Offer #2024-07286

PhD Position F/M Verifying timed cybersecurity properties using formal methods

Contract type : Fixed-term contract

Level of qualifications required : Graduate degree or equivalent

Fonction : PhD Position

Context

The PhD would be realised between Inria Nancy and the LIPN (Université Sorbonne Paris Nord).

Some travels in between these two research centres will occur, the regularity of which can be discussed.

Assignment

Assignments :

The main objective of the PhD is to study security properties such as opacity through the analysis of Timed Automata.

For a better knowledge of the proposed research subject :

Please find below links toward the research team within which the PhD will occur as well as a detailed description of the research subject (including bibliographic references). Don't hesitate to contact me if you have any questions.

https://team.inria.fr/veridis/

https://www.loria.fr/wp-content/uploads/Timed_from_Shapagat.pdf

Collaboration :

The PhD will be co-supervised by Étienne andré from the LIPN.

Main activities

Main activities :

- Introducing and creating algorithms to verify problems related to the opacity of timed systems
- Writing research article and presenting them in conferences / seminars
- Dissertation writing and thesis defense
- Développement d'outils de vérification

Additional activities :

- It is advised, but not required, to participate in the teaching activities (might require knowledge of french)

Skills

Skills:

Experience in formal verification of systems. In particular, in the manipulation and study of automata. Knowledge of temporised systems is a bonus.

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 (after 6 months of employment) 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

2100€ gross/month the 1st year.

General Information

- **Theme/Domain** : Proofs and Verification
  Software engineering (BAP E)
- **Town/city** : Villers lès Nancy
- **Inria Center** : [Centre Inria de l'Université de Lorraine](#)
- **Starting date** : 2024-10-01
- **Duration of contract** : 3 years
- **Deadline to apply** : 2024-04-29

Contacts

- **Inria Team** : [VERIDIS](#)
- **PhD Supervisor** :
  Lefaucheux Engel / engel.lefaucheux@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

Application deadline
April 29th, 2024 (Midnight Paris time)

How to apply

Upload your file on jobs.inria.fr in a single pdf or zip file, and send it as well by email to engel.lefaucheux@inria.fr@inria.fr. Your file should contain the following documents:

- Your CV.
- A cover/motivation letter describing your interest in this topic.
- A short (max one page) description of your Master thesis (or equivalent) or of the work in progress if not yet completed.
- Your degree certificates and transcripts for Bachelor and Master (or the last 5 years).
- Master thesis (or equivalent) if it is already completed and publications if any (it is not expected that you have any). Only the web links to these documents are preferable, if possible.

In addition, one recommendation letter from the person who supervises(d) your Master thesis (or research project or internship) should be sent directly by his/her author to engel.lefaucheux@inria.fr. Applications are to be sent as soon as possible.

> **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

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.