Offer #2025-08862

Post-Doctoral Research Visit F/M Towards a Language-Agnostic Virtual Machine for Live Programming

Contract type : Fixed-term contract

Level of qualifications required : PhD or equivalent

Fonction : Post-Doctoral Research Visit

About the research centre or Inria department

The Inria Centre at Rennes University is one of Inria's eight centres and has more than thirty research teams. The Inria Centre is a major and recognized player in the field of digital sciences. It is at the heart of a rich R&D and innovation ecosystem: highly innovative PMEs, large industrial groups, competitiveness clusters, research and higher education players, laboratories of excellence, technological research institute, etc.

Context

Within the framework of the Inria/CWI partnership: collaboration between the DiverSE team at Inria and the SWAT team at CWI in the context of the Associate team ALE and the Inria/CWI international partnership.

Is regular travel foreseen for this post ? travels to CWI to ensure the collaboration with the SWAT team in the context of the associate team ALE (gemoc.org/ale).

Assignment

The Agile Language Engineering (ALE) associate team represents a long and successful collaboration between Inria and CWI. Its focus is on improving software engineering through language engineering: both for the end-users and the language engineers themselves. One main topic in the team is live programming: programming while the application runs, without intermittent shutdown and restarts. A language engineering perspective on live programming requires rethinking the way languages are implemented. For this we propose the concept of LipVM: the Live and Interactive Programming Virtual Machine. Targeting this VM will allow language engineers to abstract from the technical challenging aspects of live programming, such as hot-swapping, state migration, back-in-time debugging, and orthogonal persistence.

The post-doc will contribute to developing this concept, its design, and its prototype implementation, performing research at the cutting edge of virtual machine engineering, language engineering, and programming language design, in close collaboration with Inria DiverSE and the Software Analysis & Transformation (SWAT) group at CWI. We expect that LipVM will be a stepping stone to bring live programming to programming languages, modeling languages, and domain-specific languages. The postdoc position will further strengthen the collaboration between Inria and CWI.

Main activities

Main activities:

- ensuring cutting-edge research activities on software engineering and domain-specific languages, specifically to bring live programming accessible to any software language.
- contribute to the supervision of PhD students working in this area
- kick start the development of LipVM, a shared software project in the context of the ALE team
- participate to the ALE associate team, and the overall collaboration between Inria and CWI

Skills

Technical skills and level required :

- high skills in software engineering and programming languages
- strong interest in language design and implementation, as well as language runtime

Languages :

- the working language is English, and the position requires a very good ability to speak and write in English

Relational skills :

- ability to work in an international context; and to develop an international collaboration

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

Monthly gross salary from 2 788 euros.

General Information

- **Theme/Domain :** Distributed programming and Software engineering Software engineering (BAP E)
- **Town/city :** Rennes
- **Inria Center :** Centre Inria de l'Université de Rennes
- **Starting date :** 2025-11-01
- **Duration of contract :** 12 months
- **Deadline to apply :** 2025-06-28

Contacts

- **Inria Team :** DIVERSE
- **Recruiter :**
  Combemale Benoit / benoit.combemale@irisa.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.

The keys to success

The candidate will demonstrate strong motivation in research and autonomy in the realization of research activities. The candidate will also appreciate the supervision of PhD students, and will contribute to the development of an international partnership.

> **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.

Instruction to apply

Please submit online : your resume, cover letter and letters of recommendation eventually

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.