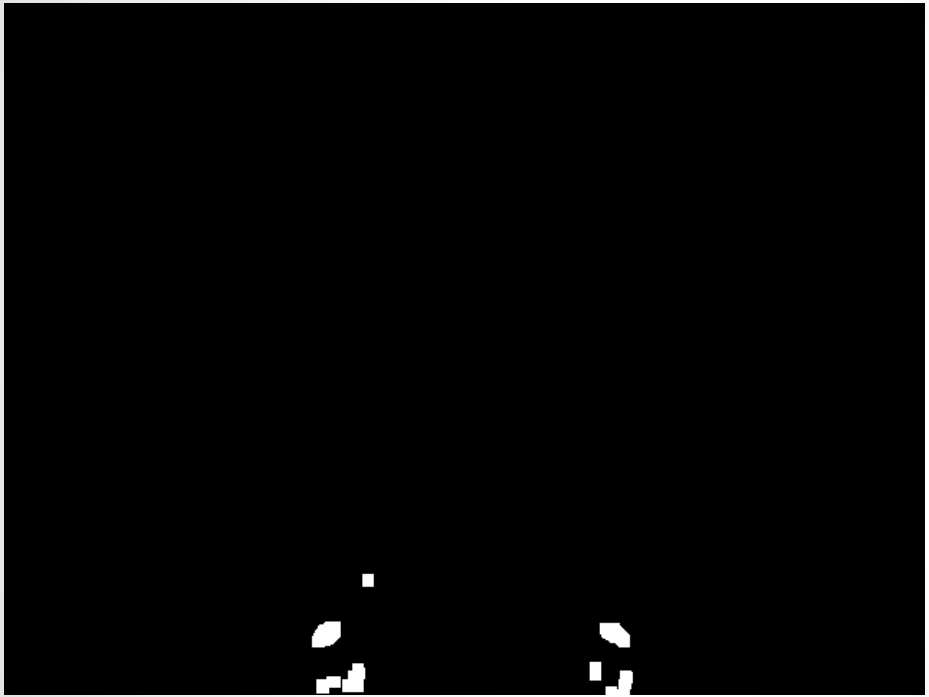
Computer Vision Sprint 2017 Problem Set #8

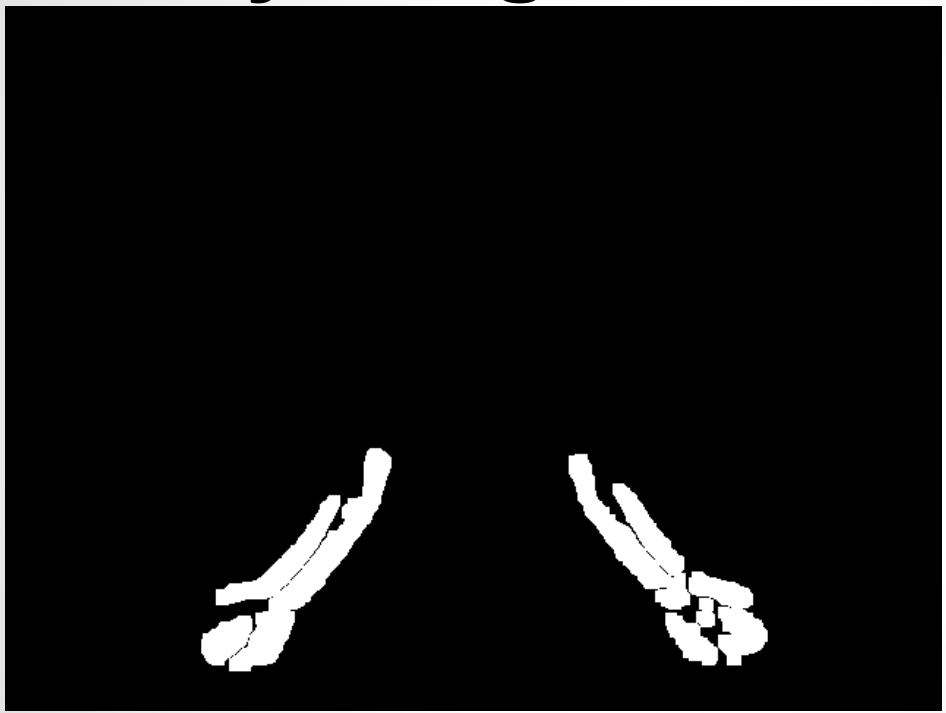
Nikhil Gajendrakumar
nikhil.g@gatech.edu

