



Offer #2019-01711

Post-Doctoral Research Visit F/M Deep reinforcement learning for end-to-end driving

Contract type : Fixed-term contract

Level of qualifications required : PhD or equivalent

Fonction : Post-Doctoral Research Visit

Level of experience : Recently graduated

Context

Within the framework of a partnership technological transfer with the car manufacturer PSA Group, we aim at developing an algorithm for end-to-end driving with deep reinforcement learning.

The job is located in center of Paris (France), at the Inria national research institute RITS team (Robotics and Intelligent Transportation System). The team has approx. 20 people working on Computer Vision/Planning/Control for intelligent transportation and autonomous vehicles (to test/validate our researches). The environment is nice and lively, with people from worldwide origins. Social skills will be appreciated, as collaborations with other researchers/PhDs is expected.

Assignment

The candidate will develop an algorithm for predicting the car control commands, from the output of vision algorithms such as object detection, scene segmentation, lane marking detection, etc. The candidate will use knowledge from existing research as well as past team project. He/She should have a PhD in a related field and a strong and solid research background.

He/She will be in contact with our industrial partner and in charge of the research aspect as well as some technological aspect. The goal of this research is to propose a novel reinforcement learning solution that account for high level features and predict the car control. The perception part will be developed by our industrial partner. The algorithm will run in a home-modified Airsim simulator, and the candidate will have access to a computational cluster.

Main activities

RITS team in Inria Paris is a research team working on autonomous driving. The group Computer Vision in the team is looking for a post-doc with excellent research knowledge and strong record in computer vision or machine learning.

The candidate must have good research skills in machine learning and very good records in one this field: mobile robotics, planning, or machine learning. The subject of the postdoc/research engineering position will be refined with the candidate.

The candidate must have knowledge in one the following applications: motion prediction, planning for autonomous cars, and knowledge of the following fields: machine learning, computer vision. She/He will have to publish in top tier conference(s) during the post-doctoral.

Skills

--

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

General Information

- **Theme/Domain** : Robotics and Smart environments
Statistics (Big data) (BAP E)
- **Town/city** : Paris
- **Inria Center** : [Centre Inria de Paris](#)
- **Starting date** : 2019-07-01
- **Duration of contract** : 1 year
- **Deadline to apply** : 2019-06-30

Contacts

- **Inria Team** : [RITS](#)
- **Recruiter** :
De Charette Raoul / raoul.de-charette@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

- Excellent knowledge of machine learning, or deep learning
- Good knowledge of either: planning, decision, deep learning, etc
- PhD in either Autonomous Driving or Machine Learning
- Good programming skills (Python and C++)
- Experience with real world mobile robotics is a plus
- Basic knowledge about general artificial intelligence and strategy games
- Good knowledge of AOE (Artificial Optimized Energies)

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.