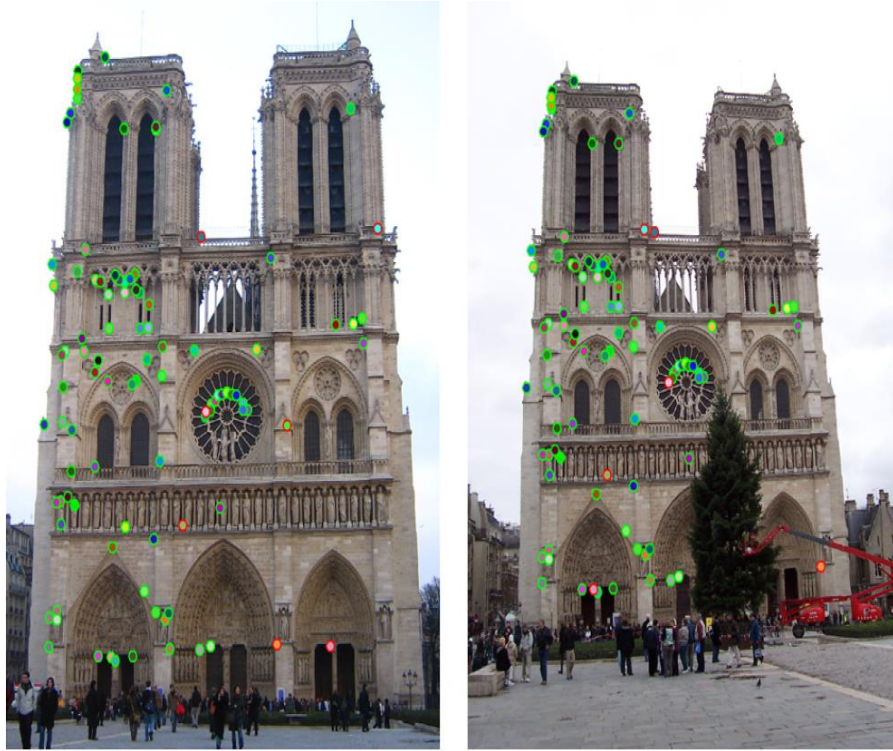


Assignment 5: Local Feature Matching SIFT

Dated: March 23, 2020, submission due: March 26, 2020, Marks=30



We have studied about the SIFT feature detector in the last classes. In this assignment you have to develop landmark classification algorithm using SIFT detectors. The important part of the detector is scale invariance.

In this assignment you will develop a database of images capturing scenes around you, it may be the front portion of your house capture at different angles. IF you are strictly inside you may use the photos of various rooms like living room, dining room, or bedroom, or lawn, anything having relevant features.

For example:

Train Set



Test Set



How to do?

1. Initially develop a SIFT feature extractor.
2. Work on Train Images Set
 - Read images from train database, resize them to a standard size of your choice. Assign category/labels to each image belonging to same set.
 - For example: Each **train images** of India gate will be assigned label =1, all gateway images label=2.
 - Then extract SIFT features for each train image, [finally represent it as 1-D column vector].
 - Build a ***Train_features_database*** of size [MxN], where M is the size of feature vector and N is the total no. of images, here N=6 (3 Gateway+India Gate). Note there will be associated label vector also for example here it would be TrainLabel=[1 1 1 2 2 2].
3. Work on Test Set
 - Assign label and Extract SIFT features similarly.
 - Calculate distance between this test_feature with all features in train_features_database // *Note study here about SIFT feature matching process*
 - Output the image and the label which best match is found.
4. Record Accuracy
 - Result is true if matched output label = assigned label.
 - Record overall accuracy of your system.

Sample Test and Train Database is attached for you reference. You must add images of atleast 10 categories.