



## Extreme Light Infrastructure ERIC

### Software Engineer Data Operations

### Background information and position description

#### ***Extreme Light Infrastructure***

The [Extreme Light Infrastructure](#) (ELI) is the world's most advanced international laser research infrastructure. Relying on cutting-edge laser technologies delivering sources of ultra-intense high-energy particle beams and ultra-bright radiation, ELI provides scientific and industrial users with access to world-class research opportunities relevant for materials sciences, engineering, medicine, biology, chemistry, and astrophysics.

The ELI Facilities are being commissioned and entering initial operations. Teams are working on-site to ensure that data acquisition and storage solutions are in place to fulfil initial requirements. When fully operational, ELI is expected to serve hundreds of scientific users per year generating an estimated 5 Petabytes of scientific data every year. ELI is committed to provide its users with state-of-the-art tools, methods and services for the acquisition, analysis, curation, and preservation of data derived from experiments, according to the [FAIR principles](#) (Findable, Accessible, Interoperable, and Re-usable).

These efforts are taking place within the framework and with the support of [PaNOSC](#) (Photon and Neutron Open Science Cloud), a project financed by the European Commission bringing together six major world-class European research infrastructures including ELI. PaNOSC aims at making scientific data produced at Europe's major Photon and Neutron sources fully compatible with the FAIR principles in terms of data policy and services to users, and at contributing to the building up of the [European Open Science Cloud](#).

ELI is operated under the auspices of a European Research Infrastructure Consortium (ELI ERIC) seated in Dolní Břežany (Czech Republic). ELI ERIC operates two facilities located in the Czech Republic (ELI Beamlines) and Hungary (ELI-ALPS). A third facility located in Romania (ELI ERIC) is expected to join in the future.

#### ***Position Overview***

ELI ERIC is searching for a Software Engineer to join the team of the ELI ERIC Statutory Seat. In line with the ELI ERIC Data Policy, the Software Engineer will work to develop highly scalable software tools and services, writing clean, functional code for a wide range of applications and services that will manage datasets of various types, format or size.

The **Software Engineer Data Operations** will be engaged in defining the specification of community-specific solutions within the data analytics area, and for the implementation and piloting of those solutions for ELI users.

The position requires experience in data management and user access management (authentication-authorisation) systems. The **Software Engineer Data Operations** will work on the integration and development of applications with the technical and operational Data, Data Storage and Data Operations services of ELI, and ensure that data management and data operations services as well as other data-related services are integrated and meet the specific needs of different individual experiments and users of the ELI Facilities.

### ***Reporting and interactions***

The Software Engineer Data Operations will work under the direct supervision of and report to the Senior Coordinator for Data Management and Computing. He/she will be working together with relevant teams of the ELI Facilities involved in PaNOSC or in ad-hoc task groups.

He/she will be interacting with users to collect requirements and identify solutions, with the experimental groups to understand the particularities of each setup and with the General/Enterprise IT to validate that the solutions are compliant with the internal policies and best practices.

### ***Duties and Responsibilities***

The **Software Engineer Data Operations** will be working together with the Software Engineering groups of the ELI facilities in the integration and operation of different data ingestion tools and services, design and build the dedicated data curation and data correlation tools and services, pilots and validates new solutions with the users, integrates and develops the data transfer framework for the users' datasets respecting the company's data policies, data management plans and security standards.

#### *Specific responsibilities include:*

- Engaging with the users, control systems and data acquisition teams to capture the requirements and constraints for the services and solutions that are needed.
- Designing, developing and implementing tools for data correlation and data curation, creating and associating metadata to each dataset to make the data available for the user
- Participating in the integration, development and operation of the file catalogue solutions for the ELI facilities
- Testing, diagnosing, and optimization of software: analytic skills to identify and resolve problems with storage components or client applications
- Re-using, refactoring, integrating, and porting of existing software
- Knowledge and application of software life-cycle tools and procedures. As the system will work with multiple (tens-hundreds) of Terabytes of data per day, all software maintenance operations should follow also the facility maintenance strategy.

### ***Essential requirements***

- Computer science degree in Information Technology, Software Engineering, Computer Science, Science or a related field or at least 3 years of experience in similar position, covering both front- and back-end development.
- 3+ year experience in software development, including data management and data storage technologies
- Good understanding of Data Governance, Data Quality, Metadata Management, and Data Architecture
- The ability to communicate effectively presenting the technical solutions
- Detail- and results-oriented, with strong analytical, organisation and time management skills with the ability to collaborate with different teams and users types (technical/non-technical)
- Experience in working with international distributed teams is a plus. Excellent oral and written English skills are a prerequisite

### ***Technical competencies:***

Candidates should demonstrate the following skills and expertise:

- GNU/Linux based operating systems, (distributed systems and architecture would be a plus)
- Message brokers (RabbitMQ, Kafka, ApacheMQ etc)
- Version control systems' experience, particularly, Git, (basic DevOPS/DevSecOPS is a plus)
- Software development experience in Python, good knowledge of another programming language (C++, Julia, R, etc )
- Experience in system administration and software design in Linux development, including deployment of services
- Experience in working with multiple database technologies: MariaDB, MySQL, PostgreSQL, Influx DB
- Basic understanding of AI/ML algorithms.

### **Employment conditions**

- Position is Open Until Filled.
- Term: full-time employment with an initial duration of 3 years, extension beyond that initial term possible.
- Location: ELI ERIC Statutory Seat at ELI Beamlines (Dolní Břežany, Czech Republic) or ELI ERIC Office at ELI-ALPS (Szeged, Hungary).
- Salary: base salary competitive, commensurate with experience of the selected candidate, additional remuneration elements to support relocation negotiable.
- Frequent short-term travels between the ELI Facilities and partners involved in different Projects are a key requirement of the position.

Candidates should send a letter of interest, including a concise description of experience relevant to the position, as well as their CV to [jobs@eli-laser.eu](mailto:jobs@eli-laser.eu).

All enquiries/information from the candidates will be handled confidentially.

Qualified candidates will be invited to take part in interviews.