Job vacancy #2023-06455

Research Engineer - Smart Sensor and Fog Computing Platforms for Natural Environment Monitoring

Contract type: Fixed-term contract

Level of qualifications required: Graduate degree or equivalent

Other valued qualifications: Master or engineer degree in embedded, distributed or cloud systems with 2-3 years of experience. Recent PhD graduates are also welcome to apply.

Fonction: Temporary scientific engineer

Level of experience: Up to 3 years

About the research centre or Inria department

The Inria Rennes - Bretagne Atlantique Centre is one of Inria's eight centres 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 habitability of the Earth is threatened for all forms of life by the alteration of the complex interactions between living organisms and the geo-ecosystem (air, water, rocks and soils) to which they are connected. The ecological emergency therefore calls on scientists to make a substantial effort towards interdisciplinarity between Earth, environmental, technological and digital sciences.

The Inria teams MYRIADS and TARAN are part of the TERRA FORMA project which aims to deploy various types of autonomous sensors in the natural environment as well as the means to process the generated data on-site to provide Earth scientists with high-quality experimental platforms to support their research.

Assignment

The objective of this engineer position is to maintain, develop and adapt the SmartSense sensor and LivingFog fog computing platforms for the specific needs of the TERRA FORMA project, in close collaboration with researchers from the computer science and earth science domains. The proposed solutions will be tested and qualified in-natura on the “Croix Verte”, an area of the Beaulieu campus which has been renatured.

Main activities

- Adapt the SmartSense and LivingFog platforms for long-range WiFi-based data transmission.
- Define a suitable hardware base for autonomous fog computing platforms in the natural environment, including solar panel-based energy supply.
- Deploy the SmartSense and LivingFog in the “green cross” area of the Beaulieu campus, and later in more remote locations.
- Adapt the platforms for high-throughput data sources
- Develop data processing applications for the deployed platform: real-time monitoring and archiving of environmental data (temperature, humidity...), then possibly more ambitious ones (e.g., digital twin of the monitored environment)

Skills

- Master or engineer degree in embedded, distributed or cloud systems with 2-3 years of experience. Recent PhD graduates are also welcome to apply.
- A strong interest in environmental sciences and the challenges of addressing the ecological emergency.
- Excellent programming skills in Linux environments.
- Good command of English. Note that knowledge of French is appreciated but not required for this position.
- Knowledge of the following technologies is not mandatory but will be considered as a plus:
  - Cloud resource scheduling
  - Distributed container orchestrators: Kubernetes, Docker Swarm.
Single-board computers such as Raspberry Pi
Low-energy sensor technologies
Microcontroller and DSP programming

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Possibility of teleworking (90 days per year) and flexible organization of working hours
- Partial payment of insurance costs

Remuneration

Monthly gross salary from 2655 euros according to diploma and experience

General Information

- Theme/Domain: Distributed Systems and middleware
  System & Networks (BAP E)
- Town/city: Rennes
- Inria Center: Centre Inria de l'Université de Rennes
- Starting date: 2023-10-02
- Duration of contract: 2 years
- Deadline to apply: 2023-10-31

Contacts

- Inria Team: MYRIADS
- Recruiter: Pierre Guillaume / Guillaume.Pierre@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.

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

For more information, please contact guillaume.pierre@irisa.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.