
Contract type: Public service fixed-term contract  
Level of qualifications required: PhD or equivalent  
Fonction: Post-Doctoral Research Visit  
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 360, including 300 scientists working in sixteen research teams. Recognised for its outstanding contribution the socio-economic development of the Nord - Pas-de-Calais Region, 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

Job environnements

IDEs (integrated development environment) provides some supporting tools to ease development, such as automatic completion. Now several important tasks are not well covered: for example, merging changes, assessing the tests to automatically rerun, debugging extreme situations,…

In addition, they are often based on static type information. The goal of this postdoc is to enhance IDEs for dynamically-typed languages: using multiple approaches: type inferencing, taking advantage of the AST structure, studying the use of examples to produce concrete types.

Finally, often tools are inflexible and cannot be adapted to specific domain or projects. New generation tools should support the developers customizing tools to their own workflow and domain following the PhD of A. Chis on Moldable tools.

Results will be submitted to international conferences and journals and an effort will be put to produce systems that can be used by (normal) developers so that user experiences provide real data.

The work will happen in collaboration between Inria Lille (RMOD), University of Bern and Pleiad from University of Chile.

RMOD

The goal of RMoD is to support remodularization and development of modular object-oriented applications http://rmod.inria.fr. We tackle this objective from two complementary perspectives: reengineering, and constructs for dynamic languages. In the context of languages, we revisit language concepts such as modules and composition; we are also working on a new generation of reflective systems. We experiment with these programming constructs using Pharo, an open-source, reflective, object-oriented language http://www.pharo.org used by more than 30 Universities worldwide and an industrial consortium http://consortium.pharo.org.

Assignment

Assignments
The goal of this Postdoc is to work on high level IDE on one or more of the following topics:

- recommender systems (following PhD of S. Proksch)
- automatic completion
- back in time debugger and scriptable debuggers
- automatic test selection and execution (following PhD of V. Blondeau)
- type inferencer for tooling (following work on RoelTyper and PhD of L. Spoon on type inference)
- advanced refactorings (following PhD of G. Santos)
- change merging (following PhD of M. Dias)
- quality insurance (following PhD of Y. Timchuk)

References:

5. Fritz and G.C. Murphy, Using Information Fragments to Answer the Questions Developers Ask, in International Conference on Software Engineering (ICSE), 2010.

Main activities

The plan is to:

- Survey the key developer activities.
- Define new model and enhance current
- Realize prototypes, possibly using Pharo.
- Run validation with real end-users.
- Publish results in top venues.

Skills

Skills

Pharo, OOP, TDD
Reflective programming
Program transformation

Benefits package

Benefits

- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Sports facilities
- Flexible working hours

More information about Lille:
http://www.lille3000.eu/portail/
http://www.lillemetropole.fr/mel.html

**Remuneration**

Remunerating

The gross monthly salary is 2653€

**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**: 11/1/18
- **Duration of contract**: 1 year, 4 months
- **Deadline to apply**: 3/29/18

**Contacts**

- **Inria Team**: RMOD
- **Recruiter**: Ducasse Stephane / stephane.ducasse@inria.fr

**Conditions for application**

**Instructions to apply:**

Candidates will be treated firstly with a complete file: CV + letter of motivation + list of publications + 2 representative publications + one or more letters of recommendation + prospects for professional integration after the post-doc.

**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.