Offer #2024-07368

Leading the OpenSwarm implementation

Contract type : Fixed-term contract

Level of qualifications required : Graduate degree or equivalent

Fonction : Temporary scientific engineer

Level of experience : From 3 to 5 years

Context

Large, coordinated networks of small, resource-constrained devices have the potential to complete complex tasks that single monolithic devices cannot. We are designing an embedded computing platform that is low-cost and versatile. Each device can communicate using off-the-shelf radios in either time-synchronized channel-hopping mesh networks originally designed for reliable transmission in crowded IoT networks, or with BLE so that it be programmed from a cell phone or other Bluetooth-enabled device.

You will be contributing to the Horizon Europe OpenSwarm project. Its ambition is to trigger the next revolution in data-driven systems by developing true collaborative and distributed smart nodes, through groundbreaking R&I.

Assignment

The goal of this engineering position is to lead the OpenSwarm implementation. If you like embedded systems, this is the dream job for you.

There are two keywords which accurately define this position.

First, **impact**. The AIO team and the OpenSwarm project thrive to conducting research which matters. One vehicles for ensuring impact is standardization, in particular through the IETF LAKE working group which Malisa Vucinic co-chairs and which is a primary focus point of the OpenSwarm project. You will be able to participate in standardization activities, implementing proposed standards, attending IETF meetings, representing the team, organizing hackathons and other events.

Second, **leadership**. Of course you will be a contributor to the OpenSwarm code-base, but perhaps more importantly you will be putting in place the framework to allow all other OpenSwarm partners to contribute their code by defining the structure of the overall OpenSwarm implementation, contributing to the overall software architecture of the project, and ensuring the quality of the code produced. As such, you will be leading meetings, steering discussions and arbitrating between technological options.

Main activities

You will be at the heart of the vibrant Inria-AIO team (https://aio.inria.fr/), and will be working hand-in-hand with several members of the team, including researchers Thomas Watteyne, Malisa Vucinic and Filip Maksimovic, but also research engineer Alexandre Abadie and PhD students Said Alvarado-Marin and Yuxuan Song.

You will have the following 3 main focus points:

- OpenSwarm architecture. You will lead the translation of the architecture into working code, by setting the standards and coordinating the contributions of all partners. This task will require both hard skills (CI/CD, advanced build systems, etc) and soft skills (running meetings, driving contributors, etc).
- Testbed software. You will be working with Alexandre Abadie to develop the software around the testbed to make it easy to use. This includes defining the UX/UI of the testbed, and implementing the necessary code to start and monitor experiments.
- Standardization. You will a main contributor to the IETF LAKE working group, maintaining the code base of the group's different implementations and attending IETF meetings.

Skills

Excellent "hard" skills

- good understanding of software quality and project management tools (e.g. Git, GitHub, Travis-CI, Jenkins)

- "computer" programming skills (ideally Python), including some web development (understanding how browser and server communicate, JavaScript visualization)
- good embedded programming experience (understanding an electronic schematic, programming micro-controllers)

Excellent "soft" skills

- we are looking for the "technical leader" type, i.e. you are able to efficiently drive a team of engineers
- ideally, some open-source project experience, including source code and project management tools (Git, GitHub, GitHub Actions, etc)

Communication within the team happens in English. While speaking English is important, speaking French is not a requirement.

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
- Flexible organization of working hours (after 12 months of employment)
- Professional equipment available (videoconferencing, loan of computer equipment, etc.)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage

General Information

- **Theme/Domain** : Networks and Telecommunications
  System & Networks (BAP E)
- **Town/city** : Paris
- **Inria Center** : Centre Inria de Paris
- **Starting date** : 2024-10-01
- **Duration of contract** : 1 year, 7 months
- **Deadline to apply** : 2024-06-21

Contacts

- **Inria Team** : AIO
- **Recruiter** :
  Watteyne Thomas / thomas.watteyne@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 are looking for the "technical leader" type, who is able to lead a team of engineers, drive their work while making meaningful contributions and always ensuring the quality of the code being produced.

> **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

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.