

Project 4 Single Model View

Wenzhen Zhu

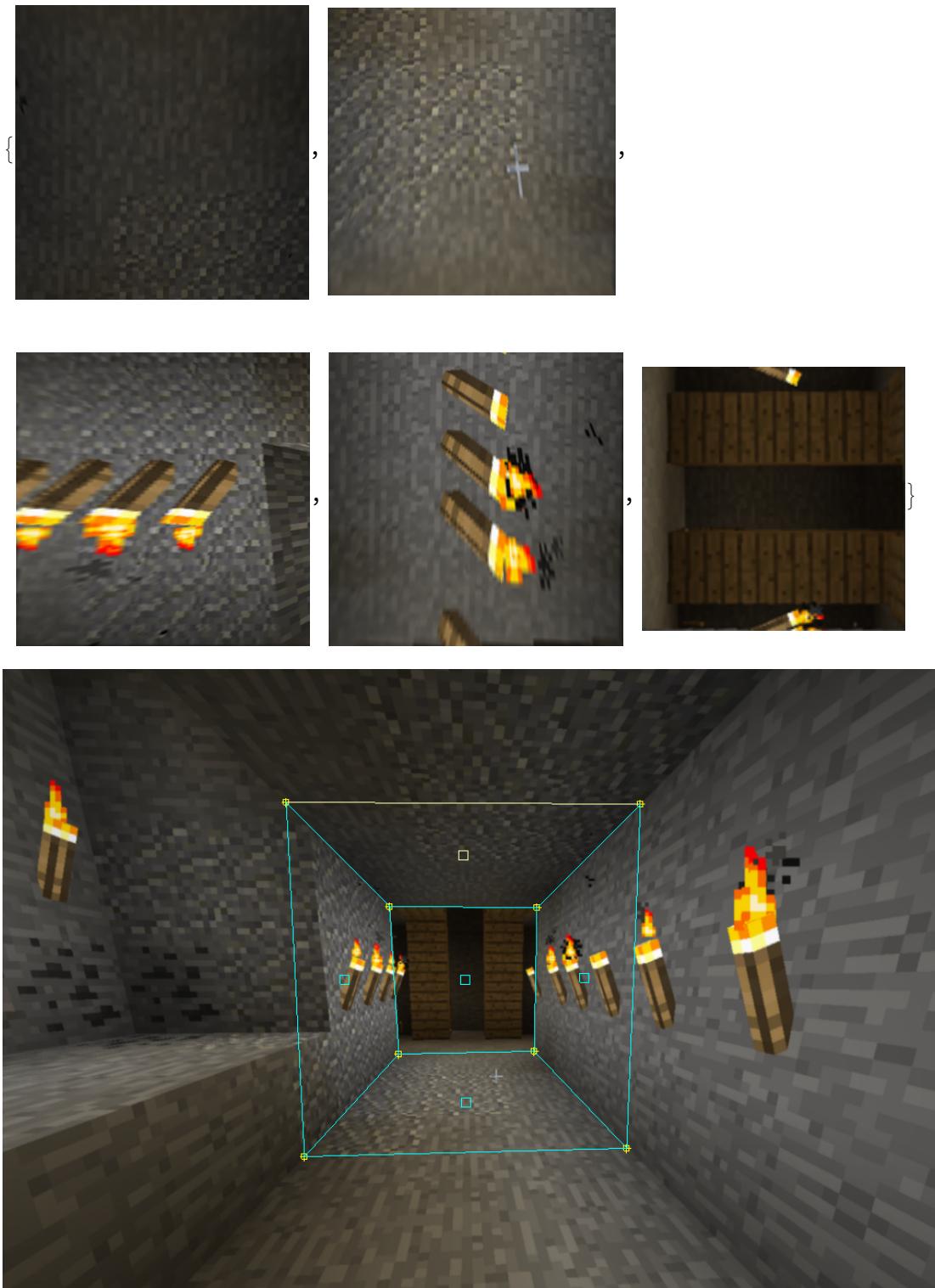
- Prof Yasu gave me 3 days extension.

```
dir = NotebookDirectory[];  
m6 = ImageResize[Import[dir <> "m6.png"], {1600, 1000}]
```



```
Export[dir <> "m6.tga", m6]
```

```
Import[dir <> # <> ".tga"] & /@ {"top", "bottom", "left", "right", "back"}
```