1a: Binary image for frame 10



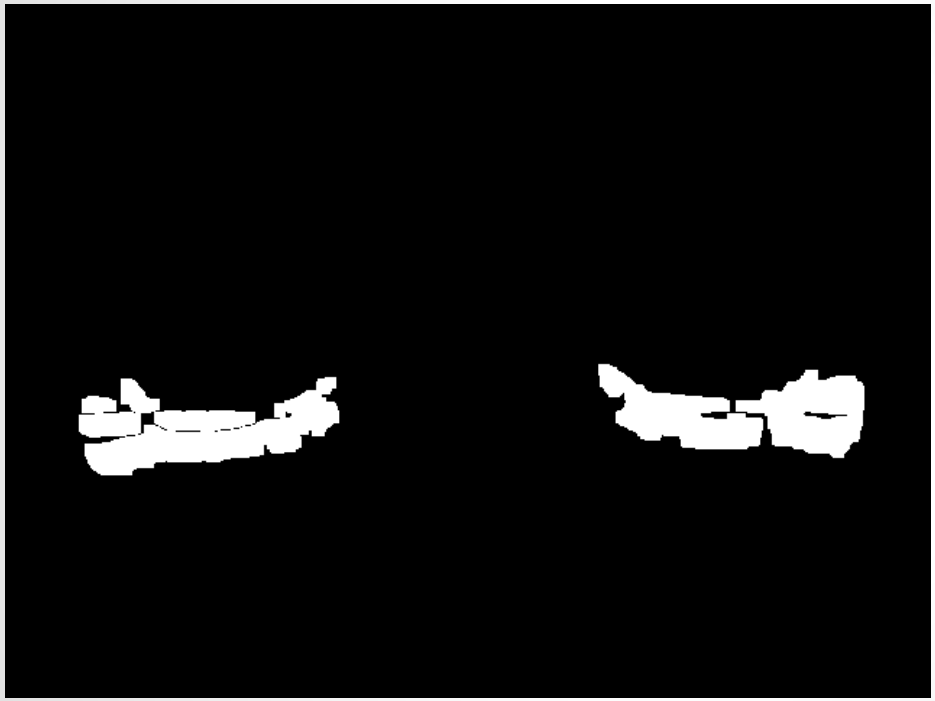
Binary image for frame 10 **- ps8-1-a-1.png**

