Offer #2023-06984

IoT engineer in IoT embedded devices for post-disaster management usecase implementation (M/F)

Contract type: Fixed-term contract
Level of qualifications required: PhD or equivalent
Function: Temporary scientific engineer

Context

This position falls in the context of the Horizon Europe NEPHELE project which goal is to enable the efficient, reliable and secure end-to-end orchestration of hyper-distributed applications over programmable infrastructure that is spanning across the compute continuum from Cloud-to-Edge-to-IoT. The platform would also smartly allocate edge computing resources for dynamic networks in order to improve the global network efficiency and reduce the energy consumption.

In this context, the FUN team is in charge of the implementation of a specific use case of the NEPHELE platform. In this use case, the technologies and solutions will be tailored for a post-disaster scenario in a container terminal environment. There are multiple causes such as natural conditions, worker accidents and damage of equipment that can lead to accidents which make this case study of high interest for container ports.

Now, when an industrial accident happens, time is critical and often of vital importance. Data from the incident area, containing the information to guide first response operations and improve the intervention effectiveness, should be collected as fast as possible and with the highest possible accuracy. The main objective is to rescue as many victims as possible in the shortest possible time while ensuring secure operations through risk assessment. To this aim, the rescue team needs to 1) deploy network infrastructure and devices composed of wireless sensor network, robots and drones for the mission, 2) map the area and locate and identify victims, and 3) assess the damages and comprehend the remaining or upcoming risks to prioritize rescue operations.

Assignment

The recruited engineer will collaborate with colleagues in the FUN team and the NEPHELE project consortium members. In particular, the work will contribute to NEPHELE’s platform, by collaboratively designing and developing multiple components of the IoT wireless sensor network that is to be deployed in the use case demonstrator and integrated into the NEPHELE platform.

By default all developed software will be open-source.

Main activities

- Design and implement a self-organized wireless sensor network
- Integrate multi-radio technology in the wireless sensor network
- Implement network monitoring functionalities
- Integrate the demonstrator with the NEPHELE platform
- Enable communication/interaction between Ros-based robots and wireless sensor network
- Implement techniques allowing mobile edge computing service in wireless robots

Skills

Technical skills and level required:

- Good knowledge in IoT, Wireless sensor networks and networking
- IoT Embedded devices programming skills
- Software design and development skills (Python and/or C/C++)
Good knowledge of APIs
Knowledge in ROS is appreciated

Languages:
Mastering English is essential

Relational skills:
smoothly working in a team in a research environment
effective communication and collaboration

Benefits package
Subsidized meals
Partial reimbursement of public transport costs
Leave: 7 weeks of annual leave + 10 extra days off due to RTT (statutory reduction in working hours) + possibility of exceptional leave (sick children, moving home, etc.)
Possibility of teleworking and flexible organization of working hours
Professional equipment available (videoconferencing, loan of computer equipment, etc.)
Social, cultural and sports events and activities
Access to vocational training
Social security coverage

Remuneration
According to profile

General Information
Theme/Domain: Networks and Telecommunications
System & Networks (BAP E)
Town/city: Villeneuve d'Ascq
Inria Center: Centre Inria de l'Université de Lille
Starting date: 2024-06-03
Duration of contract: 12 months
Deadline to apply: 2024-01-06

Contacts
Inria Team: FUN
Recruiter: Mitton Nathalie / Nathalie.Miton@inria.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.

The keys to success
We're looking for someone with an inquisitive mind, capable of innovation, who enjoys working in a team and communicating about their work.

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 send your CV and cover letter.

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.