A propos du centre ou de la direction fonctionnelle

Inria, the French National Institute for computer science and applied mathematics, promotes "scientific excellence for technology transfer and society". Graduates from the world’s top universities, Inria’s 2,700 employees rise to the challenges of digital sciences. Research at Inria is organized in “project teams” which bring together researchers with complementary skills to focus on specific scientific projects. With this open, agile model, Inria is able to explore original approaches with its partners in industry and academia and provide an efficient response to the multidisciplinary and application challenges of the digital transformation. Inria is at the origin of many innovations that add value and create jobs.

The Research Center of Inria Rennes-Bretagne Atlantique is one of the 8 Inria Research Centers. It gathers 620 employees, including 400 scientists, organized in 33 research teams and 8 services supporting the research.

Contexte et atouts du poste

The Myriads research team gathers researchers in large scale distributed systems. Our long-term goal is to build next generation utility computing platforms by designing and implementing systems and environments for autonomous service and resource management in large virtualized infrastructures. https://team.inria.fr/myriads/

The SimGrid project is partly developed in the Myriads research team. This scientific instrument is used to study the behavior of large-scale distributed systems such as Grids, Clouds, HPC or P2P systems. It can be used to evaluate heuristics, prototype applications or even assess legacy MPI applications. http://simgrid.gforge.inria.fr/

The SUMO team proposes to combine formal methods approaches with concurrency theory, in order to address the modeling, analysis and management of large distributed or modular systems exhibiting quantitative aspects. Large distributed softwares and systems are indeed calling for quantitative models involving time, probabilities, costs, and combinations of them. As many problems in this setting become untractable or even undecidable, we are interested in the design of efficient approximation techniques, for example borrowed from electrical engineering approaches to the management of large stochastic systems.

The Myriads and Sumo team already collaborate in the context of IPL Hac Specis (High-performance Application and Computers: Studying PErformance and Correctness In Simulation). The aim of the project is to answer methodological needs of HPC application and runtime developers and to allow to study real HPC systems both from the correctness and performance point of view. To this end, we gather experts from the HPC, formal verification and performance evaluation community.

Mission confiée

In the context of the SimGrid project and IPL Hac Specis, we are recruiting a R&D engineer in charge of the organization of our software projects. The main goal of the position is to integrate our research results in the SimGrid tool, and its model-checker Mc SimGrid. The goal is to help both existing users and future or prospective users of the tools.

Principales activités

The engineer is in charge of developments and scientific experiments in two international research teams:

- The current SimGrid kernel is the result of almost 20 years of evolution and is widely used in production. The engineer will help improve the documentation, and provide more examples to help new users. S/he will also participate to the maintenance of our codebase, further increasing the continuous integration infrastructure, and proposing more extensive testing.
- The model-checker module is still experimental. We plan to refactor and reorganize this module. The model-checker should be scriptable to make it possible to express new exploration and reduction algorithms through external scripts, without modifying SimGrid itself in any way.
- On top of these refreshed internals, the engineer will integrate recent research results to improve the efficiency of the model-checking algorithm.
- S/he will also help in ongoing efforts to prepare teaching resources that leverage our framework in order to spread the use of SimGrid in universities.

Compétences

Mandatory Expertise and Skills:

Informations générales

- Thème/Domaine : Systèmes distribués et intergiciels
- Plateformes expérimentales logiciel
  (BAP E)
- Ville : Rennes
- Centre Inria : CRI Rennes - Bretagne Atlantique
- Date de prise de fonction souhaitée : 2019-11-01
- Durée de contrat : 2 ans
- Date limite pour postuler : 2019-10-15

Contacts

- Equipe Inria : MYRIADS
- Recruteur : Quinson Martin / martin.quinson@irisa.fr

A propos d’Inria

Inria, l’institut national de recherche dédié aux sciences du numérique, promeut l’excellence scientifique et le transfert pour avoir le plus grand impact. Il emploie 3400 personnes. Ses 200 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3000 scientifiques pour relever des défis des sciences informatiques et mathématiques, souvent à l’interface d’autres disciplines. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 160 start-up. L’institut s’efforce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l’économie.

L’essentiel pour réussir

Essential qualities to fulfill this assignment are open-mindedness, curiosity and taste for research and wanting to learn. A thesis in either formal methods or distributed systems will be appreciated but not absolutely mandatory, while a strong background in software development is a real asset.

Consignes pour postuler

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

For more information, please contact martin.quinson@irisa.fr

Sécurité défense :

Ce poste est susceptible d’être affecté dans une zone à régime restrictif (ZRR), telle que définie dans le décret n°2011-1425 relatif à la protection du potentiel scientifique et technique de la nation (PPST). L’autorisation d’accès à une zone est délivrée par le chef d’établissement, après avis ministériel favorable, tel que défini dans l’arrêté du 03 juillet 2012, relatif à la PPST. Un avis ministériel défavorable pour un poste affecté dans une ZRR aurait pour conséquence l’annulation du recrutement.

Politique de recrutement :

Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.
- Studies in Computer Science, with a strong background on Software Development: Source Control Management, Configuration, Compilation, Documentation, Tests, Debugging and Profiling, Modelling;
- Programming Languages: C or C++ mandatory
- Very good abilities in C++ system programming on Linux systems;
- Technical and scientific English, both spoken and written (French is a plus);
- Open-mindedness, curiosity and taste for research.

Additional skills appreciated, but not requested:
- Experience in software development in geographically distributed teams (participation to free software welcomed)
- Programming in Java and Python
- Theoretical background on distributed systems (Lamports' clock, notions of concurrency, partial orders, etc)
- System programming on non-Linux systems (Mac OSX, Windows)

**Avantages**
- Subsidized meals
- Partial reimbursement of public transport costs
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage

**Rémunération**
Monthly gross salary from 2562 euros according to diploma and experience

**Attention:** Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.