Offer #2024-08509

Research engineer in machine learning for autonomous ground vehicle navigation

Contract type : Fixed-term contract

Level of qualifications required : PhD or equivalent

Fonction : Temporary scientific engineer

Context

In the framework of a partnership between Inria and Valeo Group in France, the joint ASTRA team has set itself the goal of developing technologies and software for decision-making systems for highly automated instrumented and connected vehicles.

The aim is to design and develop data-driven software architectures dedicated to the autonomous navigation of instrumented and connected ground vehicles.

Architectures employing reinforcement learning algorithms or generative models - among others - will be developed to feed the perception and planning-decision sub-modules. The algorithms will first be validated on dedicated simulator(s); in a second phase, they will be embedded on a real experimental platform (electric Renault Zoé) equipped with sensors. It will be also strongly recommended that the work be published internationally at conferences, in journals or in the form of patents in collaboration with our industrial partner.

Travels may therefore be envisaged as part of dissemination or experimentation activities. In such cases, travel expenses are covered within the limits of the scale in force.

Assignment

Assignments :
With the help of researchers and PhD students from the ASTRA team, the person recruited will be involved in research and development in the field of data-based navigation. He/she will contribute to the supervision of PhD students and trainees, the writing of scientific articles, software development and will be involved in experimental validation.

For a better knowledge of the proposed research subject :
To find out more about the host team, please follow the temporary link below: ASTRA Team

Collaboration :
The person recruited will be in direct contact with the ASTRA team leaders (Fawzi Nashashibi/Inria and Benazouz Bradai/valeo) as well as with the team's permanent researchers, in particular Hussam Atoui and Raoul de Charette, respective experts in the fields of reinforcement learning and computer vision.

Responsibilities :
The person recruited will be responsible for establishing a one- to two-year applicable research program, punctuated by scientific and technical achievements. He/she will report regularly on progress and present his/her work to the whole team. He/she will participate in the supervision of young researchers (PhD students and trainees). Where appropriate, he/she will be authorized to teach as part of his/her research training responsibilities.

Main activities

Main activities :

- Propose mapping and decision-making solutions for autonomous vehicle
- Develop and validate algorithms and embedded applications on experimental platforms
- Write scientific articles
- Co-supervision of young researchers
- Present work internally and at conferences and meetings

Skills

Technical skills and level required :

Languages :

- A very good level of English is mandatory.

- French is an appreciated plus.

Interpersonal skills: The person recruited must be open-minded and enjoy integrating and interacting in an international multicultural environment. Tolerant and altruistic, he/she must have an absolute respect for scientific ethics and be sensitive to the requirements of gender equity and diversity.

Additional skills appreciated :

Fields: robotics, planning, decision, perception, AI (machine learning, RL, DL, generative and adversarial methods...)

Programming: C/C++, Python and other libraries (AI)

Software: knowledge of ROS and/or RTMaps is a strong plus

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 (after 6 months of employment) 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

General Information

- **Theme/Domain** : Robotics and Smart environments
  Scientific computing (BAP E)
- **Town/city** : Paris
- **Inria Center** : Centre Inria de Paris
- **Starting date** : 2025-02-01
- **Duration of contract** : 12 months
- **Deadline to apply** : 2025-01-18

Contacts

- **Inria Team** : ASTRA
- **Recruiter** :
  Nashashibi Fawzi / Fawzi.Nashashibi@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

The person recruited should feel at ease in a dynamic scientific environment and academic-industrial collaboration. A willingness to learn and to listen are essential qualities for success in a multicultural research environment.

Passionate about research and innovation, the candidate must enjoy applied research and software development, teamwork and scientific and technical dissemination.

A thesis in robotics or a related field (perception, vision, planning) would be a real asset for the accomplishment of the mission.

> **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.