Training Opportunity for Portuguese Trainees

Reference	Title	Duty Station
PT-2020-OPS-OS	**Web Applications and Artificial Intelligence to support advanced Spacecraft Operations**	**ESOC**

Overview of the unit's mission:

The Artificial Intelligence (AI) and Operation Innovation Team is strongly committed to innovation and technology investigation to support more flexible and cost-effective operational concepts for current missions and to work on the assessment of new concepts for future mission. Added value generated by AI applications for space is the final goal of the team.

The mission is implemented carrying active research and working on projects. The output of a project includes documentation, architecture, software prototype and an operational assessment. In specific cases it can be a stand-alone product. Results are often published on international, top level conferences. Consolidated applications are then inherited in the ESA infrastructure asset.

Overview of the field of activity proposed:

The candidate trainee will become member of the Artificial Intelligence and Operation Innovation Team and will be initially integrated in one of the on-going internal projects. Several prototypes for innovative AI solutions to support spacecraft operations have been completed in the recent years. Those solutions span across several computer science disciplines, like planning and scheduling using artificial intelligence or machine learning. The trainee will support the team during the integration of those AI solutions in a web application that is being distributed to our internal partners.

The main activities proposed would involve the development and integration of a scalable web application for:
- Machine Learning Timeseries analysis from Big data lakes
- Data annotation
- Data-driven visualization
- Automated AI planning and scheduling

Activities will require collaboration with multiple teams (data scientists, IT and infrastructure, flight control teams, system engineers, etc.). The team works on multiple, related AI projects requiring creativity, ingenuity and a sense for holistic perspectives. As part of the traineeship the candidate will be involved in the DevOps lifecycle of our projects, including the setup and design of a CI/CD pipeline.

Required education:

Applicants must have recently attained their Master degree or be close to successfully completing their studies in Computer Science.
Required skills:
- Good knowledge and practice of programming languages: JavaScript, Python, Java Experience in web technologies and applications development frameworks (particularly, Angular, Django, RESTful interfaces, micro-services, etc.)
- Fair knowledge and practice of Linux administration and bash scripting
- Background on AI (Planning and Scheduling, Autonomy or Machine Learning) - Preferable
- A strong interest in developing DevOps skills
- Greatly developed empathy and motivation