Simon Fraser University

CMPT 742: Practices in Visual Computing, Fall 2020

Assignment #2

For
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By
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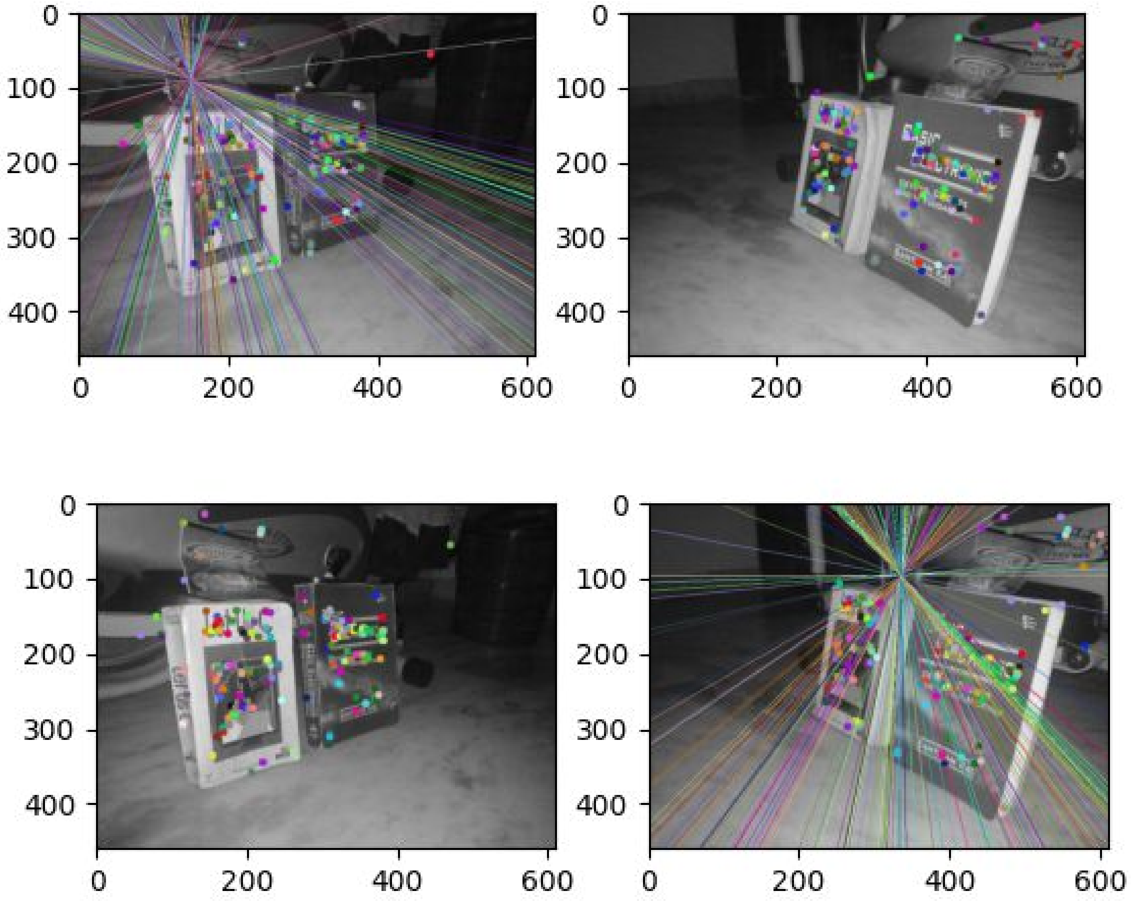
1. Before running the main.py, install all the openCV libs:

