



Offre n°2024-07267

Post-Doctoral Research Visit F/M Postdoctoral position on Theory of Reinforcement Learning and Bandits under structures and constraints

Le descriptif de l'offre ci-dessous est en Anglais

Type de contrat : CDD

Niveau de diplôme exigé : Thèse ou équivalent

Fonction : Post-Doctorant

Niveau d'expérience souhaité : Jusqu'à 3 ans

A propos du centre ou de la direction fonctionnelle

The Inria University of Lille centre, created in 2008, employs 360 people including 305 scientists in 15 research teams. Recognised for its strong involvement in the socio-economic development of the Hauts-De-France region, the Inria University of Lille centre pursues a close relationship with large companies and SMEs. By promoting synergies between researchers and industrialists, Inria participates in the transfer of skills and expertise in digital technologies and provides access to the best European and international research for the benefit of innovation and companies, particularly in the region. For more than 10 years, the Inria University of Lille centre has been located at the heart of Lille's university and scientific ecosystem, as well as at the heart of Frenchtech, with a technology showroom based on Avenue de Bretagne in Lille, on the EuraTechnologies site of economic excellence dedicated to information and communication technologies (ICT)

Contexte et atouts du poste

In his/her journey of postdoc, the candidate will be supported by [ANR JCJC project REPUBLIC](#), and supervised by [Debabrota Basu](#). Debabrota is affiliated with the [Scool](#) project-team (previously [Sequel](#)) of Inria Centre at University of Lille. As a team, Scool is internationally recognised for developing theories and algorithms for sequential learning and decision making, i.e. in the fields of bandits and reinforcement learning.

The candidate is expected to work on understanding impact of different types of constraints and structures on the performance and design of bandit and RL algorithms.

The project is expected to simulate the existing and new collaborations with researchers and groups working on responsible AI, bandits, and reinforcement learning. The candidate will also be part of the [HumAI alliance](#) that aims toward studying humane impact of deploying AI.

From the application point of view, Scool is involved in multiple projects that incorporates medical data, agricultural data, and e-commerce. Depending on the future development, we will be interested to deploy such responsible AI systems and algorithms for securing such applications.

Mission confiée

To be specific, the postdoc will first investigate the fundamental question of reinforcement learning and bandits under non-linear and dynamic constraints and then work in tandem with the PhD working on the related topic to develop constrained RL formulations for robustness, privacy, and unbiasedness sequential decision making and adaptive testing. For further details, please contact Debabrota by email.

Principales activités

All research activities, that is bibliographical search, proposing original ideas related to the topic of the Ph.D. and developing them, presenting the work in the Scool seminar, workshops and conferences. Writing papers in order to get them accepted in the best conferences and journals of our field of research (e.g. ICML, NeurIPS, COLT, IJCAI, AAAI, JMLR). Since the work involves and impacts the responsible AI in general, the successful candidate should collaborate in writing scientific articles aiming towards the larger audience.

Compétences

The candidate should preferably have the following skills:

- A strong background in mathematics/statistics
- A good knowledge of machine learning, reinforcement learning, statistics, and algorithms
- Broad interest for responsible and trustworthy AI
- Knowledge of programming languages such as Python. C/C++
- Some experience with implementation and experimentation (a plus)
- A good command of English

Please follow the instructions given in <https://team.inria.fr/magnet/how-to-apply/> to set up your application file.

In brief, the application of the candidate should include his/her CV, an application letter, (two or more) recommendation letters, and the school transcripts. It is recommended that the candidate contacts Debabrota while preparing the application.

Avantages

- 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

Rémunération

Gross monthly salary : 2788 €

Informations générales

- **Thème/Domaine** : Optimisation, apprentissage et méthodes statistiques
Statistiques (Big data) (BAP E)
- **Ville** : Villeneuve d'Ascq
- **Centre Inria** : [Centre Inria de l'Université de Lille](#)
- **Date de prise de fonction souhaitée** : 2024-09-01
- **Durée de contrat** : 7 mois
- **Date limite pour postuler** : 2024-08-01

Contacts

- **Équipe Inria** : [SCOOL](#)
- **Recruteur** :
Basu Debabrota / debabrota.basu@inria.fr

A propos d'Inria

Inria est l'institut national de recherche dédié aux sciences et technologies du numérique. Il emploie 2600 personnes. Ses 215 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3900 scientifiques pour relever les défis du numérique, souvent à l'interface d'autres disciplines. L'institut fait appel à de nombreux talents dans plus d'une quarantaine de métiers différents. 900 personnels d'appui à la recherche et à l'innovation contribuent à faire émerger et grandir des projets scientifiques ou entrepreneuriaux qui impactent le monde. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 200 start-up. L'institut s'efforce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l'économie.

L'essentiel pour réussir

A successful candidate should:

- collaborate inside the team, and with the external researchers and engineers if needed
- organise the work systematically
- be keen to learn new theory and algorithms developed in the fast-changing field of reinforcement learning and bandits
- engage in meetings and discussions regularly

Attention: Les candidatures doivent être déposées en ligne sur le site Inria. Le traitement des candidatures adressées par d'autres canaux n'est pas garanti.

Consignes pour postuler

Sécurité défense :

Ce poste est susceptible d'être affecté dans une zone à régime restrictif (ZRR), telle que définie dans le

décret n°2011-1425 relatif à la protection du potentiel scientifique et technique de la nation (PPST). L'autorisation d'accès à une zone est délivrée par le chef d'établissement, après avis ministériel favorable, tel que défini dans l'arrêté du 03 juillet 2012, relatif à la PPST. Un avis ministériel défavorable pour un poste affecté dans une ZRR aurait pour conséquence l'annulation du recrutement.

Politique de recrutement :

Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.