Offer #2024-07934

Post-Doctoral Research Visit F/M Exploring Logic Programming semantics via a connection to Boolean Networks through Petri nets.

Contract type : Fixed-term contract

Level of qualifications required : PhD or equivalent

Fonction : Post-Doctoral Research Visit

About the research centre or Inria department

The Inria Saclay-Île-de-France Research Centre was established in 2008. It has developed as part of the Saclay site in partnership with Paris-Saclay University and with the Institut Polytechnique de Paris since 2021.

The centre has 39 project teams , 27 of which operate jointly with Paris-Saclay University and the Institut Polytechnique de Paris. Its activities occupy over 600 scientists and research and innovation support staff, including 54 different nationalities.

Context

Inria is the French national institute for research in computer science, control, and applied mathematics
promoting scientific excellence and technology transfer. The research topics of pour group are at the
intersection of mathematical biology, theoretical computer science and formal methods applied to
problems in biology.

Assignment

We recently introduced the Trap space semantics for Logic Programs.
One objective of this project is to generalize the trap space semantics
to disjunctive logic programs.

We also want to find efficient methods for computing ≤s-minimal
stable trap spaces (equivalently regular models) of a logic program.

Finally, we would like to explore more new results on relating the
recently introduced dependence graph and models of a logic program.

Main activities

For the generalization to disjunctive programs, the candidate will try
an approach similar to the existing generalizations of the stable model,
stable partial model, regular model, and stable class semantics.

To compute ≤s-minimal trap spaces, the intended approach is to make a
transformed program whose set of stable models corresponds to the set of
≤s-minimal stable trap spaces of the original program.

For the dependence graph, it is natural to explore the use of both
positive and negative cycles simultaneously, in order to obtain improved results.

Moreover, the conjecture that the upper bound for tight logic program is also valid for generic logic programs will be explored.

Skills

Logic Programming and ASP knowledge are necessary.

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 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

According to profile

General Information

- **Theme/Domain :** Computational Biology
  Software engineering (BAP E)
- **Town/city :** Palaiseau
- **Inria Center :** Centre Inria de Saclay
- **Starting date :** 2024-10-01
- **Duration of contract :** 12 months
- **Deadline to apply :** 2024-09-30

Contacts

- **Inria Team :** LIFEWARE
- **Recruiter :**
  Soliman Sylvain / Sylvain.Soliman@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.

> **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.