2023-06678 - Engineer for 5G-mMTC/EdgeAI platform

Contract type: Fixed-term contract
Level of qualifications required: Graduate degree or equivalent
Level of experience: From 3 to 5 years

About the research centre or Inria department
The Inria Saclay-Ile-de-France Research Centre was established in 2008. It has developed as part of the Saclay site in partnership with Paris-Saclay University and with the Institut Polytechnique de Paris.

The centre has 39 project teams, 27 of which operate jointly with Paris-Saclay University and the Institut Polytechnique de Paris; its activities occupy over 600 people, scientists and research and innovation support staff, including 44 different nationalities.

Context
The position is part of the 5G-mMTC research project aiming at deploying a 5G cellular network oriented “massive IoT”, compatible with 4G technology. The use cases are the Smart-Grid, in partnership with EDF and the connected bike, in partnership with the French Cycling Federation (FFC).

As part of this project, a 5G test platform will be deployed as an extension of the existing IoT platform IoT-LAB, including 5G connectivity and AI capabilities at the edge.

IoT-LAB is a remotely accessible large-scale open platform for experimenting with the development, optimization and validation of IoT network protocols, including highly constrained sensor networks. FIT IoT-LAB focuses on these constrained IoT systems, with one hand the embedded systems aspect and on the other hand, the radio-communications part for IoT (historically: 802.15.4, ZigBee, 6LoWPAN, today: LoRaWAN, UWB, Bluetooth, etc.).

Assignment
The person recruited will be in charge of designing, developing, and deploying the infrastructure of new services necessary for this 5G-mMTC platform. These include services developing and deploying AI-on-the-edge.

Eventually, services related to 4G (LTE-M, NB-IoT) and 5G core networks will be usable for experiments conducted by members of the 5G-mMTC project, along with services related to embedded AI (TinyML) and AI on the edge.

The person recruited will work within the IoT-LAB engineering team and will contribute to the development and daily maintenance of the IoT-LAB platform: migration to Docker, migration of administration tools to Ansible, tutorials, user support, etc.

This mission will take place in the Inria research center in Saclay Ile de France.

Main activities
- Design, development and deployment of TinyML/EdgeAI and AIOps infrastructure
- Design, development and deployment of 4G/5G network infrastructure
- System and network administration
- Software development
- Documentation writing
- User support

Skills
- Systems and network: Linux (Debian), Docker, Kubernetes
- Programming: Python, Bash, C/C++, Pytorch, tensorflow
- Embedded systems (optional): Yocto

Remuneration
Remuneration in regards to your personal experience.

General Information
- Theme/Domain: Networks and Telecommunications
- IT Infrastructure (BAP E)
- Town/city: Palaiseau
- Inria Center: Centre Inria de Saclay
- Starting date: 2023-04-01
- Duration of contract: 2 years
- Deadline to apply: 2023-10-31

Contacts
- Inria Team: TRIBE
- Recruiter: Adjih Cédric / Cedric.Adjih@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
- Knowledge of Deep Learning libraries (Pytorch, tensorfow, TensorRT); knowledge of EdgeAI and TinyML is a big plus.
- Background in system and network administration is essential for success in this job, as well as a deep understanding of containerization technologies like Docker and Kubernetes.
- Knowledge of one or more programming languages, preferably Python and Bash. Knowledge of C/C++ or other system languages (e.g. Rust) is a plus.
- Knowledge of the protocols commonly used in IoT and cellular systems is a plus that will also be appreciated.
- A good command of technical English.

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...
Instruction to apply

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.