COMPUTER VISION – LAB 6

Computer Vision 2018 - M. Carraro, S. Ghidoni, Y. Zhao, P. Zanuttigh, G. Agresti

Topics: Keypoints, Descriptors and Matching

Goal: Find the instances of an object in a scene using the keypoint descriptors

Write the `ObjectDetection` class that, given a train image of an object, finds the instance of that object in another, richer, scene. As a plus, the class can extend the `PanoramicImage` class developed during the Lab5. The `ObjectDetection` class should provide methods for:

1. Computing the training keypoints and descriptors from the object train image. You can use the SIFT detector as in Lab5.
2. Computing the testing keypoints and descriptors from a scene image.
3. Computing the matches between the training and testing descriptors. The match can be the same done during the Lab5.
4. Drawing the BoundingBox of the object instance in the scene image, if found. To compute this, consider to use the `cv::findHomography()` method. DIfferently from Lab5, you should now be interested in the return value of the method and not in the mask. To draw the Bounding Box consider that the homography can be applied to a set of points with `cv::perspectiveTransform()`.

Write a program to test the previous class. The program should:

1. Create an instance of the `ObjectDetection` class for each *"obj<n>.png"* provided in the data folder.
2. Test each instance of each scene *"scene<i>.png"* provided in the data folder.
3. Display the results.

As a metric, your solution is considered good if you are able to find at least 80% of the objects.

OUTPUT SAMPLE: