2023-06669 - Open source software supply chain security research engineer

Type de contrat : CDD
Contrat renouvelable : Oui
Niveau de diplôme exigé : Bac + 5 ou équivalent
Fonction : Ingénieur scientifique contractuel

A propos du centre ou de la direction fonctionnelle

The Inria Centre at Rennes University is one of Inria's eight centres and has more than thirty research teams. The Inria Centre is a major and recognized player in the field of digital sciences. It is at the heart of a rich R&D and innovation ecosystem: highly innovative PMEs, large industrial groups, competitiveness clusters, research and higher education players, laboratories of excellence, technological research institute, etc.

Contexte et atouts du poste

The rise of Open Source has accelerated innovation by allowing massive reuse of a huge number of freely available software components developed by a vast community distributed around the world. This has had serious consequences on the software supply chain, with the introduction of a large number of dependencies on components whose quality level is difficult to assess and control: they can contain vulnerabilities, and become sources of attacks on the systems that depend on them, as we saw with the Log4J incident. Recent examples of deliberately sabotaged software in response to the invasion of Ukraine have shown how the line between well-intentioned and malicious actors in the software development world is becoming increasingly blurred.

The urgency of addressing these issues is now clearly perceived, as seen for example in the May 2021 White House Executive Order, which explicitly mentions the need to “ensure and attest, to the extent possible, the integrity and provenance of open source software.”

To meet this imperative, it is necessary to be able to analyze the millions of publicly available software projects, study their development history, and extract relevant information.

We are fortunate to have the Software Heritage archive, an initiative launched about 6 years ago by Inria in partnership with UNESCO, which already contains more than 12 billion unique source files from more than 180 million different origins, with all their development history. The recent blog post on https://warontherocks.com/2022/05/dependency-issues-solving-the-worlds-open-source-software-security-problem/ clearly shows that important players in the cybersecurity field have understood that this is a unique asset for cybersecurity.

We would like to leverage on the unprecedented resource that is the Software Heritage archive and explore the possibilities it opens up in terms of cybersecurity.

Mission confiée

Assignements :
With the help of DIVERSE team (including Prof. Mathieu Acher, Prof. Jean-Marc Jézéquel, Prof. Olivier Barais, Dr Olivier Zendra), the recruited person will be taken to collect and analyze large software data of the Software Heritage archive.

Collaboration :
Research engineer will collaborated with the software heritage team and a set of PhD students and researcher that will work on the topic.

Responsibilities :
The person recruited is responsible for producing experimental results, maintain the platform, and exchange with the community.

Principales activités

Main activities:
- producing/gathering experimental data;
- maintaining a website and a data platform to disseminate results;
- interoperability with existing projects (eg software heritage component);
- communicating with the software heritage community to assess the suitability of the proposal and identify lacks;
- analysing data (eg logs) with automated procedures

Compétences

Technical skills and level required: automated software engineering, advanced programming,
Relational skills: ability to communicate and share results

Informations générales

- Thème/Domaine : Programmation distribuée et génie logiciel
- Ingénierie logicielle (BAP E)
- Ville : Rennes
- Centre Inria : Centre Inria de l'Université de Rennes
- Date de prise de fonction souhaitée : 2023-10-01
- Durée de contrat : 2 ans
- Date limite pour postuler : 2023-09-30

Contacts

- Équipe Inria : DIVERSE
- Recruteur : Barais Olivier / Olivier.Barais@irisa.fr

A propos d'Inria

Inria est l'institut national de recherche dédié aux sciences et technologies du numérique. Il emploie 2600 personnes. Ses 200 équipes-projets agiles, en général communes avec des partenaires académiques, impliquent plus de 3500 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 impacteront le monde. Inria travaille avec de nombreuses entreprises et a accompagné la création de plus de 180 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.

L'essentiel pour réussir

We are looking for highly motivated people in software. We are studying real-world, popular, open-source, software projects – and we hope to have concrete impacts on them!

The candidate should have a strong interest and the skills for performing large-scale experiments. It means the candidate should master techniques and tools for:
- producing/gathering experimental data (based on the testing/executions of existing software systems);
- analysing data with statistic/visualisations;
- producing/gathering experimental data;
- maintaining a website and a data platform to disseminate results;
- interoperability with existing projects (eg software heritage component);
- communicating with the software heritage community to assess the suitability of the proposal and identify lacks;
- analysing data (eg logs) with automated procedures

An interest and experience with the software supply chain is a clear plus.

If you like software, software security and data science, you’re certainly the one! The candidates will work with a
Other valued appreciated: interests in software and open-source projects

**Avantages**
- Subsidized meals
- Partial reimbursement of public transport costs
- Possibility of teleworking (90 days per year) and flexible organization of working hours
- Partial payment of insurance costs

**Rémunération**
Monthly gross salary from 2,695 euros according to diploma and experience

**Software engineer (fully devoted to the project), two PhD students (fully devoted to the project), some interns, and 8 professors.**

**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 submit online: your resume, cover letter, and letters of recommendation eventually.

For more information, please contact mathieu.acher@inria.fr.

**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.