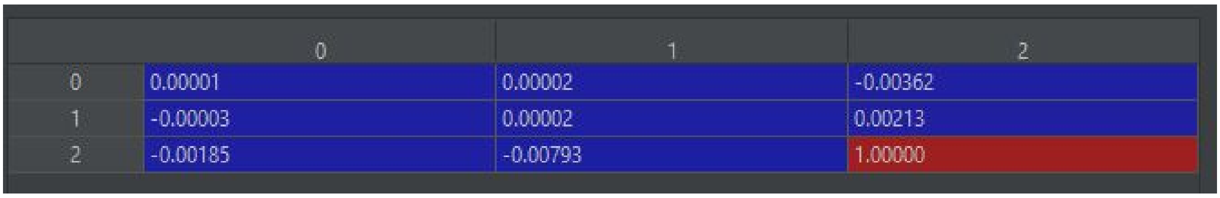
```
pip install opencv-python==3.4.2.16
pip install opencv-contrib-python==3.4.2.16
```

2. Normalized 8-Point Algorithm

1. **myLeft.jpg** & **myRight.jpg**

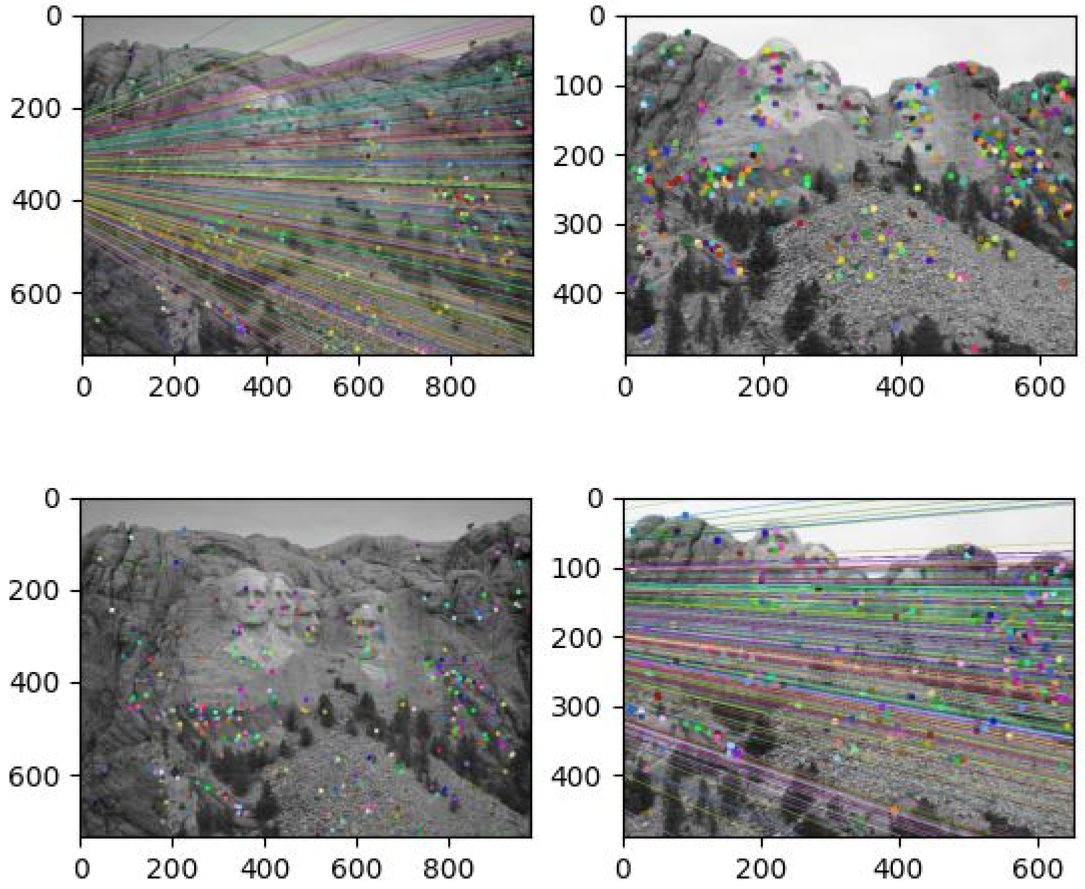


Fundamental Matrix

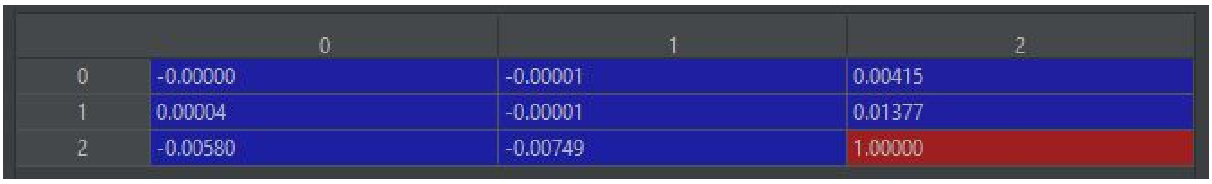


	0	1	2
0	0.00001	0.00002	-0.00362
1	-0.00003	0.00002	0.00213
2	-0.00185	-0.00793	1.00000

