2021-03381 - Database / Web Engineer

Contract type : Fixed-term contract  
Level of qualifications required : Graduate degree or equivalent  
Function : Temporary scientific engineer

About the research centre or Inria department

Located at the heart of the main national research and higher education cluster; member of the Université Paris-Saclay, a major actor in the French Investments for the Future Programme (Idex, LabEx, IRT, EquipeX) and partner of the main establishments present on the plateau, the centre is particularly active in three major areas: data and knowledge; safety, security and reliability; modelling, simulation and optimisation (with priority given to energy).

The 450 researchers and engineers from Inria and its partners who work in the research centre's 28 teams, the 60 research support staff members, the high-level equipment at their disposal (image walls, high-performance computing clusters, sensor networks), and the privileged relationships with prestigious industrial partners, all make Inria Saclay Île-de-France a key research centre in the local landscape and one that is oriented towards Europe and the world.

Context

Project-teams ILDA (Saclay) and LinkMedia (Rennes) are collaborating on the design and development of a visualization tool for data extracted from RDF knowledge graphs with a strong emphasis on the temporal arrangement of facts described in these graphs. This tool is part of a broader Inria project named called "CODA, Knowledge-mediated Content and Data Analytics - The case of data journalism". The project aims at advancing the state of the art in multimedia analytics. One goal of the project is to help journalists sufficiently infer useful information and knowledge by collaboratively inspecting heterogeneous information sources (structured or not). The information sources can be diverse and may include newspapers’ archives, governmental/official knowledge bases, ontologies, etc. Overall, the project stands at the crossroad of multiple research fields such as content analysis, data management knowledge representation, reasoning and visualization.

Assignment

The engineer will be in charge of developing a back-end for the Web-based visualization engine that is produced by other members of the team. This visualization engine is aimed at allowing data journalists to explore how a news story of interest evolves as time goes by. Such a news story may for example involve multiple people, multiple places, multiple companies, and the relations between these entities change as time goes by. The visualization allows journalists to query for relationships between these entities, and the origin of these relationships from multiple vantage points. For instance, it can search and display co-forununited informational threads that merge into an existing news story (such as observed connections between political figures, e.g., who studied at the same university together), unnoticed interesting developments that stem from news articles (increasing popularity of particular topics or movements), and help journalists use these observations to create more news stories themselves.

Main activities

- Specify the architecture and implement the database backend. This will require building a unified database that includes several data sources, including RDF triple stores queried using
- In close collaboration with the engineer in charge of implementing the visualization engine (front-end), define an API for generating RDF queries and for translating the result to a format that can be read by the visualization front-end. The current version of the visualization engine takes as input, that were created by querying a preliminary database provided by journalists. This process is done using external Python scripts and is not currently integrated with the visualization tool. This must be replaced with a fully functional, optimized and more flexible low-level data management system such as an RDF data storage and query framework (for instance: OntoSQL, Virtuoso, ...).

Skills

- The engineer must have solid experience working with databases
- Past experience with RDF data management frameworks (TripleStores, SPARQL) is a plus, but not a requirement.
- The engineer will be working with the engineer creating the data visualization tool in order to define how data is retrieved from the store, before being passed to the visualization layer. In addition to specifying a clear API, the engineer will have to propose and then implement RDF-oriented queries (possibly using SPARQL), and help transform the results in a format readable by the visualization front-end.
- Knowledge of Web frameworks (e.g., Django, javascript) is a plus, but not a requirement.

Languages : English

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave 7 weeks of annual leave + 10 extra days off due to RRT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
- Possibility of teleworking (after 6 months of employment) and flexible organization of working hours
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training

General Information

- Theme/Domain : Interaction and visualization  
- Web development (BAP E)  
- Town/City : GIF-sur-Yvette  
- Inria Center : CRI Saclay - Île-de-France  
- Starting date : 2021-05-01  
- Duration of contract : 12 months  
- Deadline to apply : 2021-04-09

Contacts

- Inria Team : ILDA  
- Recruiter : Pietriga Emmanuel / Emmanuel.Pietriga@inria.fr

About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

Instruction to apply

Defence Security :  
This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating to the protection of national scientific and technical potential. Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy :  
As part of its diversity policy, all Inria positions are accessible to people with disabilities.

Warning : you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.
• Social security coverage

Remuneration
Rémunération selon profil et expérience