Offre n°2025-09065

Software engineer on private and decentralized machine learning (H/F)

Type de contrat : Fixed-term contract

Contrat renouvelable : Oui

Niveau de diplôme exigé : Graduate degree or equivalent

Fonction : Temporary scientific engineer

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

The position will be supported by FedMalin, a collaborative project on Federated Learning between 11 teams at INRIA. The project addresses FL challenges when deployed over the internet (privacy, heterogeneity, energy, fairness, ...) and has medicine as a main targeted application domain.

FedMalin develops several software tools, including the open source library DecLearn (https://gitlab.inria.fr/magnet/declearn/declearn2) for private and decentralized/federated machine learning and data analysis. The hired engineer will contribute to the ongoing development of DecLearn, expanding its capabilities with new algorithms and enhanced functionalities.

The activities will include interactions with the members of the project, the Magnet and Premedical teams (researchers and engineers). We also expect to conduct multi-centric medical studies across several hospitals. The activities can

also include travel, e.g., to conferences to demonstrate the developed library and to contribute to the community building effort.

Mission confiée

- Consolidate and extend the existing library for decentralized and privacy-preserving machine learning developed in the project
- Deploy the library in real-world conditions and experiment on synthetic and (benchmark) medical data, analyzing the benefits and the costs compared to a centralized approach.
- Publish open source code and integrate in existing libraries
- Publish scientific results in medical and computer science conferences

The Declearn project is available at
https://gitlab.inria.fr/magnet/declearn/declearn2

Principales activités

- Implement federated and privacy-preserving algorithms for machine learning
- Experiment with medical partners on multicentric medical studies
- Evaluation of results
- Reporting, disseminating and presenting results

Compétences

- Programming skills in Python, including object oriented programming, unit testing, documentation writing, deployment tools, asynchronous programming and networking.
- Good understanding of scientific papers on machine learning.
- Interest for machine learning and medical applications.
- Good communication skills; communication and animation of software development communities, git workflow

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

According to profile

Informations générales

- **Thème/Domaine :** Optimization, machine learning and statistical methods Statistics (Big data) (BAP E)
- **Ville :** Villeneuve d'Ascq
- **Centre Inria :** Centre Inria de l'Université de Lille
- **Date de prise de fonction souhaitée :** 2025-09-01
- **Durée de contrat :** 2 years
- **Date limite pour postuler :** 2025-07-31

Contacts

- **Équipe Inria :** MAGNET
- **Recruteur :**
  Tommasi Marc / Marc.Tommasi@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'e?orce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l'économie.

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.