



**Offer #2022-04420**

## **PhD Position F/M PhD in decision and planning for an autonomous vehicle**

**Contract type :** Fixed-term contract

**Level of qualifications required :** Graduate degree or equivalent

**Fonction :** PhD Position

### **Context**

**This position is part of a very close partnership** between Inria and the Valeo group, but also as part of a **national collaborative research** project of the programme "Plan de Relance de l'Automobile" including the RITS team of Inria and Valeo's DAR department.

The objective is to contribute to the development of algorithms dedicated to the decision and the trajectory planning for autonomous vehicles, operating in road and urban environments. These modules will be validated on real instrumented prototypes belonging to the project partners.

Research and development activities are expected as well as scientific integration, demonstration and dissemination.

### **Assignment**

#### **Missions:**

In collaboration with his colleagues in the Inria-Valeo team, the recruited person will be required to carry out scientific research work and carry out algorithmic developments that can be implemented in real instrumented autonomous mobile platforms.

For a better understanding of the proposed research context, visit the team's website at:  
<https://team.inria.fr/rits/>

#### **Collaboration :**

The person recruited will work directly with researchers and engineers from the Valeo and Inria teams. It will benefit from the scientific framework available at Inria and from the industrial and innovation framework of Valeo. He will interact with the other PhD students and partners of the project for which he is recruited and he will participate in various scientific events, national and international.

#### **Responsibilities:**

The person recruited is responsible for carrying out research and development in the field of autonomous mobile vehicles using on-board sensors and digital maps. He will contribute to the supervision of young interns and to the publication of the work in conferences and scientific journals. He will support his colleagues in live demonstrations and dissemination activities. Finally, he will contribute to the drafting of reports, articles and documentation for scientific and reporting purposes. Finally, he will be required to work on the Valeo (Créteil) and Inria (Paris and Rocquencourt) sites.

### **Main activities**

#### **Main activities:**

- Research: Offer maneuver decision and trajectory planning solutions
- Development of corresponding algorithms and interfaces
- Integration on experimental platforms
- Writing of the documentation of algorithms, reports, deliverables and scientific articles
- Supervision of doctoral students in their field of research

#### **Additional activities:**

- Present the progress of the work to colleagues, partners and other audiences
- Represent the team to public or international bodies
- Help with setting up collaborative projects

### **Skills**

Knowledge of a development environment (ROS, RTMAPS, etc.) is a facilitating advantage, the candidate having to master at least one programming language (C, C ++, Python, etc.).

Knowledge or mastery in handling digital maps is a plus (OSM, HERE...).

The candidate must be fluent in English at least as a scientific exchange language; French is a very significant asset.

The candidate must have good interpersonal skills, favor teamwork and be ready to discuss in a multinational environment.

## 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

## General Information

- **Theme/Domain** : Robotics and Smart environments  
Scientific computing (BAP E)
- **Town/city** : Paris
- **Inria Center** : [Centre Inria de Paris](#)
- **Starting date** : 2022-03-01
- **Duration of contract** : 3 years
- **Deadline to apply** : 2022-11-30

## Contacts

- **Inria Team** : [RITS](#)
- **PhD Supervisor** :  
Nashashibi Fawzi / [Fawzi.Nashashibi@inria.fr](mailto: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 candidate must have a taste for theoretical and applied research and the willingness and ability to publish the scientific and technical work in English.

She(he) must have the necessary programming skills and a taste for experimental validation.

Autonomous, she(he) must feel at ease in a dynamic "international" scientific environment and favor teamwork.

We are looking for a profile with good knowledge in the field of trajectory planning for a mobile robot or a vehicle in a dynamic environment. Knowledge of classical techniques or new IA based techniques is strongly recommended. Knowledge of related or useful fields is welcome (filtering, AI, modeling, etc.). A thesis in these fields is strongly recommended.

Knowledge of related or useful fields is welcome; for example :

- Optimization methods
- Geometric modeling
- Data fusion, multi-sensor fusion
- Vehicle control
- Digital filtering
- AI: LSTM, RNN, attention mechanisms, Transformers...

**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.