



Offre n°2025-08866

Post-Doctoral Research Visit F/M [DRI Campaign] Proof Representations: Linear and Fixed-Point Decompositions of Logical Modalities

Type de contrat : Fixed-term contract

Niveau de diplôme exigé : PhD or equivalent

Fonction : Post-Doctoral Research Visit

Contexte et atouts du poste

Every year Inria International Relations Department has a few postdoctoral positions in order to support Inria international collaborations. This postdoctoral offer will be in collaboration with UCL (University College in London), UK, being jointly supervised by Elaine Pimentel (UCL) and Alexis Saurin (INRIA Paris, Picube team).

The postdoctoral contract will have a duration of 12 to 24 months. The expected start date is **November 1st, 2025** and not later than **January, 1st 2026**. The postdoctoral fellow will be recruited by the Inria Centre of Paris, France, within the Picube team, with potential research stays at UCL, Lonon. (please note that the postdoctoral fellow has to start his/her contract being in France and that the visits have to respect Inria rules for missions).

Mission confiée

The recruited person, supervised by Elaine Pimentel (UCL) and Alexis Saurin (Picube team) is expected to conduct research on proof representations, using linear logic and fixed-point logic to design decompositions of logical modalities; this

research will span :

- 1) from pure proof-theoretical research, aiming at understanding how linear logic and the mu-calculus can be used to decompose a variety of modal logics, aiming at providing a uniform account of those various logics, factoring structuring theorems through the properties of the encodings and providing a study of ecumenical proof systems with fixed-points;
- 2) to computational interpretation of logics, by developing cut-reduction systems for various systems adapted from Kozen's mu-calculus;
- 3) via the mechanization of the meta-theory of the above proof-theory in the Coq/Rocq proof assistant.

For more information on the proposed research subject :

A state of the art, bibliography and scientific references are available at the following URL:

https://www.irif.fr/_media/users/saurin/misc/post_doc_inria_ucl.pdf.

Principales activités

- Develop research in computational logic and proof-theory;
- Participate to Picube team activities (in particular seminars at Picube, IRIF lab and INRIA Paris);
- Contribute to a multi-site Paris-London collaboration;
- Contribute to writing scientific papers for peer-reviewed publications;
- Present the results in seminars and scientific conferences;
- Contributed to a Coq / Rocq library

Compétences

Required:

- PhD in Logic, Theoretical Computer Science or Mathematics.
- Demonstrated research experience in one or more of: proof theory, interactive proof assistants, proof-as-program correspondence, modal logic, fixed-point logic.
- Good communication skills

Preferred:

- Experience with proof assistants

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

Informations générales

- **Thème/Domaine** : Proofs and Verification
- **Ville** : Paris
- **Centre Inria** : [Centre Inria de Paris](#)
- **Date de prise de fonction souhaitée** : 2025-11-01
- **Durée de contrat** : 2 years
- **Date limite pour postuler** : 2025-06-01

Contacts

- **Équipe Inria** : [PICUBE](#)
- **Recruteur** :
Saurin Alexis / Alexis.Saurin@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'efforce 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

Eligibility criteria:

Candidates for postdoctoral positions are recruited after the end of their Ph.D. or after a first postdoctoral period: for the candidates who obtained their Ph.D. in the Northern hemisphere, the date of the Ph.D. defense shall be later than September, 1 2022; in the Southern hemisphere, later than April, 1 2022.

In order to encourage mobility, the postdoctoral position must take place in a scientific environment that is truly different from that of the Ph.D. (and, if applicable, from the job held since the Ph.D.); particular attention is thus paid to French or international candidates who obtained their doctorate abroad.

Join with your application:

- Detailed CV with a description of the PhD and a complete list of publications with the two most significant ones highlighted
- A Motivation letter
- 2 letters of recommendations
- Passport copy

Contact informations:

- Elaine Pimentel, e.pimentel@ucl.ac.uk
- Alexis Saurin, alexis.saurin@inria.fr

Deadline for applying: June 1st 2025

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.