



Job vacancy #2023-06415

Virtual and Mixed Reality Engineer for the ShareSpace project

Contract type : Fixed-term contract

Level of qualifications required : Graduate degree or equivalent

Fonction : Temporary scientific engineer

About the research centre or Inria department

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.

Context

Within the framework of a European project HORIZON-CL4-2022-HUMAN-01-14 "ShareSpace" with 14 European academic and industrial partners, the aim of this position is to support the research activities by developing a prototype of VR and Mixed Reality training system to improve safety group cycling.

The project involves some displacements in Europe for the project meetings, and some demonstrations in international events. Travel expenses are covered within the limits of the scale in force.

Assignment

Assignments :

With the help of academic researchers and a PhD student, the recruited person will be taken to support the development and tests of VR and XR prototypes of training tools dedicated to train cycling securely in groups, with two main target populations: family with children, and elite cyclists in pelotons.

For a better knowledge of the proposed research subject :

Training people in sports is a complex process that involves several subskills that are strongly correlated. Virtual Reality offers an interesting possibility to control the situation and the multisensory feedback. Hence, it enables to decouple the subskills, with specific VR design for each of them, independently. This approach has been applied to several sports applications (Bideau et al., 2009). However, one of the difficulty is to ensure biofidelity of the VR/XR environment to ensure the transfer of skills between the VR/XR situation and the ecological one in real (Covaci et al., 2015).

In the specific case of the Sharespace project, the idea is to identify and train family and professional cyclists in small pelotons, in a safety perspective. The goal is to develop scenarios to make people become more sensitive to safety issues while maintaining a level of performance, and learn to adapt their motor strategy accordingly.

B Bideau, R Kulpa, N Vignais, S Brault, F Multon, C Craig (2009) Using virtual reality to analyze sports performance. IEEE Computer Graphics and Applications 30 (2), 14-21

A Covaci, AH Olivier, F Multon (2015) Visual perspective and feedback guidance for vr free-throw training. IEEE computer graphics and applications 35 (5), 55-65

Collaboration :

The recruited person will be in connection with academic researchers of Inria, and a PhD student recruited full-time on the project, who will collaborate with the engineer to design the specifications of the prototypes, raise scientific questions, and prepare the user tests.

Responsibilities :

The person recruited is responsible for proposing technological solution, develop prototypes, participate in the user tests and the publication of scientific papers.

Main activities

Main activities (5 maximum) : development in the EU project software architecture, technology watch to

identify technical opportunities, demonstrations, user experiments.

Additional activities (3 maximum) : report writing, support to the other users of the prototype, demos in international event, participation to meetings

Skills

Technical skills and level required : high expertise in Unreal Engine (or other game engine) development, C++, and have experience in VR/XR application development. Knowledge in sports sciences and neurosciences, statistics, would be appreciated.

Languages : English is very important, and French would help for everyday life in Rennes.

Relational skills : good relationship with others, friendly, like to work in teams, to share knowledge and pleasant time with colleagues.

Other valued appreciated : rigorous, curious

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs
- Possibility of teleworking (90 days per year) and flexible organization of working hours
- Partial payment of insurance costs

Remuneration

Monthly gross salary from 2 655 euros according to diploma and experience

General Information

- **Theme/Domain** : Interaction and visualization
IT Technical and production engineering (BAP E)
- **Town/city** : Rennes
- **Inria Center** : [Centre Inria de l'Université de Rennes](#)
- **Starting date** : 2023-09-01
- **Duration of contract** : 1 year, 6 months
- **Deadline to apply** : 2023-09-30

Contacts

- **Inria Team** : [MIMETIC](#)
- **Recruiter** :
Multon Franck / Franck.Multon@irisa.fr

About Inria

Inria is the French national research institute dedicated to digital science and technology. It employs 2,600 people. Its 200 agile project teams, generally run jointly with academic partners, include more than 3,500 scientists and engineers working to meet the challenges of digital technology, often at the interface with other disciplines. The Institute also employs numerous talents in over forty different professions. 900 research support staff contribute to the preparation and development of scientific and entrepreneurial projects that have a worldwide impact.

The keys to success

The candidat should be curious about new VR/XR technologies, like to work in a team, like to address challenges and test state of the art scientific methods. He should also appreciate carrying-out experiments, human relationship with colleagues and subjects of the experiments.

Warning : you must enter your e-mail address in order to save your application to Inria. Applications must be submitted online on the Inria website. Processing of applications sent from other channels is not guaranteed.

Instruction to apply

Please submit online : your resume, cover letter and letters of recommendation eventually

Defence Security :

This position is likely to be situated in a restricted area (ZRR), as defined in Decree No. 2011-1425 relating

to the protection of national scientific and technical potential (PPST). Authorisation to enter an area is granted by the director of the unit, following a favourable Ministerial decision, as defined in the decree of 3 July 2012 relating to the PPST. An unfavourable Ministerial decision in respect of a position situated in a ZRR would result in the cancellation of the appointment.

Recruitment Policy :

As part of its diversity policy, all Inria positions are accessible to people with disabilities.