Offer #2022-04763

Post-Doctoral Research Visit F/M on Model-Based Reinforcement Learning

Contract type : Fixed-term contract

Level of qualifications required : PhD or equivalent

Fonction : Post-Doctoral Research Visit

About the research centre or Inria department

The Inria Lille - Nord Europe Research Centre was founded in 2008 and employs a staff of 320, including 280 scientists working in fourteen research teams. Recognised for its outstanding contribution to the socio-economic development of the Hauts-De-France région, the Inria Lille - Nord Europe Research Centre undertakes research in the field of computer science in collaboration with a range of academic, institutional and industrial partners.

The strategy of the Centre is to develop an internationally renowned centre of excellence with a significant impact on the City of Lille and its surrounding area. It works to achieve this by pursuing a range of ambitious research projects in such fields of computer science as the intelligence of data and adaptive software systems. Building on the synergies between research and industry, Inria is a major contributor to skills and technology transfer in the field of computer science.

Context

This job offer is part of a collaboration between Scool and Saint-Gobain. Scool has activities ranging from pure research to collaborations with and transfer to companies or other users of RL. Saint-Gobain is a major worldwide company, well-known in particular for its historical activities in glass production.

Scool is a research group currently made of about 30 people, among which 20 Ph.D. students, 2 post-docs, and 2 engineers. This job offer is one among a dozen other post-doc, engineer, and Ph.D. student positions open in 2021 in Scool.

Saint Gobain, world leader in sustainable habitat, designs, manufactures and markets innovative solutions in the construction products and high-performance materials sector. Saint-Gobain Research Paris is one of the 8 major Saint-Gobain Research Centers. Based near Paris, its main areas of research are related to glass, surface layers and coatings, construction materials and housing in general. http://www.sgr-paris.saint-gobain.com/

The recruitee will mainly work with Ph. Preux, Debabrota Basu and Riad Akrour of Scool. Support for traveling e.g. to attend conferences or other scientific meetings is provided. Visits to Saint-Gobain nearby Paris will happen on a regular basis to keep the collaboration tight.

Assignment

The goal of this post-doc is to contribute to the state of the art of the research in model-based reinforcement learning. The work will be essentially at the fundamental level: design of new algorithms, analysis of the behavior of algorithms, implementation and experimental study and assesment, ...

The problem to be studied is motivated by the design and development of advanced and robust controllers for Saint-Gobain glass production lines. The definition of the system's state is the first step to achieve, before considering the design of algorithms to control it, and their implemention in order to perform well within a challenging industrial environment.

Main activities

The recruitee will perform standard research activities, involving reading scientific publications, proposing new ideas related to the project, argueing, developing them, presenting them informally to partners, and also through seminars and research group meetings, writing scientific publications and submit them to top conference and journals of the field.

Skills

Solid background in reinforcement learning, or control (e.g. model predictive control), or optimization and statistics.

Technical skills and level required: proficiency in python, pytorch, machine learning packages. Skills in C/C++ will also be appreciated.

Everything will be implemented in Linux/Ubuntu.

Abiity to work, interact, and collaborate with other researchers (in English)

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 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

Remuneration

Gross monthly salary (before taxes) : 2 653 €

General Information

- **Theme/Domain :** Optimization, machine learning and statistical methods
  Statistics (Big data) (BAP E)
- **Town/city :** Villeneuve d'Ascq
- **Inria Center :** Centre Inria de l'Université de Lille
- **Starting date :** 2022-10-01
- **Duration of contract :** 1 year, 6 months
- **Deadline to apply :** 2022-10-25

Contacts

- **Inria Team :** SCOOL
- **Recruiter :**
  Preux Philippe / Philippe.Preux@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

You want to push forward the limits of knowledge in the field of model-based reinforcement learning.

You love confronting your research with the contingencies of real applications.

You are hard working, dedicated to your research.

You love working on fundamental ideas and demonstrating them experimentally, and then reporting your work in well-polished publications.

You really enjoy working with other researchers, sharing and discussing ideas.

You are rigorous, serious and reliable in your work.

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

CV + application letter + recommendation letters + List of publications

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.