Call for application for research scholarships

for post-graduate international candidates

RESEARCH PROJECT N. 12

Title

Advanced Human-Computer Interaction methods for Virtual and Augmented Reality

Scientific responsible (name, surname, role)

Fabrizio Lamberti, Associate Professor (fabrizio.lamberti@polito.it)

Short description of the research activity (max 250 words)

In the last few years, all the big IT players made significant investments in virtual reality (VR) and augmented reality (AR), as they expect them to be the core enabling technologies for the creation of an incredible number of services and applications, and true game changers in many different contexts. Domains that could benefits from VR and AR are expanding every day, encompassing traditional areas like video-games and entertainment, but also getting ever more commonplace in other scenarios (industrial production, education and training, medical practice, cultural heritage and even sport). Despite its positive effects, the growing diffusion of these technologies is posing significant challenges to researchers and developers. In fact, even though consumer-level solutions already exist that can be used to create amazing virtual experiences or enhance the real word with floating holographic contents (see Oculus Rift, HTC Vive, HoloLens), a true immersive experience letting users totally feel present in the synthetic or synthetically-augmented world is still not possible. This issue is linked to a serious lack in interaction methods available in these contexts. Traditional interaction paradigms like mouse and keyboard are not feasible, gestures and voice are still rarely used, whereas common controllers often risk to break the real-virtual continuum. Based on the above considerations, the main objective of this research will be to improve the effectiveness of existing methods, tools and paradigms for human-computer interaction in VR and AR, by considering challenging application scenarios and devising new multi-modal interfaces capable to offer the best user experience possible.

Specific requirements (experiences, skills)

Applicants should have previous experience in the field of computer graphics (3D modeling, 3D animation, development of interactive graphics applications and games, etc.) and knowledge of tools like Unity3D, Blender/Maya, etc. Previous experience with VR and AR and related devices would be positively evaluated. Applicants should know the main programming languages and development environments, with a specific focus on those used in the considered domains.

Website of the research group (if any)

http://grains.polito.it/

The present form should be filled in English and sent to scudo@polito.it by 2nd October 2017

Keywords (min 3, max 6)

Virtual Reality, Augmented Reality, Human-Machine Interaction, Simulation, Serious Games

Research Area (max 1)

Computer Engineering