

Offre de postdoc/ing nieur de recherche en r alit  virtuelle

Mots clefs : R alit  Virtuelle, Interactions multimodales, Interactions collaboratives, Interactions haptiques, formation par compagnonnage, formation professionnelle

Nous recherchons une personne (H/F) enthousiaste et fortement motiv e pour aider   repousser les limites des connaissances et de la technologie dans les domaines de l'interaction humain-machine et de la r alit  virtuelle appliqu es   la formation professionnelle, notamment dans le domaine de la sant .

Les candidats doivent avoir de l'exp rience dans la conception et l' valuation des syst mes interactifs en r alit  virtuelle immersive. Ils doivent avoir de bonnes comp tences en communication, la capacit  de travailler efficacement au sein d' quipes multidisciplinaires, faire preuve d'un haut niveau d'initiative et avoir la capacit  de mener   bien tous les aspects du processus de recherche.

La personne recrut e sera int gr e au sein de l' quipe de recherche IRA2 du laboratoire IBISC. Il/elle sera impliqu .e dans la r alisation de trois projets de recherche financ s par l'ANR et le co-encadrement de plusieurs doctorants/stagiaires. Il/elle rejoindra une  quipe tr s dynamique et avec une bonne ambiance de travail.

Projets de recherche associ s

Le projet ANR **Show-me** (2021-2025) vise   concevoir et d velopper des interfaces et techniques d'interaction permettant   un formateur d'interagir et de partager ses comp tences avec un apprenant au sein d'un environnement virtuel immersif. Les travaux sont appliqu s au domaine de la formation des op rateurs en anesth sie locor gionale  choguid e. Pour plus d'information : <https://anr.fr/Project-ANR-20-CE33-0010>

Le projet ANR **DRIFT-FH** (2022-2026) vise   r duire les vuln rabilit s associ es aux facteurs humains en cybers curit . La contribution de notre  quipe sera de concevoir et de d velopper des programmes  ducatifs en r alit  virtuelle immersive et collaborative pour former les professionnels de sant  et de la d fense    viter les comportements   risque li s   la cybers curit . Pour plus d'information : <https://anr.fr/Projet-ANR-21-CE39-0015>

Le projet ANR **MASTERS** (2023-2027) vise   concevoir des m thodes p dagogiques innovantes destin es aux forces de l'ordre, aux pompiers, aux personnels de sant ... Ces m thodes visent   les aider   garder une bonne ma trise d'eux-m mes en toutes circonstances, y compris lorsqu'ils sont soumis   de fortes contraintes et   un stress intense (d'origine psychologique, sociale, etc.) attach s   des contextes dynamiques difficiles. La contribution de notre  quipe dans le cadre de ce projet sera de concevoir et de d velopper des environnements virtuels et des interfaces multisensoriels permettant de mettre en situation et de former les personnes dans ce contexte particulier. Pour plus d'information : <https://www.univ-evry.fr/index.php?id=11207>

Responsabilit s de la personne recrut e

- R aliser des  tudes de l' tat de l'art et de veille technologique en lien avec les diff rents projets,
- Participer   l'encadrement des doctorants et des stagiaires de l' quipe participants aux diff rents projets,
- Concevoir et d velopper des prototypes d'environnements virtuels pour illustrer les concepts  tudi s,
- Participer   la mise en place de protocoles d' valuation des prototypes et l'analyse des donn es exp rimentales,
- R aliser des t ches de gestion de projet (planning, r daction de rapports techniques, participation aux r unions des projets...),
- Participer   la diffusion des r sultats dans des revues et conf rences internationales r put es (IEEE VR, IEEE ISMAR, Frontiers in Virtual Reality...), et dans les  v nements professionnels et grand public (d mos au sein de la plateforme EVR@, salons professionnels...).

Comp tences et qualit s requises

- Avoir un doctorat en Interaction humain-machine, r alit  virtuelle,
- Excellente ma trise des outils de d veloppement pour la r alit  virtuelle (Unity 3D/C#, Unreal Engine/C++) et des dispositifs d'interaction (interfaces haptiques, casques de RV...),
- Connaissance des interactions 3D, de la m thodologie de conception centr e utilisateur,

- Maîtrise de la mise en place des protocoles expérimentaux et des méthodes statistiques pour l'analyse des données,
- Avoir un goût pour la recherche et les échanges pluridisciplinaires,
- Savoir travailler en autonomie et en équipe,
- Savoir hiérarchiser les tâches, manager les membres d'une équipe (doctorants, stagiaires) et restituer les résultats en respectant les délais,
- Une expérience dans la gestion des projets de recherche serait un plus.

