

Job Title: Young Graduate Trainee for Mission Operations (Euclid)

Req ID 3968 - Posted 19/01/2018



EUROPEAN SPACE AGENCY

Young Graduate Traineeship Opportunity in the Directorate of Operations.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. Applications from women are encouraged.

Post

Young Graduate Trainee for Mission Operations (Euclid)

This post is classified F1.

Location

ESOC, Darmstadt, Germany

Our team and mission

The YGT will be part of the Euclid Spacecraft Operations Unit, Astronomy and Fundamental Physics Mission Division, Mission Operations Department.

Euclid is a cosmology ESA mission whose prime objective is to study the geometry and the nature of the dark Universe (dark matter, dark energy) with unprecedented accuracy. The mission will investigate the distance-redshift relationship and the evolution of the cosmic structures by measuring shapes and redshifts of distant galaxies out to redshifts ~ 2 , or equivalently by looking back on 10 billion years of cosmic history. It combines several techniques of investigation, also called cosmological probes, in a very large survey over the full extragalactic sky. Among these cosmological probes, two of them play a major role in the Euclid mission concept and the instrumental approach: the Weak Gravitational Lensing (WL) and Galaxy Clustering (including Baryon Acoustic Oscillations - BAO).

The Euclid mission consists of the space segment comprising spacecraft and payload, the launcher and the ground segment. The Euclid mission will be launched on a Soyuz/Fregat from Kourou. The spacecraft will be injected via a direct ascent trajectory of the launcher to its large free-insertion large-amplitude libration orbit around the sun-earth Lagrange point (SEL2, also known as L2).

The Euclid ground segment will consist of three main elements:

- The MOC (Mission Operations Centre) located at ESOC in Darmstadt for the mission operations.
- The SOC (Science Operations Centre) located at ESAC in Villafranca de Castillo.
- The 10 Science Data Centres (SDCs) provided by the EC (Euclid Consortium) located at various institutes in Europe and in US for the elaboration of the scientific data products.

The services and facilities developed and maintained by the MOC can be summarised as follows:

- Support to the Project during the development of the spacecraft to ensure operability of the spacecraft and ground segment/spacecraft compatibility
- Definition of a Spacecraft and Ground Segment (MOC) Operations Concept derived from the mission and science requirements
- Design and Development of the Ground Segment, taking full responsibility for the implementation of the MOC part of it (Ground Stations, Mission Control Systems, Simulators, Flight Dynamics System, Communications Network and Computer Facilities) and ensuring compatibility with the science ground segment elements.
- Integration, Testing and Validation of the Ground Segment
- Spacecraft Operations during Launch, LEOP, the Commissioning and Performance Validation Phase and Routine Operations Phase as well as during Critical and Contingency Recovery activities, being the only interface with the spacecraft through the ground stations' network.

Interested candidates are encouraged to visit the ESA website: <http://www.esa.int>

Field(s) of activities

The Young Graduate Trainee (YGT) will work on the operations preparation and ground segment of an exciting new space science mission and will be exposed to a wide range of activities and spacecraft and operations disciplines. In his role, the YGT will support the engineers and analysts of the Euclid Flight Control Team in the activities of the Ground Segment Implementation, specifically for one or more of the following tasks:

- Data Systems validation: Supporting the engineers with the validation of the first version of the Mission Control System – used to de-commutate spacecraft telemetry and to command the spacecraft – against the existing set of user requirement specifications. This activity shall focus specifically on the new challenges of the Euclid mission operations compared to other recent ESA mission, i.e. on File based operations and file transfer from and to the spacecraft.
- Data Systems validation: Supporting the engineers with the validation of the first version of the Euclid Simulator against the existing set of user requirements. This will provide a good opportunity for the trainee to familiarize himself with the spacecraft sub-systems and ground facilities.
- Development of practical tools supporting spacecraft operations, for instance for visualization of the progress of the sky survey from the history of the spacecraft attitude, manipulation of raw spacecraft information (Fine Guidance Sensor read-out in Photo-mode, etc) and others.
- Definition and compilation of synthetic parameters: Coding of algorithms within the Mission Control System for ground calculated parameters derived either from spacecraft originating telemetry or from other external interfaces (orbit and attitude related synthetic parameters).

Technical competencies

Knowledge of relevant technical domains

Relevant experience gained during internships/project work

Breadth of exposure coming from past and/or current research/activities

Knowledge of ESA and its programmes/projects

Behavioural competencies

Self Motivation

Communication

Continuous Learning

Cross-Cultural Sensitivity

Teamwork

Education

Applicants should have just completed, or be in their final year of a University course at Masters Level (or equivalent) in a technical or scientific discipline.

Additional requirements

The applicant should have experience in programming (in widely-used programming languages, preferably C++) and should have some background in information technology. Some basic knowledge in spacecraft related disciplines would be an asset.

The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset.

In addition, applicants should demonstrate good interpersonal skills and the capacity to work both independently and as part of a team.

During the interview the candidates' motivation and overall professional perspective/career goals will also be explored.

Other information

For behavioural competencies expected from ESA staff in general, please refer to the [ESA Competency Framework](#).

The closing date for applications is 04 February 2018.

If you require support with your application due to a disability, please email contact.human.resources@esa.int.

Please note that applications are only considered from nationals of one of the following States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, and the UK, or Slovenia as an Associate Member, Canada as a Cooperating State, Bulgaria, Cyprus, Latvia, Lithuania and Slovakia as European Cooperating States (ECS).
Priority will first be given to candidates from under-represented Member States.

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment