

ISMAR 2013 Demonstrations

Calibration of Head-Mounted Finger Tracking to Optical See-Through Head Mounted Display

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Augmented Reality Scenarios involving HMDs and finger tracking most commonly employ user-instrumented finger tracking devices (e.g. gloves). Such devices require users to equip fingers with fiducials that lower the user experience in interaction scenarios. The motivation of this demonstration is to show the audience a simple way to employ new environment-instrumented finger tracking devices, such as the LEAP Motion. The LEAP Motion is outstanding in terms of its cost, accuracy, and especially size, thus it can be used in a wide range of VR/AR applications. However, its applicability to AR applications have not been dwelled well.

The calibration procedure we introduce uses Single Point Active Alignment Method (SPAAM) to determine the static spatial relationship between the Optical See-Through (OST) HMD and the finger tracking device rigidly mounted to the HMD. The calibration is conducted using Ubitrack, a ubiquitous tracking framework, and a Sony Glasstron PLM-S700E HMD together with the LEAP Motion device. As an intriguing application example for user interaction is demonstrated to show the benefit of using the system setup for AR (Figure 1).

Keywords: 3DUI, finger tracker, Leap Motion, optical see-through head-mounted display

Information about the demonstration space:

- A table at least with at least 1 m²
- Power sockets x3



Figure 1. A current demo setup showing an OST-HMD and a Leap Motion.