Offer #2024-08315

Research & Development Engineer position on Social Robotics at Inria, in Grenoble, France

Contract type : Fixed-term contract

Renewable contract : Yes

Level of qualifications required : Graduate degree or equivalent

Fonction : Temporary scientific engineer

Corps d'accueil : Ingénieur d'Etudes (IE)

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

Chroma is an Inria research team located in Lyon and Grenoble, which aims at designing algorithms and models to allow autonomous agents to perceive, decide, learn and adapt to their environment, by bringing together probabilistic methods, machine learning, planning techniques, multi-agent decision making, and constrained optimisation tools.
The team develops and maintains many experimental plateforms, and is involved in many academic and industrial projects in the field of Mobile Robotics and Autonomous Vehicles.

The proposed 1-year (extendible) Research & Development Engineer position is part of a collaborative project with Enchanted Tools (https://enchanted.tools/) to transfer technologies designed by the Chroma team to Enchanted Tools' Mirokai robot.

Assignment

Within the framework of the above-mentioned project, the objectives are to develop, optimize, extend and deploy our social convention representation models for the navigation of social robots in hospitals, in the presence of humans and other robots.

The work will involve transferring the research work carried out by the team, initially on a wheelchair (https://www.youtube.com/watch?v=KtwgwGOgIM0), to the Mirokai robotic platform developed by Enchanted Tools (https://enchanted.tools/robot). The first step will be to develop software bricks validated in simulation, then to transfer these bricks to the real robot and carry out tests in an environment populated by humans. The final stage will be to test these bricks in a hospital environment (Station H in Lyon).

The engineer recruited will work within a team of engineers already working on several robotics projects, in interaction with doctoral students and researchers from the Chroma team. He/she will be expected to reinforce the existing skills of the engineering team, by contributing or developing expertise in :

   - Modeling human environments, proxemics, social conventions
   - Planning trajectories that respects social conventions (human-aware navigation, leader tracking, etc.).

The engineer recruited will also help set up demonstrations, and may be involved in scientific publications and international conferences. He/she will probably be required to travel to Lyon and Paris to work more closely with partners.

Main activities

The activities of the engineer recruited will consist of :

- Developing bricks for modeling social environments

- Develop bricks for social navigation
- Adapt existing technological bricks to the sensors and actuators of the Mirokai robot
- Propose and develop new methods and algorithms, and integrate them into the current framework.
- Write documentation, reports and scientific articles.
- Carry out tests using simulation tools and experimental platforms.
- Take part in presentations and demonstrations with the Mirokai robot to a variety of audiences.
- Work in close collaboration with Enchanted Tools engineers.

Skills

- Engineer with R&D experience or PhD in Computer Science, Robotics or closely related fields.
- Good theoretical and practical background in one of the following domains: Social Robotics, Scene Understanding, Trajectory planning, Human-Aware navigation.

The following qualifications would be an advantage:

- Experience using the Robotics library ROS
- Good skills in C/C++.
- Good skills in Linux, system management.
- Ability to work as a teammate with other researchers
- French and English skills (written and spoken)

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 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 Experimental platforms (BAP C)
- **Town/city** : Montbonnot
- **Inria Center** : Centre Inria de Lyon
- **Starting date** : 2025-02-01
- **Duration of contract** : 12 months
- **Deadline to apply** : 2025-01-06

Contacts

- **Inria Team** : CHROMA
- **Recruiter** :
  Spalanzani Anne / anne.spalanzani@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.

> **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 assigned to a restricted area (ZRR), as defined in decree no. 2011-1425 relating to the protection of the nation's scientific and technical potential (PPST). Authorisation to access a zone is issued by the head of the establishment, following a favourable ministerial opinion, as defined in the decree of 03 July 2012 relating to the PPST. An unfavourable ministerial opinion for a post assigned to a ZRR would result in the recruitment being cancelled.

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.