Text outputs in a terminal when you selecte “Tools->Compute_VPs” and “Tools->Compute Homography”.

```
eigenvector associated with smallest eigenvalue:  
0.999268
```

```

0.021503
0.031626

eigenvector associated with smallest eigenvalue:
-0.050864
0.154503
0.986682

eigenvector associated with smallest eigenvalue:
-0.078485
0.991299
0.105667
VANISHING POINTS
xvp=[21337.818841 941.945652] yvp=[766.491926 601.782482] zvp=[317.208492 6597.893278]

eigenvector associated with smallest eigenvalue:
0.146684
-0.425558
0.661146
0.006475
-0.334463
0.498359
0.000007
-0.000554
0.000952

H=[  

 1.540838e+02 -4.470267e+02 6.945000e+02;  

 6.801941e+00 -3.513356e+02 5.235000e+02;  

 7.221161e-03 -5.816174e-01 1.000000e+00;  

]  

Hinv=[  

 9.171019e-04 -8.434062e-04 -1.954041e-01;  

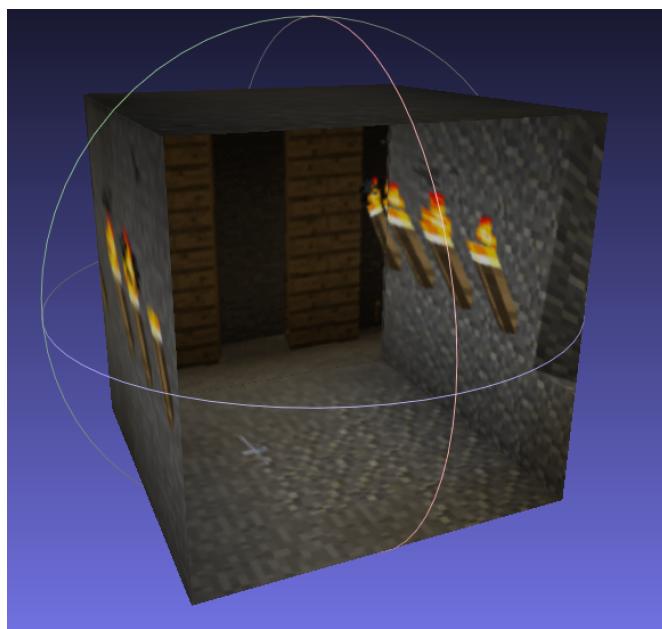
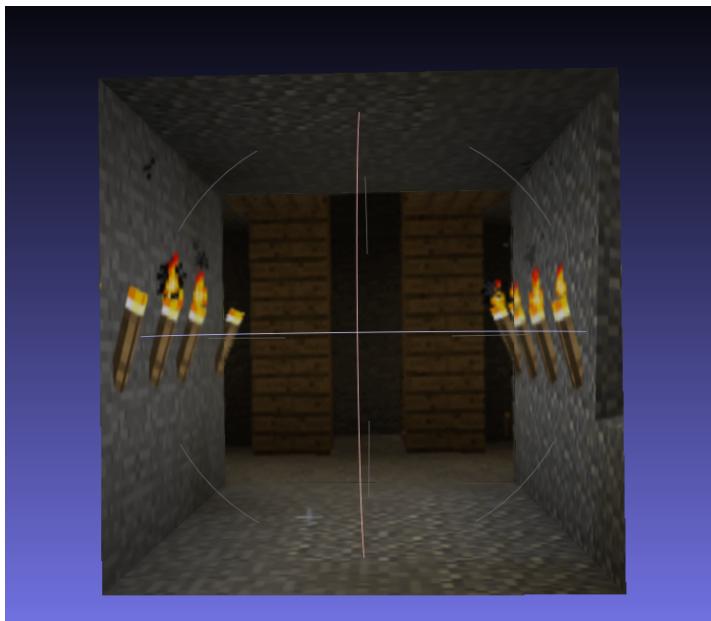
 5.913875e-05 -2.917511e-03 1.486245e+00;  

 2.777358e-05 -1.690785e-03 1.000000e+00;  

]

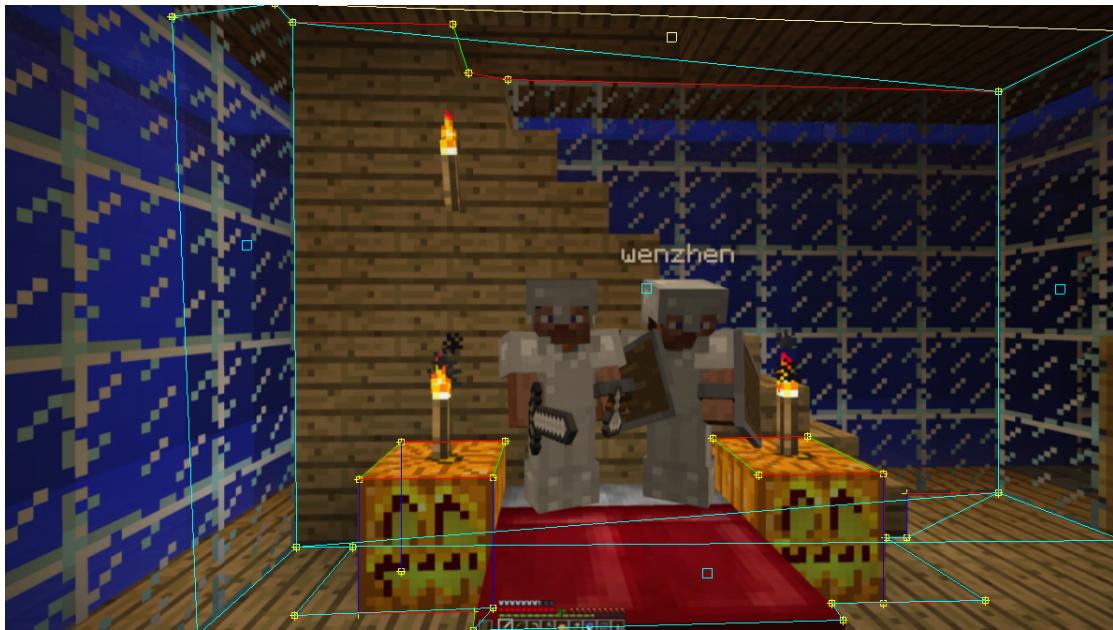
```

