Offer #2024-07476

PhD Position F/M Understanding and Improving Human Interactions in Social eXtended Reality

Contract type : Fixed-term contract

Level of qualifications required : Graduate degree or equivalent

Fonction : PhD Position

Level of experience : From 3 to 5 years

About the research centre or Inria department

The Inria Centre at Rennes University is one of Inria's nine 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

This PhD position is framed in the context of a European project META-TOO (A transfer of knowledge and technology for investigating gender-based inappropriate social interactions in the Metaverse). The META-TOO project is placed at the intersection of VR/AR uptake, and social, behavioral and technological research. In this fast-evolving digital environment, META-TOO addresses the urgent matter of abusive behavior within the virtual space, doing that while facilitating the collaboration (twinning), of three distinguished institutions in Europe: and Kapodistrian University of Athens, Greece (NKUA), National Institute for Research in Digital Science and Technology, Rennes, France (Inria) and Fundació de Recerca Clínic Barcelona, Spain (IDIBAPS). This initiative not only contributes to apply research in the XR field but also commits to addressing misbehavior that emanate from social interactions in the physical world that now transcend into the digital and virtual social spaces.

META-TOO addresses the issue of online misconduct in virtual spaces, taking a significant step towards the creation of a more inclusive and equitable digital world. The Metaverse, though a digital domain, is increasingly mirroring society itself and thus, efforts to combat harassment and promote respectful interactions in this space have far reaching societal consequences. META-TOO's work empowers VR/AR users to deter and address inappropriate behavior, directly contributing to their well-being and safety in the Metaverse.

Assignment

To address the subject of creating safe and inclusive online interaction in immersive applications, the teams at Inria will focus on two main research topics: the impact of avatar and environment characteristics on the perception of inappropriate behaviour of VR users, and design and evaluation of interaction techniques to cope with such behaviour. The **first topic** will include exploration of avatar characteristics, such as realism of appearance and movement, animation, gender, ethnicity, attraction, etc. Another aspect to consider will be the virtual environment (e.g., size, population density, social setting, and context). In the **second topic**, we will explore interactive methods to enable users to initiate their response when they detect inappropriate behaviour of others. Some potential research venues in this topic range from modulating the avatar appearance or dynamically controlling personal space distances between themselves and other avatars. The research will also include **perceptual evaluation** in the form of collecting subjective responses (questionnaires), physiological measures (e.g., eye-tracking, GSR) and behavioural responses of participants, including their impact on interpersonal distance (e.g., stop distance, analysis of the walking trajectory).

References

- Freeman, S. Zamanifard, D. Maloney, and D. Acena (2022) Disturbing the peace: Experiencing and mitigating emerging harassment in social virtual reality. Proceedings of the ACM on Human-Computer Interaction, 6(CSCW1):1–30.
- Patotskaya, Y., Hoyet, L., Olivier, A. H., Pettré, J., & Zibrek, K. (2023). Avoiding virtual humans in a constrained environment: Exploration of novel behavioural Measures. Computers & Graphics, 110, 162-172.
- Cheymol, A., Lécuyer, A., Normand, J. M., & Argelaguet, F. (2023). Beyond my Real Body: Characterization, Impacts, Applications and Perspectives of “Dissimilar” Avatars in Virtual Reality. IEEE Transactions on Visualization and Computer Graphics. vol. 29, no. 11, pp. 4426-4437
- Bönsch, S. Radke, H. Overath, L. M. Aspé, J. Wendt, T. Vierjahn, U. Habel, and T. W. Kuhlen (2018).

Social vr: How personal space is affected by virtual agents' emotions. IEEE Conference on Virtual Reality and 3D User Interfaces (VR), pp. 199–206.

Main activities

In the context of the project META-TOO, the PhD 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.

Skills

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

- Experience in 3D/VR/AR applications (e.g. Unity3D).
- Experience in evaluation methods and controlled users studies.
- Good knowledge in programming languages (e.g. C#, C++).
- Good spoken and written English.
- Good communication skills.

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 amounting to 2100 euros for the first and second years and 2190 euros for the third year

General Information

- **Theme/Domain :** Interaction and visualization
  Software Experimental platforms (BAP E)
- **Town/city :** Rennes
- **Inria Center :** Centre Inria de l'Université de Rennes
- **Starting date :** 2024-09-01
- **Duration of contract :** 3 years
- **Deadline to apply :** 2024-05-31

Contacts

- **Inria Team :** HYBRID
- **PhD Supervisor :**
  Argelaguet Sanz Fernando / ferran.argelaguet@inria.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.

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.