2. **rockTop.jpg & rockBottom.jpg**

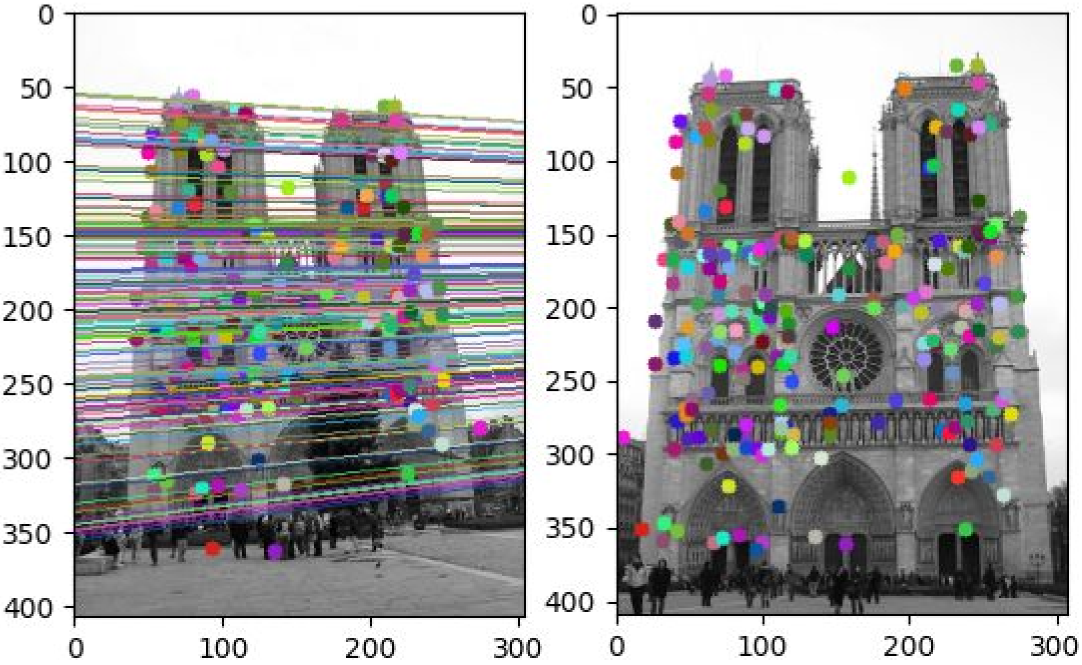


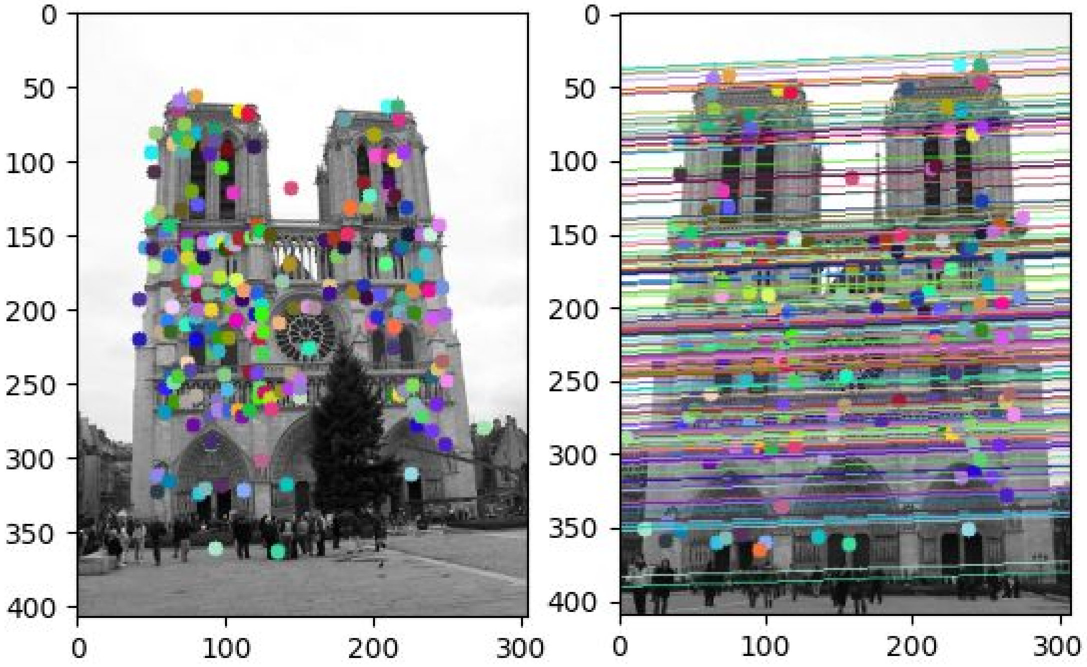
Fundamental Matrix



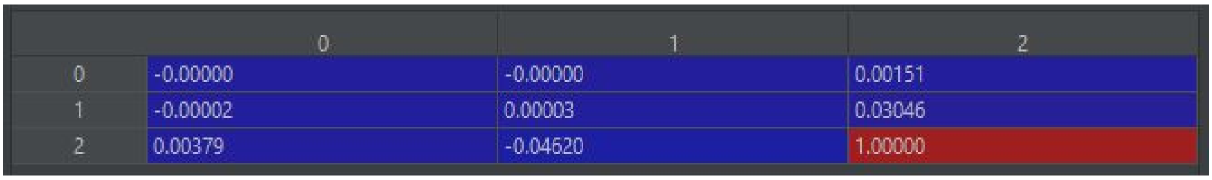
	0	1	2
0	-0.00000	-0.00001	0.00415
1	0.00004	-0.00001	0.01377
2	-0.00580	-0.00749	1.00000

