Informations générales
- Thème/Domaine : Optimisation, apprentissage et méthodes statistiques
- Statistiques (Big data) (BAP E)
- Ville : Villeneuve d'Ascq
- Date de prise de fonction souhaitée : 2019-06-01
- Date limite pour postuler : 2019-06-30

Contacts
- Equipe Inria : MODAL
- Recruteur : Guedj Benjamin / benjamin.guedj@inria.fr

A propos d’Inria

Inria, l’institut national de recherche dédié aux sciences du numérique, promeut l’excellence scientifique et le transfert pour avoir le plus grand impact. Il emploie 2400 personnes. Ses 200 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3000 scientifiques pour relever les défis des sciences informatiques et mathématiques, souvent à l’interface d’autres disciplines. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 160 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.

Consignes pour postuler

The complete application will be processed in priority (CV + cover letter + 1 or more recommendation letter + grades transcripts if applicable).

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.

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.

Principales activités

The engineer will implement the machine learning models defined by the consortium, relying in particular on flight data characteristics (time-dependent data, large correlations between flight parameters, large scale data).

Mission confiée

The post holder is expected to start in June 2019 or later. The position is funded for 12 months. The position comes with health insurance and social benefits, such as subsidised catering service and partially-reimbursed public transport. The project PERF-AI is funded by the European Commission for the period 2018-2020. The post holder will be working within the Modal project team of the Inria Lille - Nord Europe research center, under the direct supervision of (i) Dr Benjamin Guedj, research scientist at Inria, (ii) Dr Vincent Vandewalle, assistant Professor at Lille University. Inria is the top French research institute in computer science and mathematics, with a particular focus on machine learning and artificial intelligence. Inria is organised in eight research centers. Further info on Inria and its Lille - Nord Europe research center:

https://www.inria.fr/fr/en/
https://www.inria.fr/fr/centre/lille

Lille, France is a beautiful, historic city conveniently located near Paris, Brussels, and London with excellent train and air connections (50 minutes by high-speed train to CDG international airport), and is renowned for its welcoming living environment. Further info on Lille:
https://en.wikipedia.org/wiki/Lille
Occasional travels to Safety Line’s offices in downtown Paris are expected.

Safety Line is an innovative digital technology company, specialised in data management software solutions for aviation. With a team of highly experienced Safety experts (including former BEA investigators), data scientists and IT specialists, SL aims to bring their capabilities ranging from flight data recorder raw data decoding and processing, big data analytics to perform flight profile optimisation (OptiClimb), end to end IT solutions for airlines operations.

A supervised statistical learning setting (regression model) will be defined since the scalar outcome can be extracted from the data (consumption, aerodynamic forces, etc.).

The engineer will implement in Python a general pipeline to address data assimilation, processing, and machine learning models (including, but not limited to, tree-based ensemble algorithms, Gradient Boosting algorithms, model aggregation, Bayesian and kernel methods). Safety Line will bring an expertise to the flight data and flight mechanics that will support the statistical modelling.

A particular focus will be on the development of an optimization procedure which makes use of the aircraft performance model defined. A reinforcement learning setting with continuous states and actions will be investigated in order to take into account nonparametric performance models. The optimization tools will be adapted to all flight phases (climb, cruise, descent) and a first proof of concept will be implemented.

**Compétences**
- Master degree in statistics, machine learning, computer science or related area.
- Working fluency in English. French is also helpful but not required, as international research in the area is typically published and presented in English.
- Ability to read and understand research articles, and implement corresponding algorithms in a Python environment.
- Ability to engage in cooperative teamwork (such as frequent reporting).
- Excellent Python programming skills.

**Avantages**
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave

**Rémunération**
Compensation according to the profile.