Hand Pose Estimation from Color Images for Hololens

Bachelor’s Thesis

Description:
Hand pose estimation is an important part of many HCI systems, and plays a key role in future AR and VR applications. Most of recent approaches use depth cameras (e.g. MS Kinect) to capture the users’ hand and apply the hand pose estimation algorithm on these depth images. Since this depth cameras are active sensors, the usage in mobile AR systems is limited by their energy consumption. The starting point of this work is to use our state-of-the-art hand pose estimation method\[1\]. This method currently uses depth images, and should be extended to work with color images. Further, the method requires training data, which should be captured using a Leap Motion sensor attached to the Hololens. Using this data, the hand pose estimation should be trained, and then integrated into an existing real-time pipeline.

The start and end of the project can be chosen by arrangement.

Objective:
- Review literature about recent works
- Capture training data
- Train hand pose estimation method
- Integrate model into real-time pipeline

Qualifications:
- Experience in Python
- Interest in Machine Learning
- Interest in Augmented Reality

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[1]https://github.com/moberweger/deep-prior