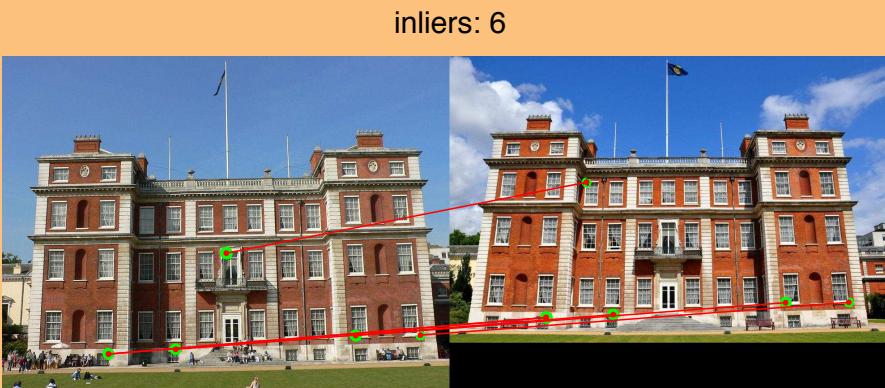
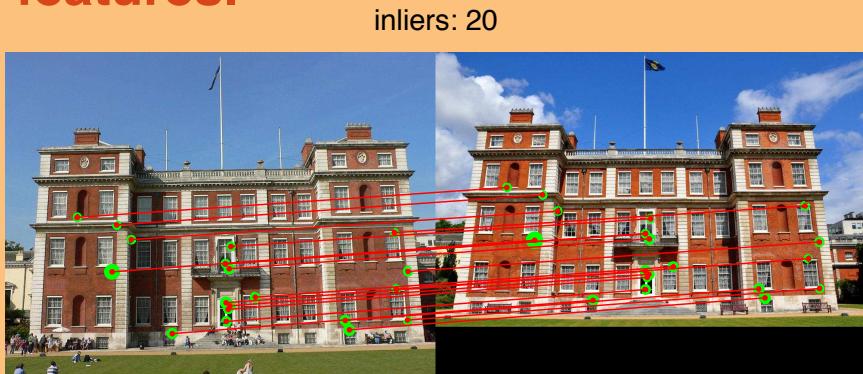


IMPROVEMENTS:

RANSAC



Initially RANSAC was used to estimate the affine transformation relating the visual words of two features.



This was replaced by a method called NOSAC which uses the scale of each visual word correspondence to improve the estimation of the transformation.



NOSAC

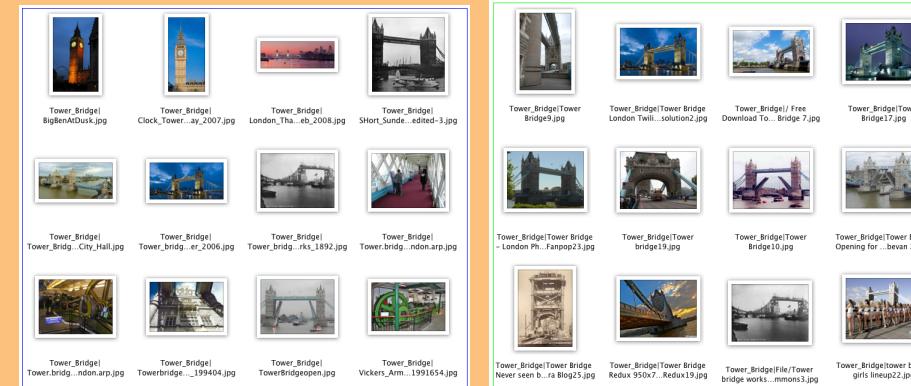
AFFINE INVARIANT

An affine invariant feature detector and descriptor was used. This means that features that are skewed due to changes in viewpoint can still be matched together. Each feature is now represented by an ellipse, with a pair of features being able to estimate a full affine transformation.

TURBO-BOOSTING

A novel method was developed to increase the information content of the database of Wikipedia images (called *model images*) by augmenting them with the visual words of images from Microsoft Bing (called *turbo images*).

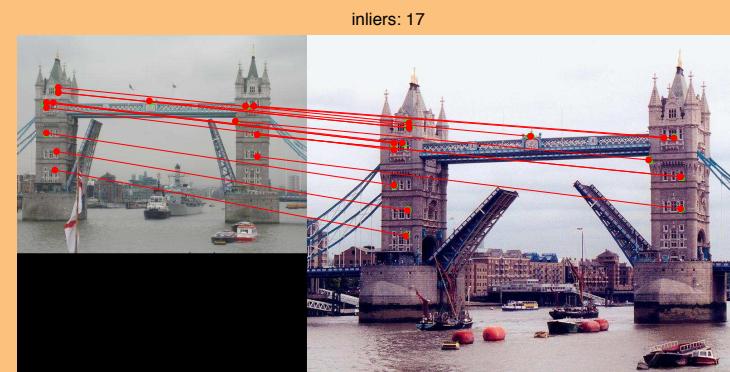
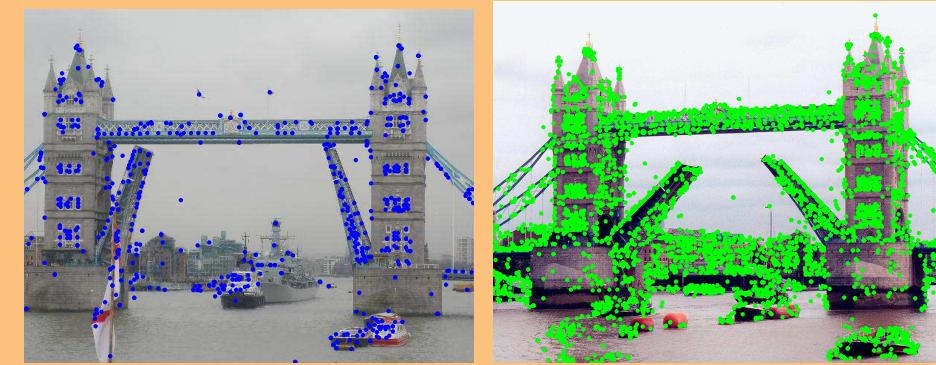
1. DOWNLOAD IMAGES FROM BING FOR EACH OBJECT



(a) Model images

(b) Turbo images

2. COMPARE EACH MODEL IMAGE WITH EACH TURBO IMAGE



(e) The turbo image is spatially verified with the model image

3. IF A MATCH, PROJECT THE WORDS FROM THE TURBO IMAGE ON TO THE MODEL IMAGE