Conditions de travail

Les travaux de recherche seront réalisés au laboratoire IBISC. L'encadrement des travaux sera assuré par Amine CHELLALI et les membres de son équipe. Une plateforme expérimentale (plateforme EVR@) et des environnements virtuels pour la simulation sont mis à disposition (Figure 1). Le candidat sera en interaction avec les doctorants et stagiaires de l'équipe. Il/elle sera également convié.e à participer aux réunions d'avancement des différents projets.

Durée : de 12 à 36 mois

Date de début : à partir de janvier 2023

Salaire : A partir de 2200€ net (selon expérience)



Figure 1 : Exemples des simulations et technologies présentes sur la plateforme EVR@ (CAVE, casques, systèmes de eye tracking, gants de données, bras à retour d'efforts, écrans tactiles, vestes haptiques...)

Examples of simulations and technologies of the EVR@ platform (CAVE, HMDs, eye tracking systems, data gloves, haptic devices, touch screens, haptic suits)

Virtual reality postdoc/research engineer offer

Keywords: Virtual Reality, Multimodal interactions, Collaborative interactions, Haptic interactions, mentorship training, Professional training

We are seeking for an enthusiastic and highly motivated person (M/F) to help push the boundaries of knowledge and technology in the fields of HCI and virtual reality applied to professional education and training in healthcare. Candidates should have experience in the design and evaluation of interactive systems in immersive virtual reality. They should have good communication skills, the ability to work effectively in multidisciplinary teams, demonstrate a high level of initiative, and have the ability to carry out all aspects of the research process.

The recruited person will be part of the IRA2 research group of the IBISC laboratory. He/she will be involved in the realization of three research projects funded by the ANR and the co-supervision of several PhD students/interns. He/she will join a very dynamic team with a good working atmosphere.

Related research projects

The Show-me ANR project (2021-2025) aims to design and develop interfaces and interaction techniques allowing an expert to interact and share his/her skills with a learner within a shared immersive virtual environment. The work is applied to train operators in ultrasound-guided locoregional anesthesia. For more information: <https://anr.fr/Project-ANR-20-CE33-0010>

The DRIFT-FH ANR project (2022-2026) aims to reduce vulnerabilities associated with human factors in cybersecurity. The contribution of our team will be to design and develop educational programs in immersive and collaborative virtual reality to train healthcare and defense professionals to avoid risky behaviors related to cybersecurity. For more information: <https://anr.fr/Projet-ANR-21-CE39-0015>

The MASTERS ANR project (2023-2027) aims to design innovative teaching methods intended for law enforcement, firefighters, healthcare personnel, etc. These methods aim to help them maintain good self-control in all circumstances, including when facing strong constraints and intense (psychological, social, etc.) stress related to difficult dynamic contexts. The contribution of our team within the framework of this project will be to design and develop virtual environments and multisensory interfaces allowing to immerse the learners and train them coping with this specific context. For more information: <https://www.univ-evry.fr/index.php?id=11207>

Responsibilities of the recruited person

- Carrying out literature reviews and technology watch in connection with the various projects,
- Participating in the supervision of PhD students and interns participating in the various projects,
- Designing and developing prototypes of virtual environments to illustrate the studied concepts,
- Participating in the design of evaluation protocols and the analysis of experimental data,
- Carrying out project management tasks (planning, drafting of technical reports, participation in project meetings, etc.),
- Participating in the dissemination of results in top-tier international journals and conferences (IEEE VR, IEEE ISMAR, Frontiers in Virtual Reality, etc.), and in professional and general public events (demos within the EVR@ platform, trade fairs, etc.).

Required skills and qualities

- Have a PhD in Human-Computer Interaction, Virtual Reality, or related fields,
- Excellent knowledge of development tools for virtual reality (Unity 3D/C#, Unreal Engine/C++) and interaction devices (haptic interfaces, VR headsets, etc.),
- Knowledge of 3D interaction design, user-centered design methodology,
- Ability to implement experimental protocols and knowledge in statistical methods for data analysis,
- Have a taste for research and multidisciplinary exchanges,
- Ability to work independently and in a team,
- Know how to prioritize tasks, manage team members (PhD students, interns), and report results in a timely manner,
- Experience in managing research projects would be a plus.

Work conditions

The research work will be carried out at the IBISC laboratory. Supervision of the work will be provided by Amine CHELLALI and the members of his team. An experimental platform (EVR@ platform) and virtual environments

for simulation are provided (Figure 1). The candidate will interact with the PhD students and interns of the team. He/she will also be invited to participate in the progress meetings of the various projects.

Duration: 12 to 36 months

Start date: from January 2023

Net salary: From 2200€ (depending on experience)

Information de contact/contact information

Merci de faire parvenir une lettre de motivation, un CV, et une lettre de recommandation recherche à :

Please send your application letter, a CV, and a research recommendation letter to:

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