



**Offre n°2026-09980**

## **PhD Position F/M When Our Avatars Transform Us: Enhancing the VR User Experience by Modifying Avatar Movement**

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

**Type de contrat :** CDD

**Niveau de diplôme exigé :** Bac + 5 ou équivalent

**Fonction :** Doctorant

**Niveau d'expérience souhaité :** De 3 à 5 ans

### **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 funding for the PhD thesis candidature will be subject to a recruitment campaign of the University Rennes 1. This will also require the participant to pass the "ISA competition". More information: <https://intranet.irisa.fr/campagnes-theses> -> doctoral contracts (ODC) University Rennes 1.

For this reason, it is important to submit your application **before 15th May 2026** to be in accordance with the campaign deadlines.

No international exchanges (secondments) are envisioned in this post but the PhD candidate will attend international conferences, workshops and/or seminars and have international research collaborations.

The candidate will be part of the VirtUs group, a internationally recognised research team working in immersive populated virtual spaces. <https://team.inria.fr/virtus>  
The team also provides a friendly and supportive environment for students where collaboration and mutual support is highly encouraged.

## Mission confiée

The main aim of this project is to explore the perception of people's body movements (of self and others) when they are applied to a virtual character in virtual reality (VR) and to develop motion modifiers which will change the content of the motion without diminishing its naturalness. The first step will be to develop a motion filter in VR (using animation blueprints in Unreal Engine 5) which will be applied to a virtual character, designed for a user to embody and control it with their own body movements (Xsens motion capture). Through a series of experiments with participants, embodied in VR, we will investigate the perceptual effects of the created motion filter. We expect that understanding the perception of motion modification of such avatars could help us create enriched experiences for users of VR applications in health and education, to enhance the outcomes of therapy/training [1], as well as to imagine new forms of interaction and communication (e.g., VRChat).

**Context:** Individuals can be represented in VR as digital humans, also known as avatars. It is now possible to create visually highly realistic avatars; however, to be truly accepted by users, these avatars must also faithfully reproduce their physical movements. Generating believable movements for avatars remains a complex challenge. The most accurate methods for capturing human motion become less reliable when the user is immersed in VR, as it is technically difficult to track movement in real time while simultaneously using it to animate the avatar. As a result, computational motion editing techniques are generally used to correct or adapt recorded motion data, as well as to modify the expressiveness of the virtual human (emotions, personality) [2].

The primary objective of this project is to explore and adapt motion modifiers, or existing filters [3], capable of transforming human movement in a realistic and plausible way. A second key objective is to understand how humans perceive body movements, and whether they are able to detect modifications to their own movements as well as those of others when represented by an avatar in VR.

To achieve this, we will conduct several virtual reality experiments involving human participants. These experiments will require the design of a virtual environment, including: spatial setup (HTC Vive, Unreal Engine), creation of a realistic virtual character (Metahumans), and implementation of the animation pipeline (Xsens, motion filters). We will evaluate motion perception in VR using volunteer participants. The experiments will involve recording users' movements and modifying them either in real time (while the user is moving) or offline (playback after recording). The study will focus on how individuals perceive their own movement when it is altered, compared to unaltered movement. We expect that participants will be able to recognize the movement as their own, even when it has been modified, and we hope that this will alter their self-perception, which could have significant benefits for psychotherapy.

**Supervision and responsibilities:** The successful candidate will work closely with the supervisors Katja Zibrek (ISFP) and Ludovic Hoyet (CRCN) to meet the proposed objectives.

## References

- [1] Slater, M., Neyret, S., Johnston, T., Iruretagoyena, G., Crespo, M. Á. D. L. C., Alabèrnia-Segura, M., & Feixas, G. (2019). An experimental study of a virtual reality counselling paradigm using embodied self-dialogue. *Scientific reports*, 9(1), 10903.
- [2] Aberman, K., Weng, Y., Lischinski, D., Cohen-Or, D., & Chen, B. (2020). Unpaired motion style transfer from video to animation. *ACM Transactions on Graphics*, 39(4), 64-1.
- [3] Durupinar, F., Kapadia, M., Deutsch, S., Neff, M., & Badler, N. I. (2016). Perform: Perceptual approach for adding ocean personality to human motion using laban movement analysis. *ACM Transactions on Graphics (TOG)*, 36(1), 1-16.

## Principales activités

The PhD candidate will help with formulating the research hypotheses, designing and conduct experiments in VR/AR and analysing the results. The target is to publish the studies at the international conferences and journals and it is expected that the student will be able to take the lead in the paper production. The student will be given autonomy to explore the ideas in the context of the project and implement them through guided supervision. The student will also be involved in team activities and will be able to get support from the team members.

## Compétences

The candidate must have a master degree (or equivalent), with a preference in virtual (or mixed) reality and human computer interaction. In addition, the candidate should be comfortable with as much following items as possible:

- Experience in 3D/VR/AR applications (Unreal Engine, Unity, etc).
- Experience in evaluation methods and controlled users studies.
- Good knowledge in programming languages (e.g. C#, C++).
- Good spoken and written English.

## 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 (after 6 months of employment) 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

## Rémunération

monthly gross salary 2300 euros

## Informations générales

- **Thème/Domaine** : Interaction et visualisation  
Plateformes expérimentales logiciel (BAP E)
- **Ville** : Rennes
- **Centre Inria** : [Centre Inria de l'Université de Rennes](#)
- **Date de prise de fonction souhaitée** : 2026-09-01
- **Durée de contrat** : 3 ans
- **Date limite pour postuler** : 2026-06-20

## Contacts

- **Équipe Inria** : [VIRTUS](#)
- **Directeur de thèse** :  
Zibrek Katja / [katja.zibrek@inria.fr](mailto:katja.zibrek@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.

## L'essentiel pour réussir

It is important to know that a PhD is not just a continuation of the previous coursework. It is a long-term commitment to a particular (narrow) area of science, filled with uncertainty and challenging research questions. Three years is not a long time for a PhD thesis, so a high level of commitment, independent thinking, self-organisation, resilience to stress on one side, and curiosity, creativity and positive attitude on the other, are important. Based on our experience in the VirtUs team, the passion for the interdisciplinarity of the research topic (human factors and perception in immersive 3D environments) is key to success of the candidate - not just in terms of their PhD completion but also the ease of the PhD process.

For this reasons, **motivation and interest for the presented research topic** will be the **most important criteria** for selection. It is equally important that the candidate has **good technical skills** and openness to acquiring new skills as this will ensure an efficient implementation progress.

The PhD candidate will not be alone: the supervisors will provide support and guidance while the team provides a welcoming environment for support with equipment management and exchange of knowledge.

**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

### **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.