This paper proposes an automatic method for predicting the inter-observer visual congruency (IOVC). It reflects the congruence or the variability among different subjects looking at the same image.

**A. Measuring the inter-observer congruency**

Eye tracking experiment:

**B. System overview**

**C. Feature extraction**

1. Face detection
2. Color Harmony [1]
3. Depth of Field
4. Scene complexity
   - Entropy
   - Number of regions
   - Amount of contours

**D. Results**

Pearson correlation coefficient between predicted values and ground truth (MIT database [2]):

\( r(2004)=0.34, p<0.001 \)

For the Visual Clutter [4], \( r(2004)=-0.08, p<0.04 \)

Pearson correlation coefficient (Le Meur database [3]):

\( r(54)=0.24, p<0.17 \)

For the Visual Clutter, \( r(54)=-0.15, p<0.43 \)

**E. Application to image ranking**

Goal: use the predicted IOVC to organize a collection of picture. Below 49 pictures ranked according to the predicted IOVC.

We proposed a new criterion to automatically estimate the visual congruence between observers. We have evaluated our method qualitatively and quantitatively. The predicted IOVC can be used in image processing applications where the visual perception of a picture matters such as website design, advertisement. For instance, we considered ranking personalized photograph: pictures are sorted out in function of their predicted IOVC.