3D mesh:

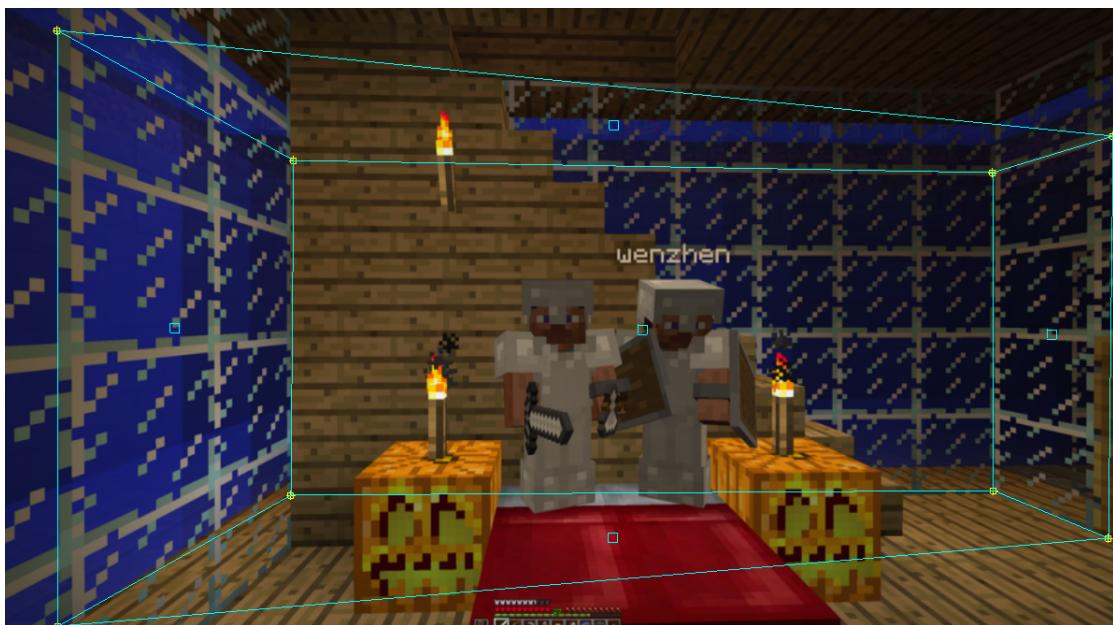


Another one:

This one is hard to partition.



