



Offer #2024-07732

Research Engineer position on Aerial Robotics

Contract type : Fixed-term contract

Level of qualifications required : Graduate degree or equivalent

Fonction : Temporary scientific engineer

Corps d'accueil : Ingénieur d'Etudes / Ingénieur de Recherche (IE/IR)

About the research centre or Inria department

The Inria research centre in Lyon is the 9th Inria research centre, formally created in January 2022. It brings together approximately 300 people in 17 research teams and research support services.

Its staff are distributed in Villeurbanne, Lyon Gerland, and Saint-Etienne.

The Lyon centre is active in the fields of software, distributed and high-performance computing, embedded systems, quantum computing and privacy in the digital world, but also in digital health and computational biology.

Context

An 18-month Research Engineer position is available at INRIA Lyon to join the CHROMA team (<https://team.inria.fr/chroma/en/>) and work on the development of new solutions for path planning and data acquisition problems with a system of cooperative aerial vehicles. The position is funded by the ANR AVENUE project, which is specifically focused on autonomous 3D environment reconstruction with a fleet of UAVs.

More generally, the overall goal of the Chroma research team, which is part of the INRIA/INSA CITI lab, is to address fundamental and open problems at the intersection of human-centered robotics and multi-robot systems. The teams' goal is to design algorithms and models that allow mobile robots to navigate and operate in complex and dynamic environments. In this context, an important line of research focuses on online planning for cooperative systems and in particular for fleets of aerial robots. Our approach to this challenge is to bring together probabilistic methods, planning techniques, and multi-agent decision models.

The contract will ideally start in October 2024 but other starting dates can also be considered in function of the candidate's availability.

Assignment

The main objective of the candidate's work will be to support and participate in the developing, implementation, and testing of new solutions enabling a fleet of cooperative UAVs to autonomously explore and map 3D environments based on the data collected during the flight. This will imply an involvement in both UAV navigation and sensing aspects. The activity will be initially carried out in simulation, mainly using the Gazebo simulator, followed by real experimental tests conducted with the UAVs already employed in the CHROMA team (PX4 vision). The candidate will have the opportunity to work in strict collaboration with other team members, and in particular with a PhD student working on the same project, and to participate in the preparation of scientific publications resulting from the obtained results.

Main activities

- Writing code to perform simulations and experiments with UAVs
- Write software documentation
- Test and validate solutions in real-world experiments
- Contribute to scientific publications in collaboration with other team members

Skills

- The candidate must have a Master (or equivalent) in computer science, robotics or closely related fields.
- Knowledge in robotics is required. Experience with aerial vehicles, planning algorithms and/or 3D mapping will be appreciated.
- Proficiency in C++/Python programming is required. Experiences with ROS/ROS2 and Gazebo are

highly valued.

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 (90 days / year) and flexible organization of working hours (except for internship)
- Social, cultural and sports events and activities
- Access to vocational training
- Social security coverage under conditions

Remuneration

From 2,692 € (depending on experience and qualifications).

General Information

- **Theme/Domain** : Robotics and Smart environments
Software engineering (BAP E)
- **Town/city** : Villeurbanne
- **Inria Center** : [Centre Inria de Lyon](#)
- **Starting date** : 2024-10-01
- **Duration of contract** : 1 year, 6 months
- **Deadline to apply** : 2024-06-22

Contacts

- **Inria Team** : [CHROMA](#)
- **Recruiter** :
Renzaglia Alessandro / alessandro.renzaglia@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

Passionate about innovation and robotics, the candidate should have a strong interest in software development and real experimentation to implement and test novel solutions.

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

Applications must be submitted online via the Inria website. Processing of applications submitted via other channels is not guaranteed.

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.