Multi-View 3D Hand Annotation

Bachelor’s Thesis / Master Project

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. However, large annotated datasets are required to train the methods for hand pose estimation and creating them is cumbersome. This work should explore more efficient annotation methods by leveraging multi-view camera setups.

The starting point of this work is our state-of-the-art method for creating 3D annotations for articulated objects. This method should be extended to allow usage of multi-view setups, e.g. stereo RGB and multiple depth cameras. This requires the adaption of the user interface, as well as the adaption of our large-scale numeric solvers that process the user input.

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

Objective:
- Add support for stereo RGB and multiple depth cameras
- Extend user interface for multiple cameras
- Adapt the numerical solver for multi-view inference
- Evaluate improvement of multiple views compared to single view

Qualifications:
- Experience in Python/Qt
- Interest in large-scale numerical optimization
- Interest in 3D computer vision

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

[https://github.com/moberweger/semi-auto-anno](https://github.com/moberweger/semi-auto-anno)