

Title: Augmented reality for indoors applications

Recent examples of entertainment devices based on machine vision and augmented reality demonstrate the necessity for active aspects, both in terms of actively changing the parameters of the vision system and in terms of interacting with the environment. These techniques could be further utilized for military and medical applications that require remote control of devices and tools.

Therefore, in this project, we propose to build on this technology by performing dynamic 3D scene alignment based on the integration of several novel visual cues using Kinect Fusion and frequency domain techniques operating in real time. Also, novel mechanisms to track multiple users through the environment will be introduced using the 3D information obtained initially and the data acquired from multiple sensors. Tracking will not provide only location information but full human body pose estimation allowing the integration of Virtual Reality and Augmented reality solutions that combine the players' movements through the environment as well and the interactions between them. This project will improve the state of the art both in the area of alignment and 3D pose tracking introducing novel active aspects in entertainment and other applications.

Desirable skills:

C/C++ programming skills, 3D and game engines

Technical supervisor:

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