2018-00713 - PostDoc (18 months): Web-Of-Browsers: Towards a fully decentralized web

Contract type : Public service fixed-term contract
Level of qualifications required : PhD or equivalent
Fonction : Post-Doctoral Research Visit
Level of experience : Up to 3 years

About the research centre or Inria department

The Inria Rennes - Bretagne Atlantique center is one of Inria's eight centers and has more than thirty research teams. The Inria Center 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

The WIDE team is recruiting a post-doctoral researcher for a duration of 18 months, with an immediate starting date.

The project Web of Browser aims at exploring the construction of a **decentralized and browser-based web**. This objective stems from the observation that browsers have become the most widely deployed execution environments in the world. Initially only designed to display HTML pages, they have evolved into comprehensive runtime platforms able to execute complex local code, interact with humans, and with remote web services. The recent introduction of **WebRTC** has further extended the capability of browsers by introducing support for browser-to-browser communication. This turns browsers into a decentralized execution environment where interactions between human and web services are enabled without third party.

Assignment

The objective of this post-doctoral project is to explore the **programmability** of browsers as the building block of a decentralized web. We would in particular like to develop a framework for emergent localities on the basis of our existing work, i.e. allow practionners to easily construct advanced decentralized services by assembling simpler and **composable distributed bricks**. The postdoc offers scope for both algorithmic and experimental developmental work, notably in the domains of information discovery, routing, and coordination.

The project holds potential for strong synergies with related on-going projects running in the WIDE group, notably on private decentralized aggregation, **privacy-preserving** decentralized **learning**, and browser-fingerprinting anonymization.

Main activities

The successful candidate will engage in explorative scientific research in the field of decentralized systems and algorithms, with focus on browser-based deployment and application.

Skills

- Ability to conduct research autonomously in a collaborative setting.
- Self-initiative, curiosity and experimental rigor.
- Excellent ability to express oneself clearly and convincingly in both in written and oral English.
- A genuine drive to expand one's knowledge and horizons.
- Excellent experimental and programming skills.
- A good grasp of current research questions in distributed systems and/or distributed algorithms research.

Benefits package

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

About Inria

Inria, the French national research institute for the digital sciences, promotes scientific excellence and technology transfer to maximise its impact. It employs 2,400 people. Its 200 agile project teams, generally with academic partners, involve more than 3,000 scientists in meeting the challenges of computer science and mathematics, often at the interface of other disciplines. Inria works with many companies and has assisted in the creation of over 160 startups. It strives to meet the challenges of the digital transformation of science, society and the economy.

The keys to success

The recruited post-doctoral researcher should hold a **PhD in Computer Science**, with ideally a focus on large distributed computer systems and web technologies. The candidate should be a driven and creative individual, with an interest in innovative and paradigm changing technologies.

Due to funding conditions, the offer is limited to candidates who have spent at least 12 months outside of France over the last 3 years.

Conditions for application

What to include in your application

Applicants should apply, in the first instance, by submitting

- a **CV** (up to two A4 pages),
- a **short statement** outlining their research interests and motivation (up to half an A4 page),
- and the names and addresses of at least **two academic referees.**

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.

be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.