3. **towerLeft.jpg & towerRight.jpg**





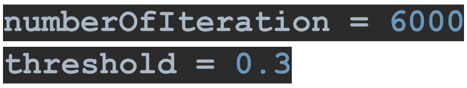
Fundamental Matrix



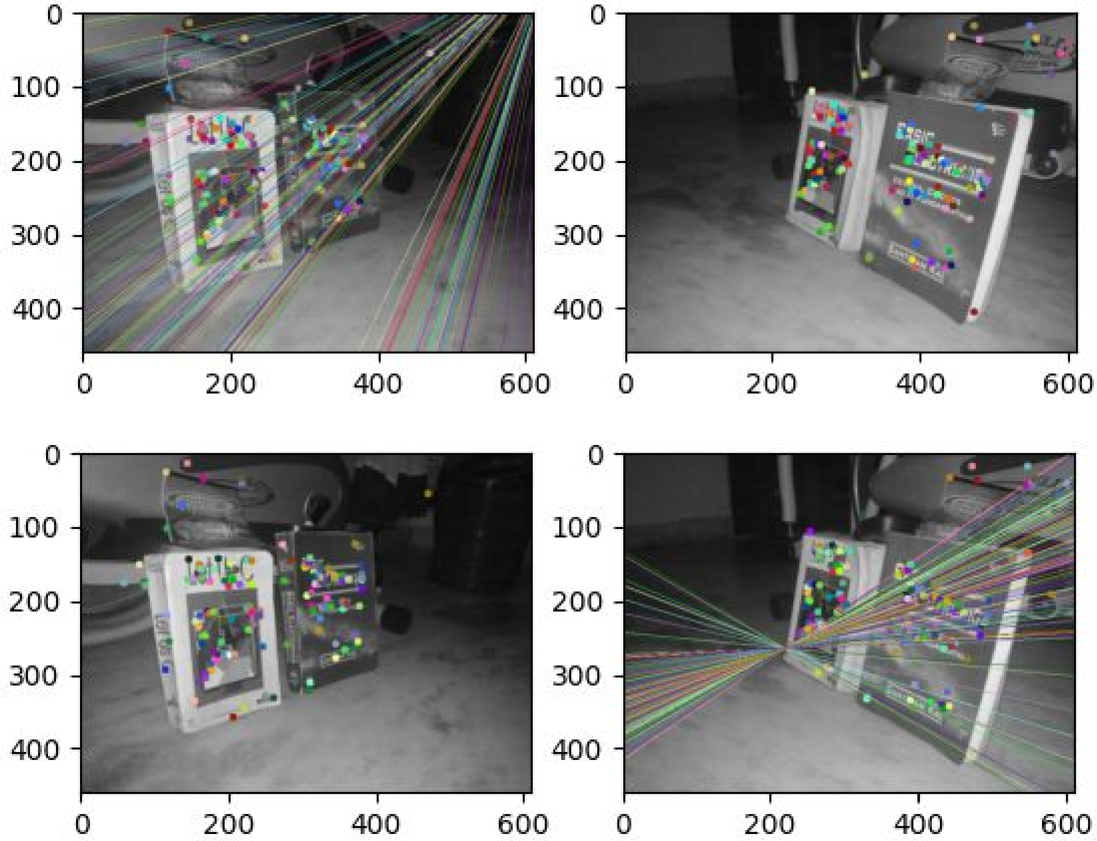
	0	1	2
0	-0.00000	-0.00000	0.00151
1	-0.00002	0.00003	0.03046
2	0.00379	-0.04620	1.00000

3. RANSAC

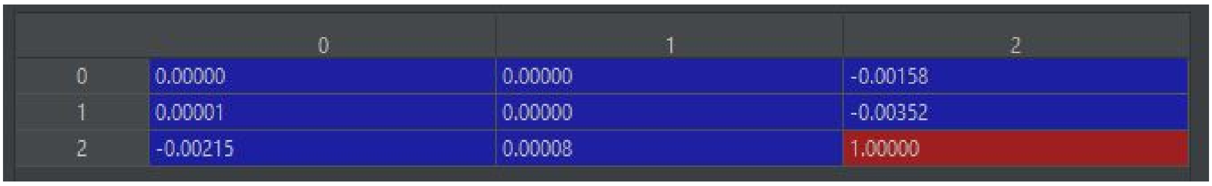
1. **myLeft.jpg** & **myRight.jpg**



```
numberOfIteration = 6000
threshold = 0.3
```



Fundamental Matrix

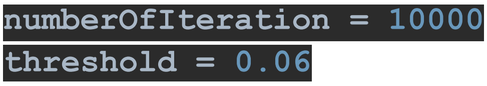


	0	1	2
0	0.00000	0.00000	-0.00158
1	0.00001	0.00000	-0.00352
2	-0.00215	0.00008	1.00000

