### Objective: Self evaluation methods for vision algorithms

**Input**

Human Pose Estimation (HPE) Algorithm

**Output**

HPE score: 8.1

### Features

**Correct outputs**

- Sharp
- Thin
- Unimodal
- Multi-modal

**Wrong outputs**

- Broad
- Spread out

#### Step I: Decompose distribution into $X$, $Y$ and $\theta$.

#### Step II: Convolve with ideal distributions.

#### Step III: Find maximum and variance of convolution

### Auxiliary Information

- $\hat{X}_i$ (output pose estimate)
- $X_i$ (ground truth)
- Similarity score between $\hat{X}_i$ and $X_i$

#### Marginal distribution based

- # features = 6 parts * 3 components * 2 measures = 36

#### Bounding box based

- a) Area of extended bounding box outside the image.
- b) Area of intersection with other bounding boxes.
- c) Mean image intensity and gradient strength

### Experiments

**New datasets introduced with annotations**

- Two new datasets: Buffy2 and movie stickmen

#### Performance of HPE Algorithms

- CPC (threshold 0.3) as similarity measure

#### Performance of Self Evaluators

- Percentage false negatives
- Percentage false positives

### Example classifications (test set)

- Correctly Classified good pose estimates
- Correctly Classified bad pose estimates

### References

Eichner and Ferrari 09

Yang and Ramanan 11

Correctly Classified good pose estimates

Correctly Classified bad pose estimates