

Training Opportunity for Polish National Trainees

Reference	Title	Duty Station
PL-2023-HRE-OE	ISS Payload Data Processing	EAC, Cologne

Overview of the mission:

ESA's Human Spaceflight and Robotic Exploration (HRE) directorate's aim is to implement Europe's participation in the development of space infrastructure, such as the International Space Station. The goal of the Directorate is to secure Europe's central role in global space exploration, deliver new results in both basic and applied science and offer a compelling vision of global endeavour, enriching society and inspiring the next generations. The teams in the Directorate who work on these projects come from all ESA's member states and cover a variety of disciplines, mainly oriented towards engineering and science.

You will be part of a team responsible for maintaining the ESA infrastructure (on-orbit and ground-based) of the International Space Station (ISS). The Engineering Team also supports other missions and activities across ESA's human exploration endeavours, for example the Gateway programme.

In preparation for the coming years of ISS operations, the Engineering Team is preparing to deploy an updated payload data processing and routing system on-board ESA's Columbus module. This new system will streamline utilisation of the module and create new opportunities for advanced applications.

Z komentarzem [FP1]: Repetition of first paragraph?

Overview of the field of activity proposed:

As a Polish National Trainee, you will support the development, testing, and preparation for operations of the Columbus Data Management Infrastructure (CDMI) system. In particular, you will support the software development aspects of the CDMI project. Software development is being carried in a 'hybrid manner' between ESA and industry. As part of this approach ESA is playing a more active role in certain aspects of development and industry are extensively utilising resources provided by ESA, such as private cloud computing. Depending on your particular technical competencies and interests you will support CDMI software development through the following activities:

- Automation of the deployment of software development resources on ESA's private cloud resources using modern tools such as Ansible and/or Terraform
- Integration of developed software components with centralised monitoring tools such as Zabbix
- Support the maintenance and development of CDMI's software requirements and test procedure baseline which is currently maintained using Atlassian's Jira
- Implementation and maintenance of certain Continuous Integration/Continuous Deployment (CI/CD) automation pipelines using GitLab CI



- Specification, development and implementation of software Application Programming Interface (API) tests
- Support the administration of the network infrastructure required to support CDMI software development activities
- Participation in CDMI code reviews
- Small scale research, definition, implementation and testing of CDMI software functions
- Review and contribution to CDMI user documentation
- Refinement and collection of further stakeholder inputs for existing CDMI use cases

Required education and skills:

- Fluent spoken and written English language proficiency.
- Experience in the design and use of computer networks and IP-based communication protocols
- Experience in the configuration and use of Linux operating systems
- Experience in computer programming with languages such as Python or Rust

Desired/optional skills:

- Experience with software solutions such as Ansible, Zabbix and/or Terraform
- Experience with modern DevOps (or DevSecOps) practices
- Experience working with customers to define and refine requirements
- Experience in the authoring and review of precise technical documentation