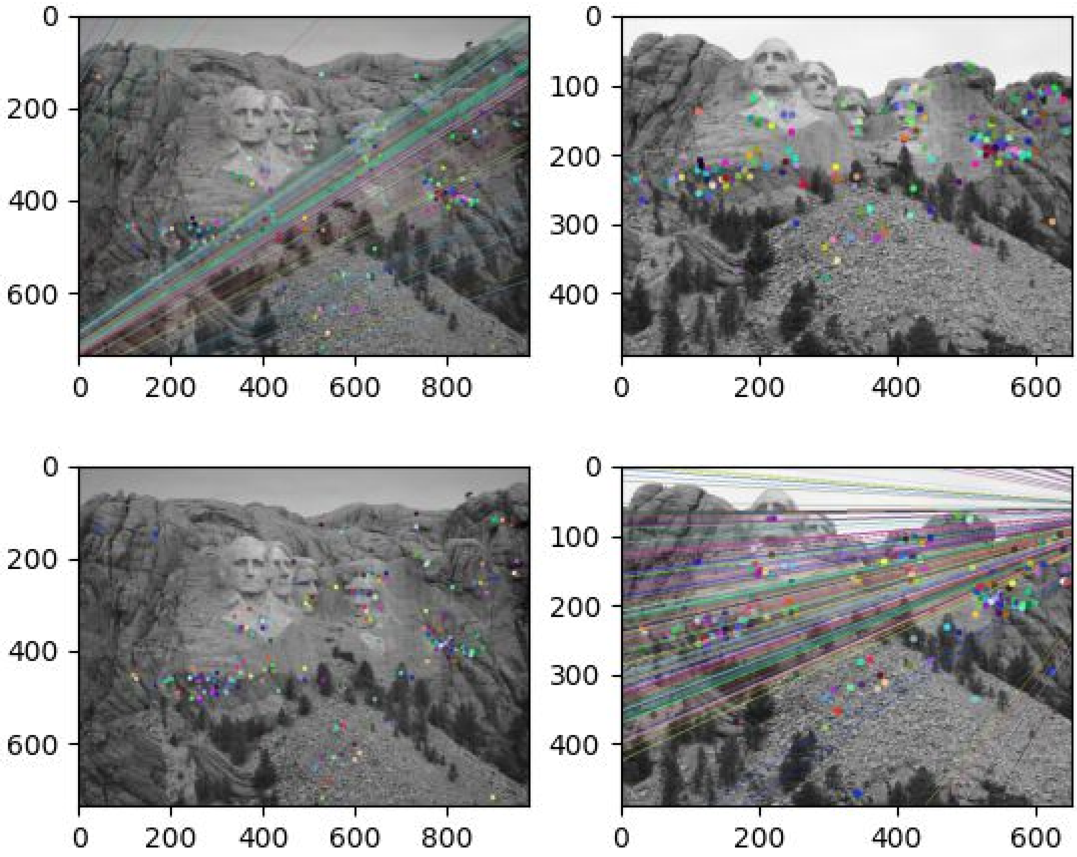
Mask

130 ones among 155 points

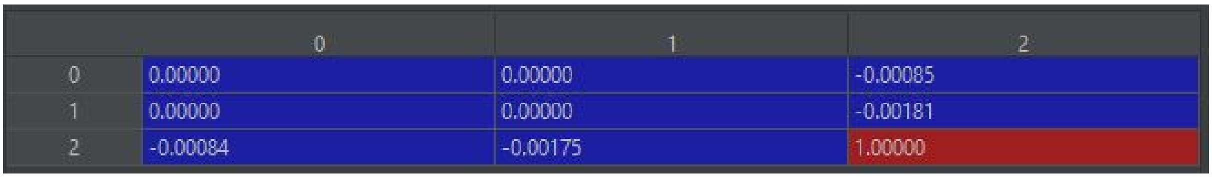
2. **rockTop.jpg & rockBottom.jpg**



```
numberOfIteration = 10000
threshold = 0.06
```



