2018-00909 - Research engineer in Predictive Security Monitoring for Large-Scale IoT (Knowledge discovery and big data)

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

Contexte et atouts du poste

The offered position is in the context of SecureIoT, an EU-funded project focusing on the development of security monitoring solutions for IoT. The candidates will be involved in the development of a predictive security monitoring system that integrates several security services in three different application scenarios in the areas of Digital Automation in Manufacturing (Industry 4.0), Socially assistive robots and Connected cars and Autonomous Driving.

Mission confiée

Scientific context

In last years, Internet-of-Things became a reality with numerous protocols, platforms and devices being developed and used to support the growing development of smart-type services. This growth raises transport, health, city, and even the rather usual rigid systems with industry 4.0. Providing new services has required the development of new functionalities with as underlying goals to have more power- and compute-efficient devices which can embed various sensors. Obviously, IoT also supposes a full infrastructure to guarantee the efficiency of communications and processing of the information. The embedded devices are thus completely connected, routers, servers, etc. At the higher levels, services are developed and provided to the users. This ecosystem is very rich and cannot be controlled by a unique entity, e.g. services are often developed by third parties, manufacturer of embedded devices is different to those providing connectivity. As a result, such a complex system is naturally a source of potential threats and on the recent experience and reality of naive weaknesses.

At Inria, we are currently engaged in an IoT environment installation in a silent manner.

Therefore, a security landscape, and IoT architecture have been developed and to integrate the security monitoring and predictive service of IoT systems.

- Missions:

  The main role of Inria in SecureIoT project is (1) to develop a security architecture database to gather multiple sources of security information (such as provided by MITRE corporation) and extend automatically with correlations and (2) design and implement the machine-learning based mechanisms for continuous security monitoring and predictive service of IoT systems.

  At Inria, the research engineer will be involved in an expert team involving three researchers and one PhD student. The engineer will work in close collaboration with them participating in the design of the security of IoT and their implementation.

- Bibliography:

  [5] BF Van Dongen et al., The prom framework: A new era in process mining tool support, ICAITP 2005

Conditions pour postuler

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.

Informations générales

- Thème/Domaine : Réseaux et télécommunications
- Statistiques (Big data) (BAP E)
- Ville : Villers-lès-Nancy
- Centre Inria : CR Nancy - Grand Est
- Date de prise de fonction souhaitée : 2018-09-01
- Durée de contrat : 1 an, 3 mois
- Date limite pour postuler : 2018-08-06

Contacts

- Equipe Inria : RESIST
- Recruteur : Francois Jerome / Jerome.Francois@inria.fr

A propos d’Inria

Inria, institut de recherche dédié au numérique, promeut « l’excellence scientifique au service du transfert technologique et de la société ». Inria emploie 2700 collaborateurs issus des meilleurs universités mondiales, qui relèvent les défis des sciences informatiques et mathématiques. Son modèle ouvert et agile lui permet d’explorer des voies originales avec ses partenaires industriels et académiques. Inria répond ainsi efficacement aux enjeux pluridisciplinaires et applicatifs de la transition numérique. Inria est à l’origine de nombreuses innovations créatrices de valeur et d’emplois.

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.
Project management. The research engineer will be fully involved in the project management duties including writing and reviewing of deliverables of the project; participating to the project meetings, including physical meetings being held in different countries of Europe; management of tasks involving multiple partners (for example, other partners will also integrate algorithms in the platform)

Compétences
- Required qualification: Diplôme d'Ingénieur, Master degree in Computer Science or Computer engineering
- Languages: Java, python and others are appreciated
- Database and big data technologies: SQL and NoSQL, MongoDB, TinkerPop, Spark, Apache
- Software development: continuous integration and collaborative development using gitlab, knowledge in virtualisation technologies (containers with Docker)
- Knowledge in machine learning and data mining
- Fluent in english (writing and oral communication)
- Comfortable with meetings and webconference situations

Avantages sociaux
- Subsidised catering service
- Partially-reimbursed public transport
- Social security
- Paid leave
- Flexible working hours
- Sports facilities

Rémunération
Monthly gross salary from 2562,00€