Hands4Unity: Integration of Hand Pose Estimation into Unity

Bachelor’s Thesis

Description:
Hand pose estimation is an important part of many HCI systems, and plays a key role for future AR and VR applications. Most of these AR and VR applications are built on top of different frameworks, where Unity\(^1\) is one of the most popular ones. In order to implement hand interaction into these frameworks, specific interfaces have to be created in order to use hands as input method. However, these interfaces are currently lacking in Unity.

The starting point of this work is to use our state-of-the-art hand pose estimation method\(^2\). This method should be used as user input and should be made available within Unity. The estimated hand pose should be displayed as a meshed hand model. For stability and usability, temporal alignment of the hand poses needs to be added.

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

Objective:
- Implement interface to our hand pose estimation method
- Create meshed hand model
- Perform Inverse Kinematic to articulate the hand model
- Implement temporal alignment

Qualifications:
- Experience in C++/Python
- Knowledge of basic computer graphics
- Interest in Unity engine

Contact ICG:
Markus Oberweger
oberweger@icg.tugraz.at

1. https://unity3d.com
2. https://github.com/moberweger/deep-prior