Fundamental Matrix



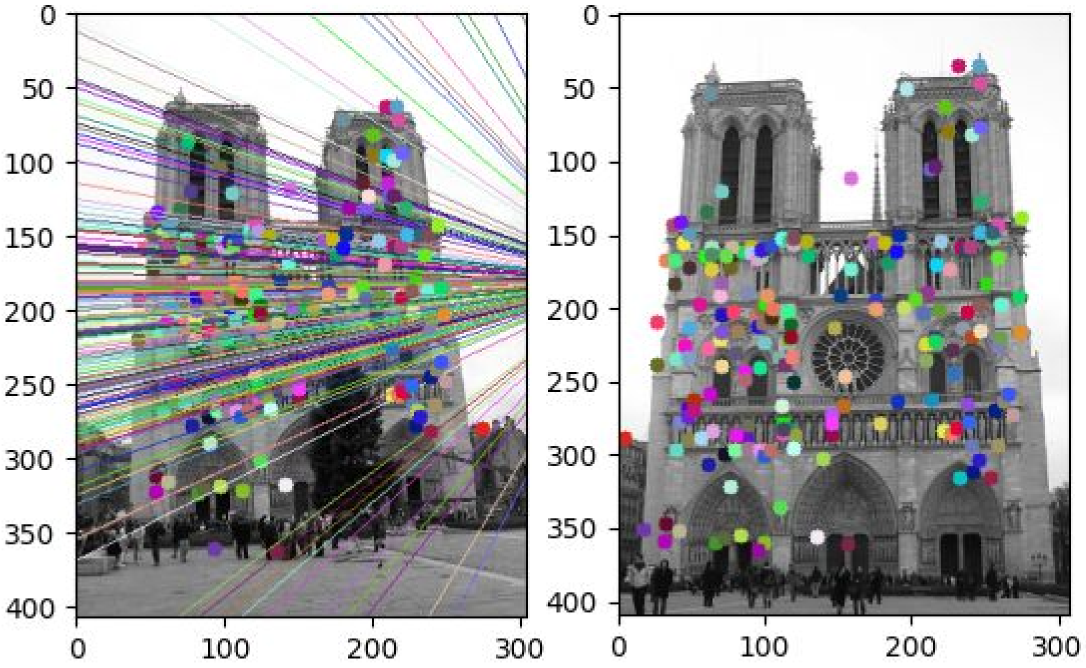
	0	1	2
0	0.00000	0.00000	-0.00085
1	0.00000	0.00000	-0.00181
2	-0.00084	-0.00175	1.00000