I only succeed to make a simpler one:



eigenvector associated with smallest eigenvalue:

```
0.999965
0.007812
-0.002910
```

eigenvector associated with smallest eigenvalue:

```
0.069047
-0.008535
0.997577
```

eigenvector associated with smallest eigenvalue:

```
0.004093
0.999967
0.007065
```

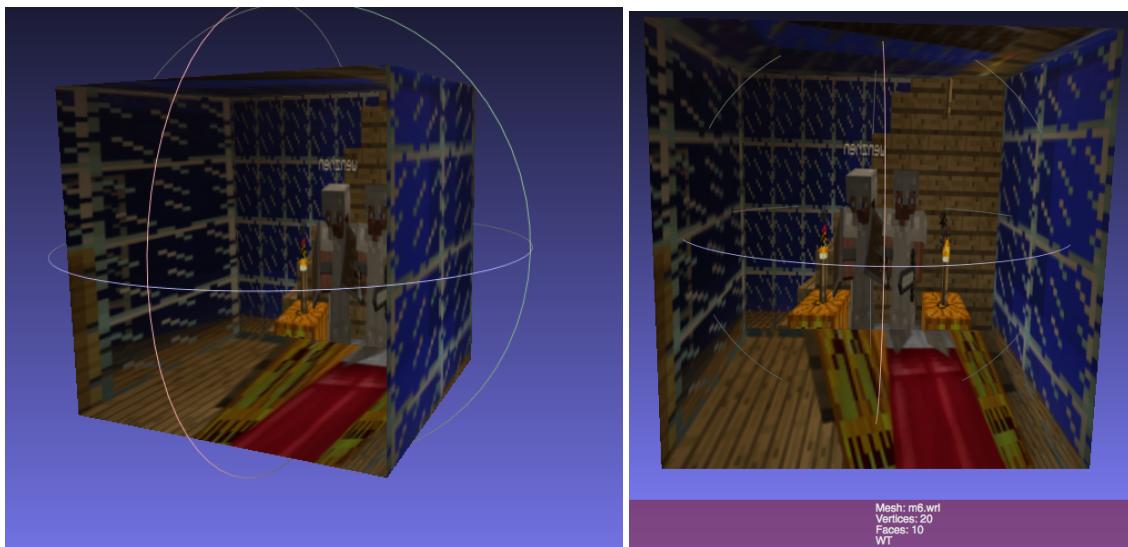
VANISHING POINTS

```
xvp=[-160200.571429 -919.254464] yvp=[632.392704 332.995708] zvp=[871.143687 66574.146589]
```

eigenvector associated with smallest eigenvalue:

```
0.963245
-0.151900
0.172185
0.081860
-0.078551
0.081028
0.000517
-0.000238
0.000547
```

```
H=[  
1.759389e+03 -2.774484e+02 3.145000e+02;  
1.495200e+02 -1.434746e+02 1.480000e+02;  
9.445751e-01 -4.343263e-01 1.000000e+00;  
]  
Hinv=[  
3.754288e-04 -6.677270e-04 -1.924877e-02;  
4.609229e-05 -6.932281e-03 1.011482e+00;  
-3.346016e-04 -2.380154e-03 1.000000e+00;  
]
```



Extra Credit

Coordinates of camera is same with solution. But I am unable to show either of them on MeshLab

successfully.

The screenshot shows a Mac OS X terminal window with two tabs. The top tab is titled "src — svm — 80x24" and contains the following text:

```
-3.346016e-04 -2.380154e-03 1.000000e+00;
]
num of points: 9
num of lines: 10
num of polygons: 5
```

The bottom tab is titled "src — svm_sol_mac — 80x13" and contains the following text:

```
Last login: Sat Nov 12 06:34:58 on ttys003
[24-107-23-13:~ wenzhen$ cd /Users/wenzhen/Dropbox/2_Society/WUSTL/cse559a/projects/ProjectPackage_4/src
[24-107-23-13:src wenzhen$ ./svm_sol_mac
num of points: 9
num of lines: 10
num of polygons: 5
num of boxes: 0
divide by zero error
Calculated new coordinates for point: (0.000000e+00, 1.000000e+00, 4.674905e-01)
Calculated new coordinates for point: (5.363759e-01, 1.747828e+00, 0.000000e+00)
Camera is at [ 0.536 1.748 0.467 ]
Calculated new coordinates for point: (0.000000e+00, 1.000000e+00, 4.673030e-01)
Calculated new coordinates for point: (5.363759e-01, 1.747828e+00, 0.000000e+00)
Camera is at [ 0.536 1.748 0.467 ]
```