2018-00521 - Post-Doctoral Research on Interaction Qualities for Smart Objects - Inria Grenoble Research center

Contract type: Public service fixed-term contract  
Renewable contract: Oui  
Level of qualifications required: PhD or equivalent  
Fonction: Post-Doctoral Research Visit  
Level of experience: Recently graduated

About the research centre or Inria department

Grenoble Rhône-Alpes Research Center groups together a few less than 800 people in 35 research teams and 9 research support departments.

Staff is localized on 5 campuses in Grenoble and Lyon, in close collaboration with labs, research and higher education institutions in Grenoble and Lyon, but also with the economic players in these areas.

Present in the fields of software, high-performance computing, Internet of things, image and data, but also simulation in oceanography and biology, it participates at the best level of international scientific achievements and collaborations in both Europe and the rest of the world.

Context

The post-doctoral researcher will propose and evaluate qualities for smart objects in collaboration with members of the pervasive team at Inria.

Recent advances in microelectronics and communications have led to an increasing integration of digital technologies in ordinary everyday objects, providing embedded functions for perception, action, interaction and intelligence. The result has been the emergence of a new class of technologies, sometimes referred to as “smart objects” or “smart things”. The goal of this research is to establish standard qualities for such objects.

In established engineering disciplines, qualities provide a principled approach to define metrics for models that predict performance. Qualities give a normative reference for estimating the value of alternative technologies at design time. They are also used to define specifications for requests for bids for acquisition of systems and services. In short, quality standards for smart objects are essential for a scientific approach to their development and commercial application. Providing a standard definition for qualities is expected to have important impact on the emergence of smart environments and the internet of smart things.

Working with members of the Pervasive team at Inria, the post-doctoral researcher will propose possible qualities for smart things to be evaluated and refined. These will be experimentally evaluated through controlled studies with end-users and designers using newly marketed devices as well as custom designed devices manufactured at the Amiqual4Home innovation platform at Inria. Based on the results of the historical assessment and user studies, we will propose a standard set of qualities for smart things that can serve as the basis for an international standard.

This research project will be performed in cooperation with the Innovation Platform Amiqual4Home: Ambient Intelligence for QUality fo LIfe, funded by the PIA Equipment of Excellence (EquipEx) program.

Assignment

The overall objective is to define, evaluate and validate the set of qualities for smart things as a normative reference that will enable modelling, comparison and prediction of properties.
Main activities
In order to define, evaluate and validate the set of qualities for smart objects, the post-doctoral researcher will address the following specific objectives:

- Propose candidate sets of qualities for smart objects.
- Assess the proposed qualities by applying them to recent and existing smart things and evaluating their usefulness in predicting value and commercial success.
- Experimentally evaluate the proposed qualities through studies with end users and designers.
- Propose a standard set of qualities for smart things as a normative reference.

If successful, we will work with the young researcher to promote the resulting qualities as a standard through engagement with internationals organisations such as ISO and IFIP.

Skills
Technical skills and level required: Microelectronics, Mechatronics, Informatics, Ergonomics
Languages: English
Relational skills: Must be able to work within a team.
Other valued appreciated:
Must be prepared to take personal initiative;
Must be prepared to explore innovative new ideas and not afraid to fail.

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

Remuneration
Gross salary: 2650 Euros per month

General Information
- Theme/Domain: Robotics and Smart environments
  - Software engineering (BAP E)
- Town/city: Montbonnot
- Inria Center: CRI Grenoble - Rhône-Alpes
- Starting date: 2018-11-01
- Duration of contract: 1 year, 4 months
- Deadline to apply: 2018-04-04

Contacts
- Inria Team: PERVASIVE
- Recruiter: Crowley James / james.crowley@inria.fr

The keys to success
The young researcher must be prepared to invest time and effort to develop a career as a scientific researcher.

Conditions for application
**Starting date:** 1st November 2018, duration: 16 months.

Applicants should hold a PhD (defended between 1st September 2016 and 31st October 2018) in Systems and Control or Applied Mathematics.

Applications have to be made on-line on the Inria web site before end of March.

**Contact**: James.Crowley_at_inria.fr

**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.