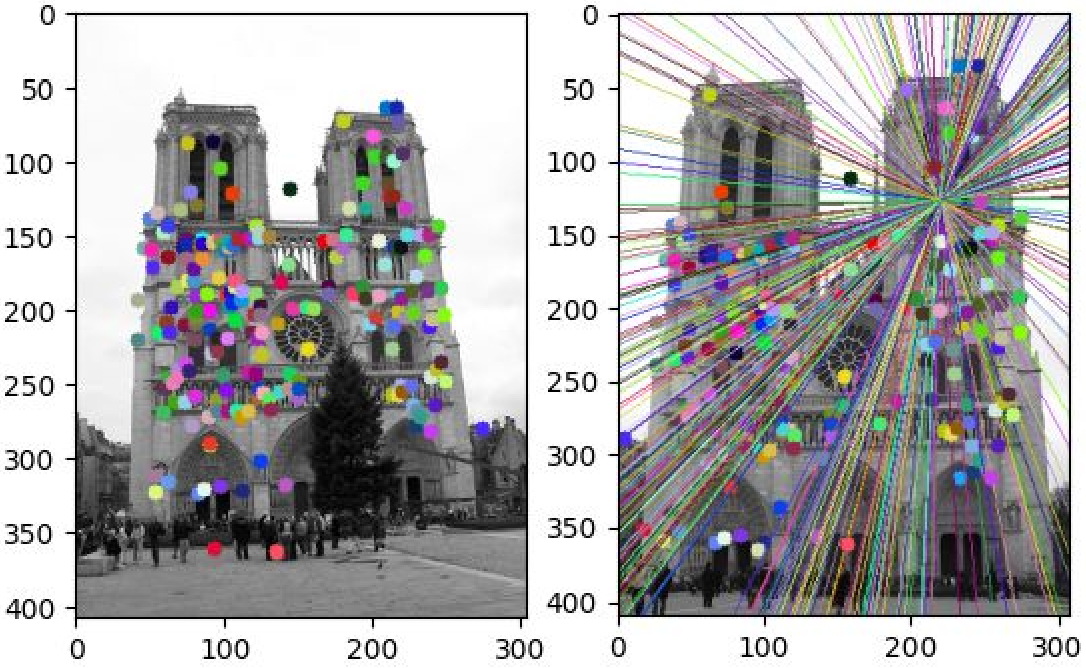
Mask

239 ones among 360 points

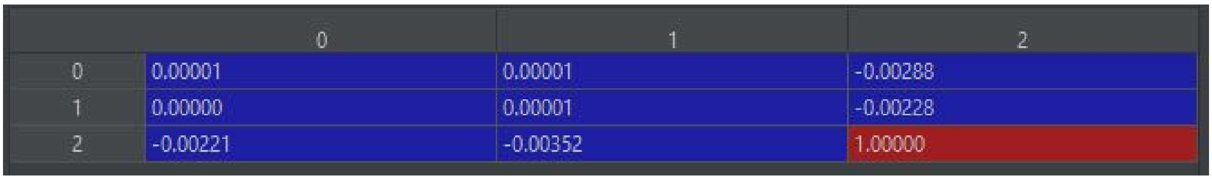
3. **towerLeft.jpg & towerRight.jpg**

```
numberOfIteration = 10000
threshold = 0.2
```





Fundamental Matrix



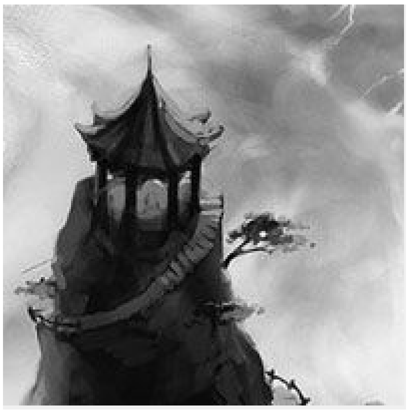
	0	1	2
0	0.00001	0.00001	-0.00288
1	0.00000	0.00001	-0.00228
