2020-02751 - Engineer Position: Motion Editing Developments for Character Animation Tools

Contract type : Fixed-term contract
Level of qualifications required : Graduate degree or equivalent
Other valued qualifications : PhD
Fonction : Temporary scientific engineer

About the research centre or Inria department

The Inria Rennes - Bretagne Atlantique Centre is one of Inria's eight centres and has more than thirty research teams. The Inria Center 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 engineer position is open in the context of the ANR JCJC Per² project (Perception-based Human Motion Personalisation).

The overall project targets the personalisation of virtual human motions, which have become a requisite to create always more lifelike virtual worlds for industries ranging from entertainment to training and education. Although the visual realism of virtual human motions has drastically improved over the last decades, current animation techniques still create a certain uniformity of motion across characters. For single individuals (e.g., a main character), displaying the same generic motions for all users can limit their engagement, as motions are not personalised for any user. Similarly the absence of variations in large groups of individuals also affects realism when they all move in the same manner. Tremendous amounts of manual artistic work can indeed create such variations, which undeniably improves overall realism (e.g., crowds in computer generated movies like Warcraft, Star Wars, The Hobbit), however it is still impossible to automatically create such levels of personalisation for interactive applications. This project therefore aims at creating variety in human motions, in order to create a new generation of more realistic virtual characters. In short, our goal is to automate the creation of motion variations to represent given individuals according to their own characteristics, and to produce natural variations that are perceived and identified as such by users.

Assignment

In this context, the candidate will participate in the development of a character animation tool developed in the MimeTIC team, as well as participate in the research and developments generally conducted by the group working on Character Animation and Crowd Simulation. This tool is targeting to easily import/export, edit and generate motions, in particular to be used in the context of generating motion variations for large numbers of characters. The candidate will therefore work closely with the PhD student working on the project, as well as with other PhD students involved on related topics.

The person recruited will be in contact with Ludovic Hoyet (MimeTIC team).

Main activities

The engineer will first be tasked with developments on an existing character animation tool (developed in Python), which involves

- Unifying import and export of motion capture data, to be used with external softwares (e.g., Unity)
- Developing a number of animation editing modules
- Ensuring the easy deployment of the tool, to be used by other students
- Developing scenarios and demonstrators for the project to display variety of motions on large scale scenarios

Skills

- Experience in Computer Graphics is essential (MsC or PhD), particularly with Character Animation if possible
- Experience in Python recommended
- Ability of understanding the scientific and technical challenges related to the use of motion capture and motion editing approaches
- Good software development skills, including knowledge of software development processes (e.g., source code management, continuous integration and continuous delivery, tests, agile method)

Benefits package

- Subsidized meals
- Partial reimbursement of public transport costs

Remuneration

Monthly gross salary from 2562 euros according to diploma and experience

General Information

- **Theme/Domain :** Interaction and visualization
  Software Experimental platforms (BAP E)
- **Town/city :** Rennes
- **Inria Center :** CRI Rennes - Bretagne Atlantique
- **Starting date :** 2020-09-01
- **Duration of contract :** 2 years
- **Deadline to apply :** 2020-07-31

Contacts

- **Inria Team :** MIMETIC
- **Recruiter :**
  Hoyet Ludovic / ludovic.hoyet@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.

The keys to success

We are looking for excellent candidates, preferably with a solid background in computer graphics and good coding skills, who can work independently and who are also keen to collaborate with other researchers on large-scale projects.

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.

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.