How to use Depth Sensors in Sign Language Corpus Recordings

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Goal:
- Placing depth sensor devices into the existing DGS corpus studio setup
- Utilizing the depth sensor data for non-manuals annotation

Why:
- Automatic and semi-automatic annotation of non-manuals would mean dramatic savings on annotation time!

1: Sensor Positioning

- Adapted from the DGS corpus recording setup (Hanke et al., 2010).
- Signer is standing instead of sitting
- Signer is approx. 3 meters away from the frontal HD camera

2: Video Processing

- Facial expressions are recognised at each frame of the movie.
- Assign weights for each expression (ranging from 0 to 100).

Constraints:
- Carmine must be at shorter distance (0.65-0.70 m)
- Kinect tracks better until 1.80m

Challenges:
- The signer’s eye gaze should not be distracted
- These sensors can appear in other camera’s fields of view.

Dependency among Recognition quality, Carmine Distance (left) and Carmine rotation (right)

Visibility of Carmine in the frontal HD camera stream

Observations
- Good lighting results in better accuracy
- Forehead and chin area should be in the field of view of Carmine.

Dependency between tracking quality and Kinect height at a fixed distance of 1.75m away from the signer

Non-manuals annotation in iLex

- One degree of freedom for positioning the Kinect devices is lost.
- The only reasonable position is directly above the screens!

FaceShift Recognizer

- Lip movements recognition are inconsistent due to occlusion.