

Documentation of Object Search Demo:

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Before everything, please put the query images in folder "Query", and put test image folder in folder "images". So that we can find images, e.g., "Query/xx.jpg" and "images/1/xx.jpg".

There is a Macro called "PROCEDURE" in this code, and it represents which program we want to run.

If you want to get a new codebook, you need to do step 1 and step 2, otherwise jump to step 3.

1. Run the program when defining PROCEDURE to be 10. This step will write the descriptors of extracted key points into a file, called **"descriptors.dat"**.

The program will also print out how many descriptors or key points have we extracted in total. The SURF descriptor of a key point is 64 dimensional, not 128.

2. I gave this "descriptor.dat" to Zhang Zhi, and he wrote a program to do k-mean clustering, and returned me with a file called "centers_10000.bin", which is 10000 cluster centers clustered from these key points.

I will ask him for this code and deliver it to you, so that you can use new data to derive the cluster centers, or you can get a different number of cluster centers.

Now assume we have file **"centers_10000.bin"**.

3. Run the program when defining PROCEDURE to be 14.1.

This will pre-extract key points for the query image set.

We will know the (x,y,ID) of the extracted key points, and we know its descriptors. ID means which cluster center it belongs to.

After this, we get a file called **"query_ipts.dat"** in the root directory.

4. Run the program when defining PROCEDURE to be 14.2.

This will pre-extract key points for the test image set.

Same as step 3, we will know the (x,y,ID) of the extracted key points, and we know its descriptors.

After this, we get a file called **"test_ipts.dat"** in the root directory.

5. Now we can test querying an image patch.

Run the program when defining PROCEDURE to be 16.4.

This program will let us choose an image from the query folder, and select an ROI from it, after which it finds the best-matched patch from the test images.

Images will be output into folder "ouput".