

2018-00271 - R&D Engineer in augmented/mixed reality

Type de contrat : CDD de la fonction publique
Niveau de diplôme exigé : Bac + 5 ou équivalent
Autre diplôme apprécié : Ph.D
Fonction : Ingénieur scientifique contractuel
Niveau d'expérience souhaité : De 3 à 5 ans

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 meilleures 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.

Contexte et atouts du poste

Context

Established in 1967, Inria is the only public research body fully dedicated to computational science. Combining computer sciences with mathematics, Inria's 3,500 researchers strive to invent the digital technologies of the future. Educated at leading international universities, they creatively integrate basic research with applied research and dedicate themselves to solving real problems, collaborating with the main players in public and private research in France and abroad and transferring results innovative companies. Inria researchers have published over 4,500 articles in 2013 and are behind over 270 active patents and 110 start-up companies. In 2013, Inria's budget was 235 million euros, 25% of which represented its own resources. The 180 project teams are distributed in eight research centers located throughout France.

The brand new Inria-Paris research center is located in the heart of Paris. Thanks to its top-quality researchers and numerous international guests, the Inria-Paris research center plays a leading role in international research, with a strong focus on networking and communication systems. The 41 research teams of the center are continuously pushing the boundaries in developing new concepts and techniques.

The successful candidate will be hosted within the research team Willow (<http://www.di.ens.fr/willow/>). Willow is a leading research team in computer vision, focusing on the representational aspects of visual object recognition and dynamic scene understanding. The research objective of the team is to develop geometric, physical, and statistical models for all components of the image interpretation process, including illumination, materials, objects, scenes, and human activities.

The position will be directly funded by Inria and will aim at implementing recent research results in mixed reality devices. The main goal is to develop a front-end application for an automatic personal assistant. The assistant will see and understands surroundings of the user and will help the user to manipulate new objects, navigate in unfamiliar environments and recognize people. The front-end application will be implemented on the Microsoft HoloLens mixed reality device. The project will build on the existing code, as well as scene understanding research software developed in the research team.

Mission confiée

Assignments :

The main goal of the project iVis (**Visualisation for interactive scene understanding on a mixed reality device**) is to create a fully functional front-end application on the HoloLens device, allowing the user to experience and to explore, in an intuitive way, the capabilities of automatic scene understanding algorithms developed in the Willow team.

This application will consider two scenarios. The first scenario is face recognition where the goal is to display information about the identity of recognized people at a meeting. The second scenario is visual place recognition and navigation, where the goal is to recognize the current location of the user and display navigation instructions how to reach a target location (such as a particular meeting

Informations générales

- **Thème/Domaine :** Interaction et visualisation
Ingénierie logicielle (BAP E)
- **Ville :** Paris
- **Centre Inria :** CRI de Paris
- **Date de prise de fonction souhaitée :**
01/04/2018
- **Durée de contrat :** 12 mois
- **Date limite pour postuler :** 28/02/2018

Contacts

- **Equipe Inria :** WILLOW
- **Recruteur :**
Diaz Melo Mauricio / mauricio.diaz-melo@inria.fr

L'essentiel pour réussir

Computer Science degree (informatique / développement logiciel / génie logiciel), Electrical Engineering or related field (Bac + 5, Master 2, école d'ingénieur, doctorat, Ph.D.)

Experience in software development for Computer Graphics, Computer Vision or Image Processing.

Advanced experience of modern C++ and development of 3D interactive environments (games, robotics, virtual/augmented reality).

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.

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.

room in the building). One of the principal challenges of the project is to design an interactive and user-friendly visualization that overlays the information over the 3D structure of the surrounding environment provided by the HoloLens.

Principales activités

Activities:

- Develop an application for the device to provide useful information to the user.
- Write documentation to interface the application with the other components of the system.
- Write progress reports.
- Apply good practices in the cycle of software development (test/validation).
- Show and inform of work progress to other member of the team.

Compétences

- Very good programming skills and experience (C++, Python), ideally including 3D environments for augmented/mixed reality.
- Good understanding of software development and project management tools (git, Continuous Integration, unit testing, etc.)
- Previous experience in Windows development, particularly in UWP applications is also highly appreciated.
- Ideally, experience with Unity as framework to develop augmented/mixed reality applications on embedded devices.
- Ideally, experience with C# scripting language or knowledge of the extension C++/CX and/or the Windows Runtime C++ Template Library (WRL).
- Experience in development on Windows and Linux environments.
- Professional proficiency in English is mandatory. Speaking French is not a requirement

Avantages sociaux

- Subsidised catering service
- Partially-reimbursed public transport

Rémunération

- Duration: 12 months
- Targeted hiring date: 01/04/2018
- Location: Paris 12ème
- Gross Salary per month: according to experience