Offre n°2025-08743

Post-Doctoral Research Visit F/M Data transmission strategy analysis in a multi-modal mobile network.

Type de contrat : Fixed-term contract

Niveau de diplôme exigé : PhD or equivalent

Fonction : Post-Doctoral Research Visit

A propos du centre ou de la direction fonctionnelle

Created in 2008, the Inria center at the University of Lille employs 360 people, including 305 scientists in 15 research teams. Recognized for its strong involvement in the socio-economic development of the Hauts-De-France region, the Inria center at the University of Lille maintains a close relationship with large companies and SMEs. By fostering synergies between researchers and industry, Inria contributes to the transfer of skills and expertise in the field of digital technologies, and provides access to the best of European and international research for the benefit of innovation and businesses, particularly in the region.

For over 10 years, the Inria center at the University of Lille has been 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

As technology advances, we are seeing an increasing number of objects communicating via more and more different communication technologies. These technologies enable objects to self-organise to form a network that evolves with

their mobility, or to connect to a communication infrastructure such as a cellular or wifi network, for example.

The cohabitation of these two types of communication (node-to-node or via an infrastructure) can be useful in places where the infrastructure is unavailable or unreliable, as one mode can take over from another depending on the situation. Decisions on whether or not to transmit information are taken by so-called opportunistic routing protocols.

The literature provides some interesting elements in the field of opportunistic routing. Nevertheless, they have certain limitations that can be partially overcome by introducing the consideration of node mobility types into information transfer decisions. Our previous work has shown that a node is able to determine its mobility type by observing the different networks in its environment.

The main objective of this project is to study the best strategy based on this knowledge of mobility to achieve efficient data transmission in mobile scenarios.

This work will be carried out jointly by Inria's FUN and COATI teams.

Mission confiée

As part of the Mobidec PEPR's Mobi-Sci Data Factory project, the person recruited will be responsible for studying and quantifying how taking into account the type of mobility of nodes in routing decisions has an impact on data routing performance.

This will involve defining the best routing strategies in different scenarios, identifying the right performance metrics and redundancy requirements.

Principales activités

The person recruited will implement different strategies and simulate them on a variety of scenarios extracted from real data sets available to the project, with a focus on ensuring reproducibility. This analysis will be supplemented by modelling of the approach and theoretical analysis.

T0-T3: Literature review and getting started with the existing system

T4-T6: First simulation testbeds, definition of scenarios

T6-T18: Deployment and analysis of strategies, simulation, evaluation

Compétences

Technical skills and level required : PhD

Languages : French, English

Relational skills : Kindness, tolerance, involvment

Other valued appreciated : curiosity

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

2788 € monthly gross salary

Informations générales

- **Thème/Domaine :** Networks and Telecommunications
  System & Networks (BAP E)
- **Ville :** Villeneuve d'Ascq
- **Centre Inria :** Centre Inria de l'Université de Lille
- **Date de prise de fonction souhaitée :** 2025-10-01
- **Durée de contrat :** 1 year, 6 months
- **Date limite pour postuler :** 2025-05-24

Contacts

- **Équipe Inria :** FUN

- **Recruteur :**
  Mitton Nathalie / Nathalie.Mitton@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.

L'essentiel pour réussir

We are looking for a candidate that has a PhD in computer science who is creative in proposing solution solutions and capable of critical analysis of results. We demand the candidate:

- 1) to be curious and interested in new technologies
- 2) to have excellent skills in scripting and programming (e.g., Python, C/C++)
- 3) have knowledge of mobile networks, wireless networks and temporal graphs
- 4) an interest in mathematical analysis, probability and complexity analysis
- 5) to be fluent in spoken and written English with strong communication and presentation skills.
- 6) to be a pleasant team worker (verbal communication, active listening, motivation and commitment)

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

Please send us your CV and cover letter.

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.