2	-0.00221	-0.00352	1.00000

Mask

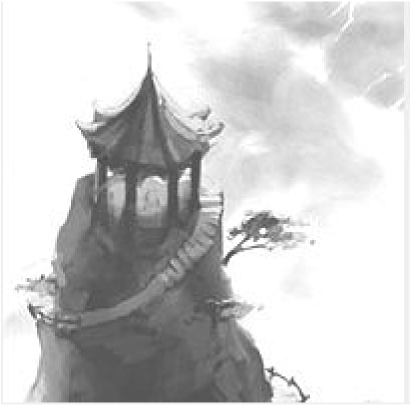
236 ones among 263points

Image Reconstruction

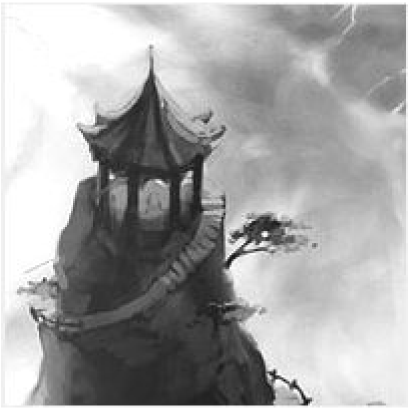
Ground truth



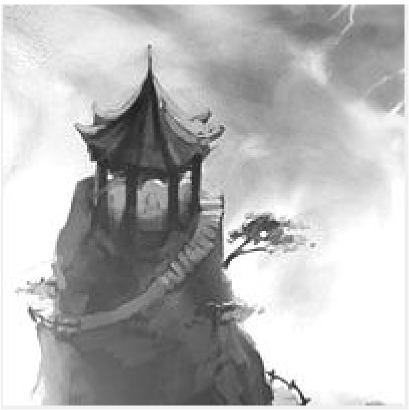
Globally brighter



Brighter on the left side



Brighter on the bottom side



Brighter on right bottom corner