2018-00800 - PhD : Support to the "BlockChain-isation" of software systems (M/F)

Level of qualifications required : Graduate degree or equivalent
Fonction : PhD Position

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 to 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 pursing 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 Phd will happen in the RMOD Team located at Lille.

Assignment
Blockchain is becoming more and more mature as a technology and architecture to secure transactions. Various and competing platforms are emerging such as Hyperledger, Ethereum or Digital Assets.
In this context BlockSY proposes to abstract from these differentes solutions. Now one of the major challenges that companies are confronted is how to migrate existing business making applications use such new architecture. These needs to be be completely restructured and modified to connect them to some blockchain application. Indeed, first experiences show that more than 80% of the time (and project cost) to connect an existing application to a blockchain or to build a blockchain connecting to an existing legacy is spent in the identification of the data flow, database connexion, data manipulation and application internal logic. The goal of the PhD is to support using tools the analysis of existing applications to support the identification of such information. Such tooling should support the use of BlockSy in existing software systems.

Main activities
The following possible tasks are:
- Study of Moose [http://www.moosetechnology.org](http://www.moosetechnology.org) an international open-source platform for software analysis developed by RMOD team.
- Study of Ethereum, Hyperledger and BlockSY
- Definition of queries - DSL or not
- Software maps & Tools to explore query results
- Dedicated metamodel to represent connector and flow of information
- Code transformation to inject BlockSY interface in existing software

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

Remuneration
1982€ Gross salary monthly for the 1st and 2nd year.
2085€ Gross salary monthly for the 3rd year.

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: 2018-08-01
* Duration of contract: 3 years
* Deadline to apply: 2018-08-01

**Contacts**

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

**About Inria**

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. With its 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 the source of many innovations that add value and create jobs.

**Conditions for application**

The complete file (CV + motivation letter) will be treated in priority.

**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.