REACTIVE project. It focuses on the elements of non-verbal communication resulting from body humans interact and react.

A prerequisite for the creation of reactive and expressive virtual humans is to understand how "real" humans interact and react to the behaviours and reactions of others. This is the core of the REACTIVE project. It focuses on the elements of non-verbal communication resulting from body movements.

The main activities of the post-doctoral fellow will be:

- To establish a taxonomy of reactive and expressive behaviours during 1-to-1 interactions.
- To identify, through an approach involving movement Sciences, invariants within body reactions in situations of interaction between several people.
- To model these invariants, through an approach based on Digital Science, to create new animations of reactive and expressive virtual humans.
- To validate these models a posteriori by studying the user's interaction with these virtual humans thus created. This will validate that these manipulated invariants are well perceived during 1-to-1 interactions.

This research topic will be carried out in Rennes, the capital of Brittany and the tenth largest city in France, with a metropolitan area of about 720,000 inhabitants. Moreover, with more than 66,000 students, Rennes is also the eighth-largest university campus of France and it has the 2nd highest concentration of digital and ICT firms in France after Paris. Rennes is also known to be one of the most festive and lively cities of France, home of several music and culture festivals. In 2018, the newspaper "L'Express" named Rennes as "the most liveable city in France".

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**Contexte et atouts du poste**

The research center Inria Rennes - Bretagne Atlantique, established in 1980, is fully integrated into a rich and powerful regional ecosystem, boosting strong partnerships with the best actors of research and innovation in Brittany and Pays de Loire. It comprises 3 sites (Rennes, Nantes, Lannion), 730 people, 34 research teams, 6 ERC grant winners, 31 European projects, 9 startups.

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**Mission confiée**

This post-doctoral position is framed under the EU H2020 ICT 25 PRESENT project. In this context, we aim at creating virtual digital companions -- embodied agents -- that look entirely naturalistic, demonstrate emotional sensitivity, can establish meaningful dialogue, add sense to the experience, and act as trustworthy guardians and guides in the interfaces for AR, VR and more traditional forms of media. There is no higher quality interaction than the human experience when we use all our senses together with language and cognition to understand our surroundings and, above all, to interact with other people. We interact with today's "Intelligent Personal Assistants" primarily by voice. However, communication is episodic, based on a request-response model; the user does not see the assistant, which cannot take advantage of visual and emotional clues or evolve over time. Nonetheless, advances in the real-time creation of photorealistic computer-generated characters, coupled with emotion recognition and behaviour, and natural language technologies, allow us to envisage virtual agents that are realistic in both looks and behaviour, that can interact with users through vision, sound, touch and movement as they navigate rich and complex environments; converse in a natural manner; respond to moods and emotional states; and evolve in response to user behaviour.

The post-doctoral candidate will join the Inria MimeTIC team (https://team.inria.fr/mimetic/), internationally recognized for its multidisciplinary approach to analysis, model and synthesize motion. The post-doctoral candidate will also have access to unique experimental platforms immersica and Immermov which offer a high-tech set-up to perform user experiments in real and virtual environments and measure motion (motion capture, EMG, force plate, eye trackers).

**Principales activités**

The general objective is to create, in collaboration with computer scientists, interactive characters endowed with levels of behavioural sensitivity and responsiveness for Virtual Reality applications. By populating virtual environments with such characters, our goal is to achieve new levels of immersive experiences, by reinforcing the feeling of presence through non-verbal communication between a user and one or more agents.

**Informations générales**

- **Thème/Domaine**: Interaction et visualisation
- **Ville**: Rennes
- **Centre Inria**: Cri Rennes - Bretagne Atlantique
- **Date de prise de fonction souhaitée**: 2020-09-01
- **Durée de contrat**: 2 ans
- **Date limite pour postuler**: 2020-05-22

**Contacts**

- **Equipe Inria**: MIMETIC
- **Recruteur**: Olivier Anne-hélène / anne-helene.olivier@inria.fr

**A propos d'Inria**

Inria is the French national research institute devoted to the sciences of the digital. It employs 2600 persons. Its 200 fully equipped laboratories and agilistic projects in close relationship with partners, mostly from large and medium-sized companies, as well as universities. It has more than 3000 projects and startups. Inria is also supported by 5000 industrial partners.

**L'essentiel pour réussir**

The candidate must have spent at least 18 months abroad between 1 May 2016 and the start of the project.

**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 de l'inscription au recrutement.

**Politique de recrutement**

Dans le cadre de sa politique diversité, tous les postes Inria sont accessibles aux personnes en situation de handicap.

**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.
by the user and important for interaction. We will propose both a subjective evaluation of
the realism perceived by the user but also a quantified evaluation of the interaction via
comparisons between the movements observed in real and virtual situations.

Compétences
The candidate must have a PhD degree, either in Human Movement Science or Computer Science.
The candidate should also be comfortable with as much following items as possible: Experience in
motion capture and movement analysis; Experience in carrying out users studies; Good knowledge of
programming tools and statistics; Good spoken and written English; Good communication skills. This
post doctoral position is framed under a larger project, thus the candidate will have to interact with
other members of the project and assist to its meetings.

Avantages
- Subsidised catering service
- Partially-reimbursed public transport

Rémunération
Monthly gross salary amounting to 2 653 euros