

Software and Data Systems Architect

Job Req ID: 15215

Closing Date: 31 May 2022

Publication: Internal & External

Vacancy Type: Permanent

Date Posted: 19 April 2022

Vacancy in the Directorate of Science.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. We therefore welcome applications from all qualified candidates irrespective of gender, sexual orientation, ethnicity, beliefs, age, disability or other characteristics. Applications from women are encouraged.

This post is classified A2-A4 on the Coordinated Organisations' salary scale.

Location

ESAC, Villanueva de la Cañada, Spain

Description

The European Space Agency maintains a world-leading Science Programme [Our Missions - Cosmos \(esa.int\)](#) with missions in heliophysics, planetary science, astrophysics and fundamental physics. The Department for Science and Operations (SCI-S) hosts the scientists that oversee the space missions from study to end of post-operations and for posterity; it develops the science operations systems for the missions and operates the missions in space; and it archives and curates their data during operations and beyond. Our main objective is to maximise the scientific output of the missions for the benefit of humankind.

You will be responsible for all software and data engineering aspects related to the development, implementation, operations and maintenance of science archive systems at the ESAC Science Data Centre (ESDC), reporting to the Science Archives Development and Operations Manager in the Data Science and Archives Division in the SCI-S Department. You will work closely with mission teams and the scientific community and will be responsible for coordinating the work of the companies providing services to support your tasks.

You will be expected to strive for innovation and excellence in data management and software systems to support our upcoming missions which will require new techniques in the context of big data, databases, web GUI and data science, in close collaboration with internal and external science data providers, in line with the software engineering standards adopted at ESA, promoting and extending adoption of those methods, processes and standards to all ESDC activities.

Duties

These will include:

- coordinating all activities related to data management and software system architecture, design, development, testing, deployment and operations for ESA space science data archives (e.g. Gaia, JWST, Rosetta, ExoMars, Solar Orbiter; see full list at [archives.esac.esa.int](#));
- ensuring that archive systems are built along Findable, Accessible, Interoperable and Reusable (FAIR) principles, to maximise scientific return as well as long-term data preservation and access;

- together with the archive scientists and mission teams, defining and monitoring development roadmaps for each mission's data archive, in line with requirements, project milestones and costs;
- defining and maintaining all required technical interfaces with science operations teams, external scientific consortia and data providers, internal IT services, external archive data centres, etc.;
- driving innovation by actively participating in Department and ESA-wide software and system engineering activities, and proposing and participating in ESA R&D programmes related to big data, machine learning, and software engineering techniques;
- representing ESA and the Department at international Virtual Observatory data alliances (i.e. IVOA, IPDA, IHDEA, etc.), workshops and conferences;
- acting as ESA representative for industrial contract(s) supporting the technical work at the ESDC.

Technical competencies

Experience in developing/operating data management and archiving systems

Experience in architecting scalable and distributed systems for big data operations

Experience in managing software development projects through industrial contracts

Software and system engineering and understanding of system requirements and interfaces

A good understanding of modern software engineering methods and tools, R&D trends and the industrial landscape

Behavioural competencies

Result oriented

Operational efficiency

Fostering Cooperation

Relationship Management

Continuous Improvement

Forward Thinking

Education

A master's degree in software or computer engineering, space science or space applications is required.

Additional requirements

The following would be considered assets for this position:

- Experience in the following technologies: Java, Angular, Python, PostgreSQL, Greenplum, Docker, Kubernetes, SonarQube, Maven and Jenkins
- Experience in Agile and DevOps methodologies
- Knowledge of large, preferably space-based, science operations and associated software systems.

Other information

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

For further information please visit: [Professionals](#), [What we offer](#) and [FAQ](#)

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.

The Agency may require applicants to undergo selection tests.

At the Agency we value diversity and we welcome people with disabilities. Whenever possible, we seek to accommodate individuals with disabilities by providing the necessary support at the workplace. The Human Resources Department can also provide assistance during the recruitment process. If you would like to discuss this further please contact us 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, the United Kingdom and Canada, Latvia, Lithuania and Slovenia.

According to the ESA Convention, the recruitment of staff must take into account an adequate distribution of posts among nationals of the ESA Member States*. When short-listing for an interview, priority will first be given to internal candidates and secondly to external candidates from under-represented or balanced Member States*.

(<https://esamultimedia.esa.int/docs/careers/NationalityTargets.pdf>)

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 conducted by an external background screening service.

Recruitment will normally be at the first grade in the band (A2); however, if the candidate selected has little or no experience, the position may be filled at A1 level.

*Member States, Associate Members or Cooperating States.