SASE: RGB-Depth Database for Human Head Pose Estimation

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Motivation for SASE

- Research with Kinect 2
- Needed head-pose estimation
- No data avalible for Kinect 2
- Many methods that could be tested

Comparison with Kinect1

- RGB resolution 1080x1920
- Kinect 1's 480x640.
- The IR is used for ToF
- 1mm depth accuracy at around 1m
- gives false information at (70+ degrees)
- failure angles are steeper than with Kinect 1

SASE database

- 50 subjects
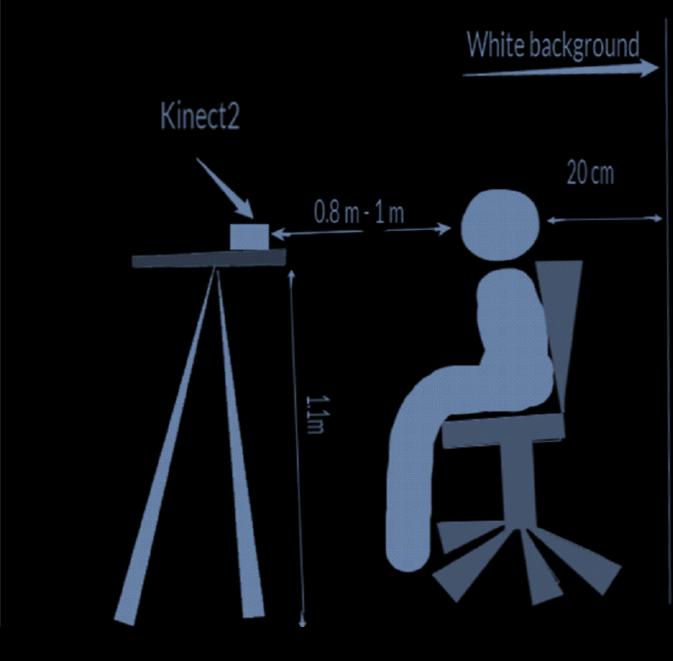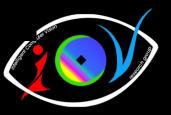- Highly varying head poses
- Coloured markers for headpose labeling

Collection

- Was collected in a nr of session over approx 2 months
- Subject trained for head poses
- Not restricted to neutral expressions

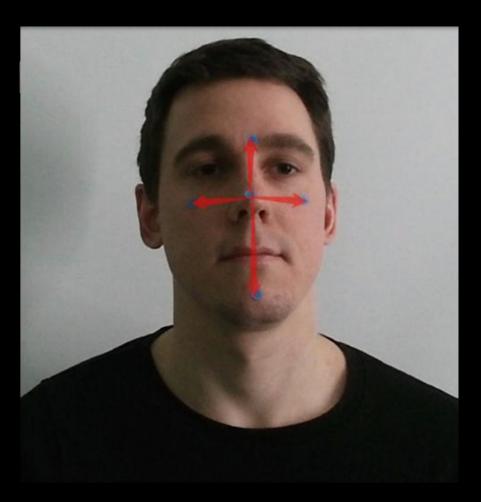# Ground truth values

- Transformation as least-squared solution

$$\operatorname*{argmin}_{\alpha,\beta,\gamma}\left[\sum_i \sum_j \left(x_{ij} - \sum_k r_{ik}^{\alpha\beta\gamma}\tilde{x}_{kj}\right)^2\right]$$

- 3D coordinates of vectors were used
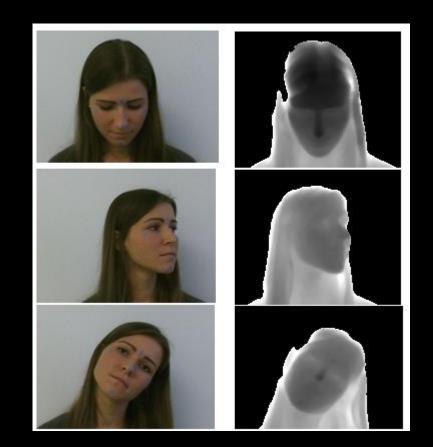- Not all frames labeled due to occlusions of markers

The vectors that were used

Examples from the database

Cutouts from the database, for rows as (pitch, yaw, roll) :
(-32,0,3), (2,-49,2) and (3,-1,-39)

The database will be used of one of the two track competitions at FG 2017:

Joint Challenge on Dominant and Complementary Emotion Recognition Using Micro Emotion Features and Head-Pose Estimation (DCER&HPE)

Very soon:
-Start of emotion and head pose challenges
-Call for papers on facial analysis for FG associated workshop

Thank You