Training Opportunity for Luxembourgish Trainees

Reference	Title	Duty Station
LU-2023-TEC-SAS	**Sensors Engineering: GNC, AOCS & Pointing**	**ESTEC, Noordwijk, the Netherlands**

Overview of the mission:

The LuxYGT will work integrated in a team of engineers within the AOCS (Attitude and Orbit Control System) & GNC (Guidance Navigation and Control) Sensors Unit (TEC-SAS). The Unit is in charge of all hardware development related to AOCS and GNC sensors (Gyroscopes, Star Trackers and their CMOS detectors, Navigation Cameras, Sun sensors, Accelerometers, Magnetometers…).

The unit is also responsible for a facility in the Division laboratory, where Sensors or Sensors' concepts are prototyped & characterized.

Overview of the field of activity proposed:

The LuxYGT will be supporting a number of hardware developments in the Sensors Unit :
- You will be in charge of detailed performance characterisation of Faint Star (CMOS detector developed in Belgium) for its use in Navigation Cameras.
- You will take part in the development and enhancement of laboratory test facilities, in particular a Straylight facility for Star Tracker baffles, supporting the development of a Star Tracker currently developed in Belgium (Arcsec, spin-off from KU Leuven).
- You will support developments in the field of hybrid navigation (hybridization between inertial measurement units – IMUs – and GNSS)
- You will characterise newly developed European Gyroscopes, using specific test facilities such as rotating table positioned in thermal cycling chambers. The testing will be automated by the Trainee to guarantee future reproducibility.
- You will characterise newly developed European accelerometers.
- You will prototype a reaction wheel speed control loop and friction estimator for modern wheel drive electronics.

These activities will require the processing of real sensors data. The programming languages can be adapted to the background of the Trainee (Matlab, Python, C).

Note that the exact selection of the topics from the list above will depend on the progress of the R&D activities and the background of the Trainee.

Required education and skills:
- Master's degree in a technical or scientific discipline (preferably electronics or mechatronics with programming / data processing experience).
- Good interpersonal and communication skills
- Ability to work in a multi-cultural environment, both independently and as part of a team

- Fluency in English and/or French, the working languages of the Agency