2021-03764 - Analysis tool construction engineer (M/F)

Contract type : Fixed-term contract
Renewable contract : Oui
Level of qualifications required : Graduate degree or equivalent
Fonction : Temporary scientific engineer
Level of experience : From 3 to 5 years

About the research centre or Inria department

The Inria Lille - Nord Europe Research Centre was founded in 2008 and employs a staff of 320, including 280 scientists working in fourteen research teams. Recognised for its outstanding contribution to the socio-economic development of the Hauts-De-France région, the Inria Lille - Nord Europe Research Centre undertakes research in the field of computer science in collaboration with a range of academic, institutional and industrial partners.

The strategy of the Centre is to develop an internationally renowned centre of excellence with a significant impact on the City of Lille and its surrounding area. It works to achieve this by pursuing a range of ambitious research projects in such fields of computer science as the intelligence of data and adaptive software systems. Building on the synergies between research and industry, Inria is a major contributor to skills and technology transfer in the field of computer science.

Context

The objective of the RMoD team is to support systems that are still working. This goal is approached from two complementary angles: large system reengineering and constructs for dynamic and reflective programming languages.

From the perspective of reengineering, we propose new analyses for understanding and restructuring existing large applications (specialised package metrics, tailored visualisations, layer identifications, automated migration) in addition to Moose (an open-source reengineering platform) http://www.moosetechnology.org. We are working on rule identification and validation. We have created Synectique http://synectique.eu, a company that deploys tools to analyse software.

In the context of construction, we are revisiting language concepts such as modules and composition. In addition, we are working on a new generation of reflective systems. These programming language constructs are being experimented with on Pharo http://www.pharo.org. We are developing Pharo, a purely object-oriented, dynamically typed, reflective language. Pharo is used in several universities around the world, by research groups and companies. http://consortium.pharo.org is an industrial consortium that supports Pharo.

Assignment

The RMOD team is looking to recruit an engineer (M/F) for a period of 24 months.
The selected candidate will contribute to the development of a new version of the Moose IDE.
The idea is to be able to define new software analyses very quickly.

Main activities

This work includes :

- Defining the architecture of a reengineering and reverse engineering environment.
- How to dynamically connect new tools,
- How do the tools interact, how to support the extensibility of the solution?
- Support for analysis scripting.
- Support for querying
- Improving existing importers
- Creating importers for new languages.
- Creation of parsers for Python, typeScript,
- Definition of Spec20 components that will be part of the IDE: recorder, query support, browsers, import/export, map viewers, script importers.
- The use of Roassal30 and Telescope to provide ready-to-use and customisable visualisations.

Keywords: IDE, modelling, tools, IDE, Moose, software analysis, Roassal, programme visualisation, specifications, user interface, reverse engineering, parsing, analysis.

Skills

Technical skills and level required :

Modelling
Code analysis
Tool creation
Design patterns
Unit tests
TDD

Languages :

English
French is a plus

Interpersonal skills :

Good communication skills
Good critical thinking skills

General Information

- **Theme/Domain :** Distributed programming and Software engineering
  Software engineering (BAP E)
- **Town/city :** Villeneuve d'Ascq
- **Inria Center :** CRI Lille - Nord Europe
- **Starting date :** 2021-10-01
- **Duration of contract :** 2 years

Contacts

- **Inria Team :** RMOD
- **Recruiter :**
  Ducasse Stephane /
  Stephane.Ducasse@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

CV + Application Letter

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 (PPST).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.

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Leave: 7 weeks of annual leave + 10 extra days off due to RTT (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
- Social security coverage

Remuneration

Remuneration according to profile (public service grid)