will be to iterate on the flat-sat toward an engineering model (with functions and performances validated). Moreover, relevant documentation have to be done, as well as a presentation in front of experts from the French Space Agency (CNES).

Within a team of students, engineers and scientists, the student need to be able to work autonomously as well as part of a team, have a sense of rigor especially in writing presentation, and already a global vision of information transmission. Experience with KiCad and sub-contractors for realization is a strong asset for this internship.

This internship is a good opportunity to address numerous points of space engineering.

Bibliographie
[1] LabEx UnivEarthS : http://www.univearths.fr
[2] Laboratoire AIM : http://irfu.cea.fr/Sap/
[3] Laboratoire APC : http://www.apc.univ-paris7.fr
[4] Institut de Physique du Globe : http://www.ipgp.fr
[5] Université paris Diderot : http://www.univ-paris-diderot.fr
[6] Campus Spatial Paris Diderot : http://www.campusspatial-paris.fr
[7] CubeSats informations : http://www.cubesat.org
[8] IGOSat Project : http://www.igosat.fr