

Modifications to Holojam for the VISGRAF VR Environment

1 - Adjustment in Viewer Script

At VISGRAF we use in Holojam, besides the GearVR, Oculus Rift DK2. We commented the part of the code that was not allowing using IMU tracking in the editor or standalone. This was necessary to properly use the SDK with Oculus, otherwise it would only use the optical tracking, with less quality.

2 - New component in PairTarget objects

We created a script component called FixedPairables to simplify the pairing operation. The script reads the hands and feet that should be used with this PairTarget object, each will be automatically transferred to HoloIK Script as long as it is tracked.

The script also disables the PairTarget collider to prevent manual pairings or unpairings.

3 - NewViewer Script

In Viewer Script, when the TrackingType is set to IMU, the system uses the orientation given by the HMD device, and it is corrected when it is too discrepant from the orientation from the optical data. This causes some unpleasant shifts during runtime.

We created a simpler scheme to use IMU and optical data with a script called NewViewer. In this script we can select the tracking type to IMU or OPTICAL. When using OPTICAL, it behaves like the old Viewer Script, discarding the IMU orientation, and using only the optical data. When IMU is set, the system uses the orientation given by the HMD device, but at every frame the camera is slightly pushed into the direction of the optical orientation. This way, the orientation never deviates from the optical orientation, and it is smooth like the pure IMU orientation.

Also, the NewViewer Script can send back to the server the final position and orientation of the camera, as another HolojamView object, using Synchronizable objects. It is only necessary to inform the label of input object (from where the optical information is taken), and the label of the output object (with the real position and orientation of the camera).

4 - Properly disconnecting Wii-motes

We had some problems with the Holojam Server regarding wii-motes. The system was correctly connecting to wii-motes, but it was not disconnecting at exit. This way the wii-motes could not connect again, requiring us to pair again the bluetooth device (removing the current device and pairing it again), every time. We solved this problem by adding some code to the server to delete the wii-motes manager objects. The wii-mote is disconnected when the destructor of the manager class is called.