Offre n°2025-08601

Research Engineer F/M ShapeUp! Keiki

Le descriptif de l'offre ci-dessous est en Anglais

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 Grenoble research center groups together almost 600 people in 23 research teams and 7 research support departments.

Staff is present on three campuses in Grenoble, in close collaboration with other research and higher education institutions (University Grenoble Alpes, CNRS, CEA, INRAE, …), but also with key economic players in the area.

Inria Grenoble is active in the fields of high-performance computing, verification and embedded systems, modeling of the environment at multiple levels, and data science and artificial intelligence. The center is a top-level scientific institute with an extensive network of international collaborations in Europe and the rest of the world.

Contexte et atouts du poste

Position: Research engineer at INRIA – Grenoble, MORPHEO team

Date: The position is open and the candidate can start as soon as possible. Funding is for 12 months (renewable). A start in Mai 2025 could be possible.

Advisors: The retained candidate will be advised by Sergi Pujades (Morpheo INRIA Grenoble, France) and Nikolas Hesse (Swiss Children's Rehab, University Children's hospital Zurich, Switzerland).

Mission confiée

Context:

The ShapeUp Keiki project is the third project of the ongoing ShapeUp Studies series, where humans in the ages ranging from newborn to 5 year old will be studied.

The purpose of these studies is to explore and develop ways to measure health and body composition from 2D and 3D images, and optical scans. These technologies aim to take a look inside areas of the human body hidden by our skin. The study will test if new imaging machines can provide useful and detailed information about various health and wellness risks. A cohort of voluntary participants will provide the data, creating the largest and most powerful description of optical body shape and its association to body composition, metabolic markers, function, and dietary intake.

Principales activités

Objectives

In this project the research engineer will work on the registration of the articulated body model SMIL [1, 2] to scan data (3D point clouds) of infants. An existing code base exists, which is suitable for adults, but infants present several additional challenges. Their poses can not be directed and automatic methods of pose detection will need to be studied. The shape of the participants of the ShapeUp Studies is also different from the shape of the population used to learn the SMIL model. The goal will be to create a more generic body model that better captures the variations in shape.

[1] **Learning an Infant Body Model from RGB-D Data for Accurate Full Body Motion Analysis**
Hesse, N., Pujades, S., Romero, J., Black, M. J., Bodensteiner, C., Arens, M., Hofmann, U. G., Tacke, U., Hadders-Algra, M., Weinberger, R., Müller-Felber, W., Schroeder, A. S.
In International Conference on Medical Image Computing and Computer Assisted Intervention (MICCAI), September 2018

[2] **Learning and Tracking the 3D Body Shape of Freely Moving Infants from RGB-D sequences**
Hesse, N., Pujades, S., Black, M. J., Arens, M., Hofmann, U. G., Schroeder, A. S. Transactions on Pattern Analysis and Machine Intelligence, 42 (10), Special Issue on RGB-D Vision, pp. 2540-2551, 2019.

Compétences

Candidate Profile:

- A master in Computer Science or Applied Mathematics (mandatory).
- Strong mathematical background – geometry – optimization techniques
- Strong coding skills (pytorch, pytorch3D)
- Good Oral and written English
- Preliminary experience in the following areas is a plus: computer vision – 3D point clouds – registration techniques – geometry processing – 3D pose estimation.

A specific section in the application letter must explain the personal experience in these areas.

Important:

- Due to the collaboration with the Hawaiian Cancer Centers, bi-weekly group meetings are held in the evening in Europe (20h - 22h). The candidate should arrange once a week to be available at this time.

- An annual consortium meeting is held in Hawaii (usually in spring). The candidate should be available for a business travel of approx. a week.

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 (90 days / year) 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 under conditions

Rémunération

From 2,692 € (depending on experience and qualifications).

Informations générales

- **Thème/Domaine :** Vision, perception et interprétation multimedia
  Systèmes d'information (BAP E)
- **Ville :** Montbonnot
- **Centre Inria :** Centre Inria de l'Université Grenoble Alpes
- **Date de prise de fonction souhaitée :** 2025-05-01
- **Durée de contrat :** 12 mois
- **Date limite pour postuler :** 2025-04-30

Contacts

- **Équipe Inria :** MORPHEO
- **Recruteur :**
  Pujades Sergi / sergi.pujades-rocamora@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'e?orce ainsi de répondre aux enjeux de la transformation numérique de la science, de la société et de l'économie.

L'essentiel pour réussir

How to apply:

Please send your application including

- Mandatory: Complete CV
- Mandatory: Letter of motivation (at most one page) – briefly describing the personal experience in the relevant areas (see Candidate Profile).
- Mandatory: Degrees and lists of grades (translated to English or French)
- Mandatory: Name and e-mail address of two references
- Topic of Master thesis & Thesis and reports if available

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

How to apply:

Please send your application including

- Mandatory: Complete CV
- Mandatory: Letter of motivation (at most one page) – briefly describing the personal experience in the relevant areas (see Candidate Profile).
- Mandatory: Degrees and lists of grades (translated to English or French)
- Mandatory: Name and e-mail address of two references (this typically includes your Master thesis supervisor)
- Topic of Master thesis and report if available

through this Jobin website

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.