**SIFT**

- Purpose of the code

This code implements SIFT descriptor using the function provided by OpenCV. This code is written by three steps. First, just use the nearest neighbors for input images. Second, use nearest neighbor with refining the feature matching results using cross-checking. Third, apply nearest neighbor with refining the feature matching results using both corss-checking and ratio-based thresholding.

- Environment

visual studio 2019 with opencv 2.4.13.6

- How to run this code

```
cl SIFT-skeleton.cpp
```

- How to adjust parameters

to change input image: edit "input.jpg"

```
Mat input1 = imread("input1.jpg", CV_LOAD_IMAGE_COLOR);
Mat input2 = imread("input2.jpg", CV_LOAD_IMAGE_COLOR);
```

to change the threshold used in ratio based thresholding: edit the value of "RATIO_THR"

```
#define RATIO_THR 0.4
```

to adjust feature detector value : edit parameters in "detector"

```
FeatureDetector* detector = new SiftFeatureDetector(
                    0,                  // nFeatures
                    4,                  // nOctaveLayers
                    0.04,       // contrastThreshold
                    10,                 // edgeThreshold
                    1.6                 // sigma
            );
```