

CPSC425 A2

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October 10, 2018

1-3:

```
>>> main.demoShowPyramid()  
>>>
```

1-5: Threshold = 0.586

Missed

```
family: 1  
fans: 3  
judy: 1  
sport: 1  
student: 4  
tree: 0  
total = 10
```

False Positives

```
family: 0  
fans: 6  
judy: 1  
sport: 0  
student: 3  
tree: 1  
total = 11
```

1-6:

Recall Rate

```
family: 2/3  
fans: 0/3  
judy: 4/5  
sport: 0/1  
student: 23/27  
tree: 0/0
```

“fans” has low recall rate as there are either hoods which cause a dark silhouette around the face or hats, and the eyes are closed. In addition, 2 of the faces are not facing straight, so the template will match poorly.

“sport” has low recall rate as the face is of a man of African descent, which is unlike the template, which has a face of Caucasian descent. Since there is so much difference in the brightness level, the face will not be matched by the template.

“tree” is a degenerate case as there are no faces, and division by 0 is undefined

In general NCC is not rotationally invariant, adaptive to different brightness levels, or robust to partial occlusion. The above examples demonstrate the flaws of NCC.













