

## Project 2: Local Feature Matching

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is it in the pic?

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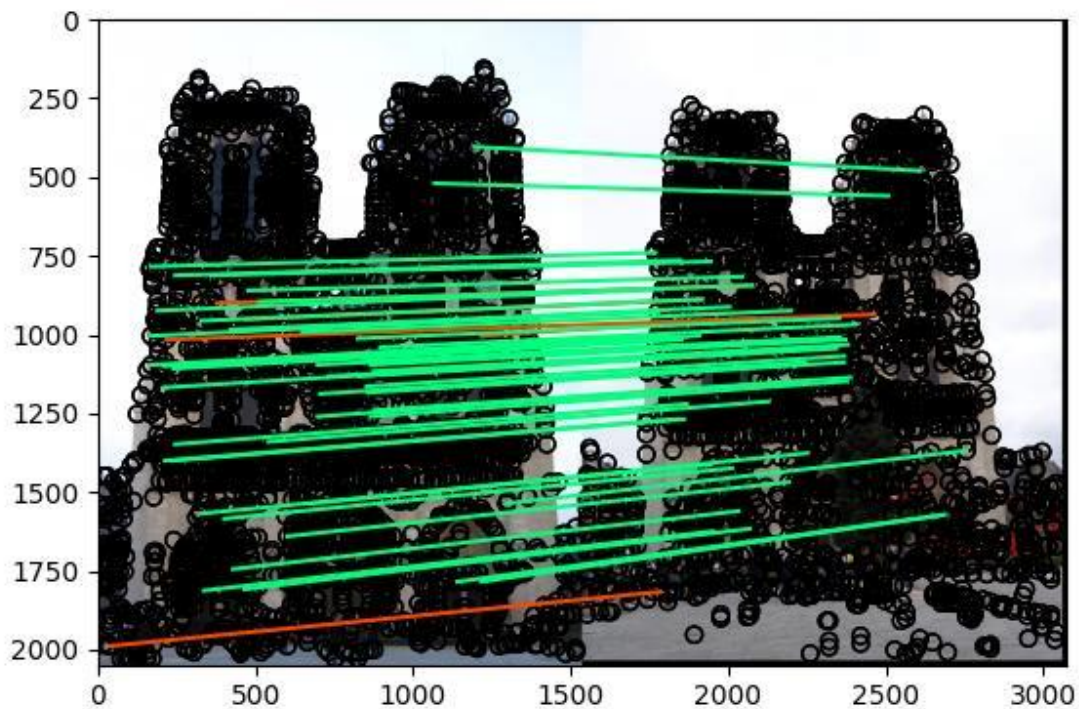
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In this project, we implemented the three major functions of Local Feature Matching:

- 1) `get_interest_points()`: Harris Corner Detector to get the points of interest after obtaining the gradient of the image and removing the noise from the image using Gaussian Filter.
- 2) `get_features()`: It is a SIFT-like Local Feature Descriptor to get the features from the image.
- 3) `match_features()`: It is implemented using the nearest neighbor distance ratio test method of matching local features. The Euclidean Distance is found and then the nearest neighbor is obtained.

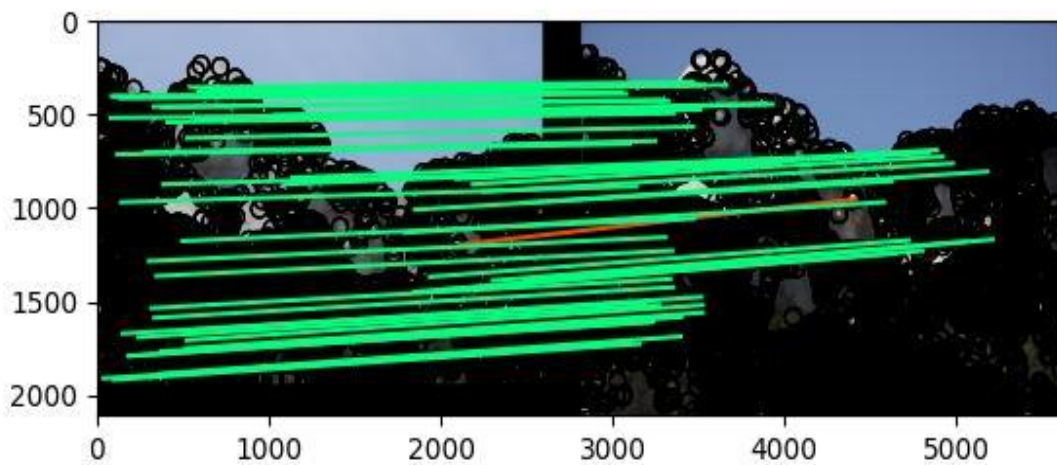
We tested our code on the three provided test cases and here are the results:

1) NotreDame:



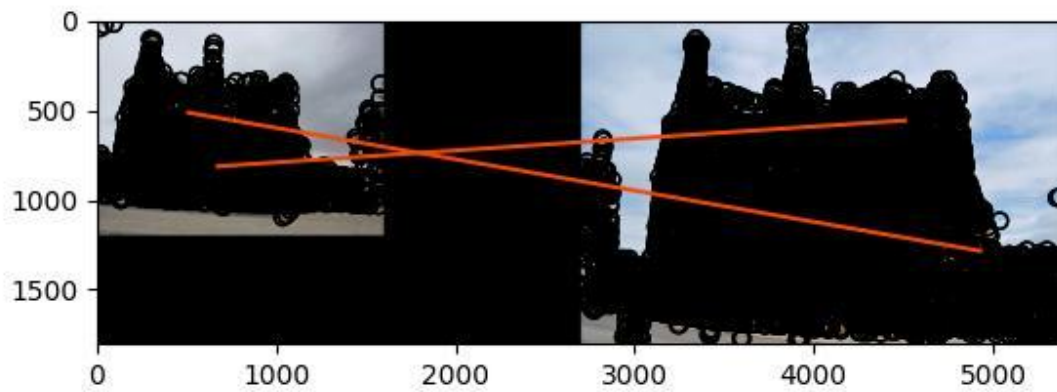
```
PS C:\Users\Ibrahim\Downloads\Compressed\drive-download-20220331T215828Z-001\code> python main.py -p notre_dame
Getting interest points...
Done!
Matches: 105
Accuracy on 50 most confident: 90%
Accuracy on 100 most confident: 81%
Vizualizing...
```

## 2) Mount\_Rushmore



```
PS C:\Users\Ibrahim\Downloads\Compressed\drive-download-20220331T215828Z-001\code> python main.py -p mt_rushmore
Getting interest points...
Done!
Getting features...
Done!
Matching features...
Done!
Matches: 138
Accuracy on 50 most confident: 98%
Accuracy on 100 most confident: 95%
Accuracy on all matches: 95%
Vizualizing...
```

### 3) EGaudi



```
PS C:\Users\Ibrahim\Downloads\Compressed\drive-download-20220331T215828Z-001\code> python main.py -p e_gaudi
Getting interest points...
Done!
Getting features...
Done!
Matching features...
Done!
Matches: 2
Accuracy on all matches: 0%
Vizualizing...
```