

photo1 2009 homework 6  
relative orientation

find the photo1\_09\_hw6.zip file on ftp-site.

take two convergent photos of a scene/object with approximate  
base/height ratio of 0.15

measure 10+ conjugate points well distributed throughout the  
portion of your field of view that was covered by calibration  
targets.

enter these into left.txt and right.txt (examples below)

enter camera data into cam.txt (annotated example below)

run ro15.m (relative orientation by coplanarity)  
rms for x & y should be in the 1-2 pixel range  
look at relative magnitude or rmsx and rmsy.  
any explanation for the difference?

turn in output listing.

we will continue this next term to show some applications  
of oriented stereo pair.

-----  
[cam.txt]

```
Ni kon Coolpix L20      % text string describing camera
3648                    % image width
2736                    % image height
0                       % x0 (displacement from image center, pixels)
0                       % y0
4040                    % focal length, pixels
-0.26851241            % k1
 1.2105713              % k2
-1.2280079             % k3
2300                    % maxr as entered for hw5
```

[left.txt] - [sequence# x y] - x=column, y=row

```
1 601 1459
2 321 1183
3 1885 312
4 2968 629
5 2998 2179
6 2307 2210
7 2071 1256
8 1152 1206
9 2126 1007
10 1090 271
11 943 815
12 2570 1554
13 2464 1696
```

[right.txt]

```
1 647 1519
2 411 1263
3 1774 448
4 3032 734
5 2948 2295
6 2256 2291
7 1935 1349
8 1185 1297
9 2150 1115
10 1263 419
11 1076 933
12 2562 1657
13 2345 1787
```