

Ground Software Engineer

Job Req ID: 14702

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Vacancy Type: Permanent

Date Posted: 09 June 2022

Vacancy in the Directorate of Technology, Engineering and Quality.

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

ESTEC, Noordwijk, Netherlands

Description

As Ground Software Engineer you will become part of the Ground Software Systems & Functional Verification Section, Software Systems Division, Systems Department, Directorate of Technology, Engineering and Quality.

This team provides support to most ESA projects in the pre-launch phase in the fields of space systems database (SRDB), functional verification infrastructure (including Front-ends, SCOE and EGSE), and Assembly, Integration and Testing/Verification (AIT/AIV) activities. The associated facilities and infrastructure are software-intensive systems, involving state-of-the-art software technology stacks.

We also drive technology research and development (R&D) in these domains, preparing for the needs of future missions. An important paradigm shift driving many developments presently is the move towards model-based approaches. In the area of databases and data management this involves model-driven database development, driven by data modelling at conceptual level to ensure semantic interoperability between different systems and implementations.

Duties

Your main tasks and responsibilities in the areas outlined above include the following:

Data Modelling & Management:

- Supporting the transition from legacy data models to new data model paradigms (Conceptual Data Models), with strong connection to Model-Based System Engineering (MBSE) and Ontology definition;
- Supporting projects and industry in the preparation, evaluation and reviewing of all aspects of SRDB procurement (both software development and data quality), including preparation of requirement specifications, monitoring of industrial activities, acceptance of industrial products and participation in project reviews;

- Providing technical expertise on both data and software development aspects, including data modelling, use of space system databases, and verification of their consistency and completeness.

Functional Verification Infrastructure:

- Supporting the maintenance and future developments of the EGSE Reference Facility located in the ESTEC Avionics Systems Laboratory. This includes software builds and integration of industrial elements to the EGSE reference facility as well as space system database facilities, the functional verification in end-to-end scenarios, maintenance of an EGSE software library/configuration management/lab website.

Assembly, Integration and Testing/Verification (AIT/AIV):

- Monitoring the industrial activities relevant to Satellite assembly, integration, testing, verification and validation in particular in the area of Data Verification and Validation;
- Contributing to the definition of verification, qualification and acceptance programmes including implementation and monitoring of AIT/AIV activities.

General:

- Contributing to the definition and execution of R&D requirements and work plans for the Agency's technology programmes, covering short- and long-term needs;
- Fostering new application areas for multidisciplinary activities, placing emphasis on innovative concepts, cutting-edge technologies and system architectures;
- Monitoring applicable scientific and technological trends and maintaining a state-of-the-art expertise;
- Supporting Standardisation activities in the Section domain in the context of CCSDS, ECSS and other standardisation bodies (e.g. E70-30 Monitoring and Control Data Definition, E70-32 Test and Operations Language, E70-41 PUS, E10-23 Space System Data Repository);
- Contributing to the dissemination of the results of the activities performed and the transfer of knowledge across the Agency.

Duties may also include supporting other activities within your field of competence.

Technical competencies

Knowledge and Experience in Space Systems Assembly, Integration and Verification
Experience in development and maintenance of ground infrastructure and/or software systems

State-of-the-art knowledge in area of IT Infrastructure and Agile software development and related IT trends in industry

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

Data management technology, Data modelling and database design.

Experience in the definition and implementation of Ground Segment projects.

Behavioural competencies

Result Orientation

Operational Efficiency

Fostering Cooperation

Relationship Management

Continuous Improvement

Forward Thinking

Education

A Master's degree in computer science/information technology, aerospace engineering or similar scientific discipline is required for the post.

Additional requirements

You will have extensive practical experience of implementing and building complex software systems in the space domain, and knowledge in modelling monitoring and control data in compliance with the ESA monitoring and control systems (legacy systems such as SCOS or future systems such as EGS-CC).

You should be able to coordinate, monitor and lead the engineering support provided to projects in your areas of expertise.

Knowledge and Experience in:

- Space Systems and Space System Engineering;
- Space Systems Assembly, Integration and Verification;
- Software Engineering with a specialisation in information systems, semantic modelling and database engineering applied to large/complex systems;
- GSE (Ground Support Equipment) systems;
- Management of industrial contracts.

Experience with one or more of the topics below would be an asset such as:

- Experience with the Database Software and Data Life Cycle;
- Experience with Data Verification and Validation activities;
- Knowledge of Conceptual Data Modelling;
- Experience with database management systems and tools, in particular Oracle environment (e.g. Database Server, Oracle WebLogic Server, etc.) as well as PostgreSQL, Hadoop;
- Experience with the relevant ECSS standards: knowledge of the PUS and its tailoring;
- Exposure to MBSE, PaaS, Virtualisation, Containerisation, IaaS, SOA, micro services, Kubernetes, Kafka;
- Knowledge of Agile software engineering techniques. Knowledge of a scaled agile methodology would be a further advantage.

The profile we are ideally looking for:

- You should be result-oriented, able to set priorities, and capable of presenting practical solutions both verbally and in writing.
- You should also have good interpersonal and communication skills with a proactive attitude to solving problems and an interest in innovative technologies.
- You should have the ability to work autonomously, effectively and cooperatively in a diverse, international team environment, defining and implementing solutions in line with team and individual objectives and project deadlines.

Other information

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

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.

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.