1a: Binary image for frame 20



Binary image for frame 20 **- ps8-1-a-2.png**

1a: Binary image for frame 30



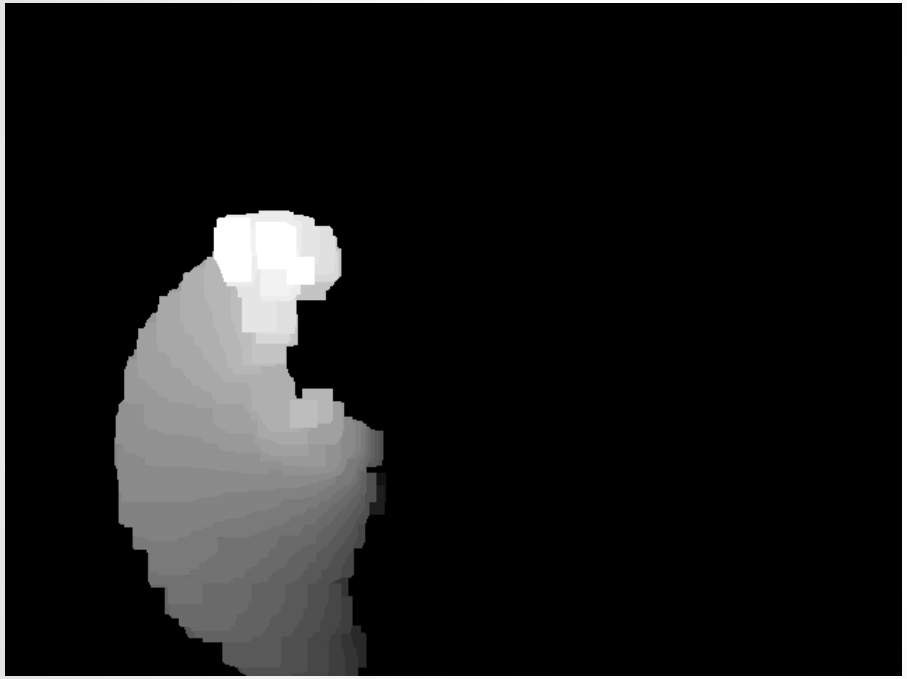
Binary image for frame 30 **- ps8-1-a-3.png**

1b: MHI image for action A1

MHI image for action A1 **- ps8-1-b-1.png**

$\tau = 55$

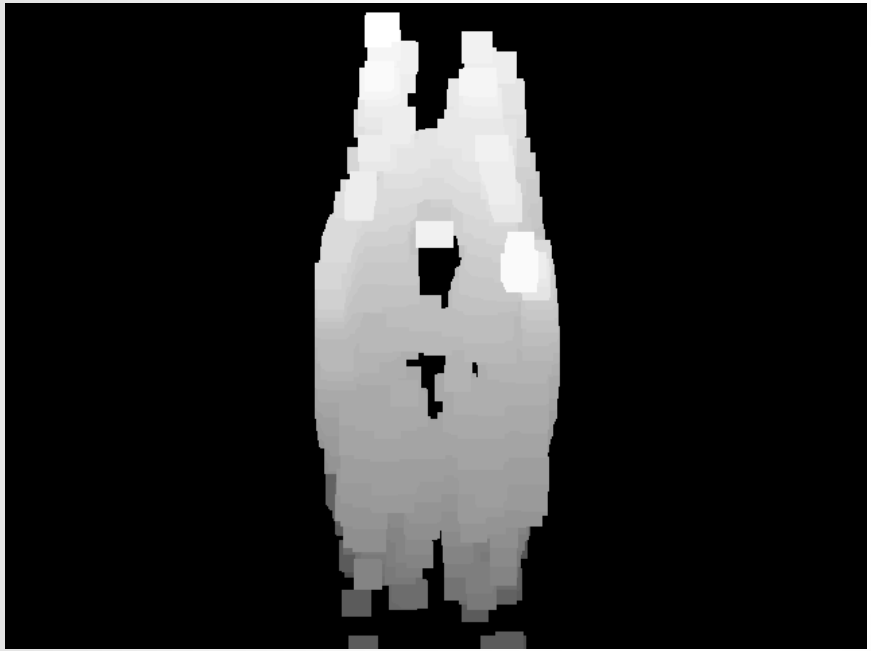
1b: MHI image for action A2



MHI image for action A2 **- ps8-1-b-2.png**

$\tau = 32$

1b: MHI image for action A3



MHI image for action A3 **- ps8-1-b-3.png**

$\tau = 45$

2a: The best confusion matrices you achieved

i) With unscaled central moments

1	0	0
0	1	0
0	0	1

ii) With scaled central moments

1	0	0
0	1	0
0	0	1

2a: The best confusion matrices you achieved

Description of any change made to the distance function (if required) to achieve this result:

As suggested in the comments of compute_feature_difference function, I calculated scaled L2 distance between the feature vectors

*scale * a - (1 - scale) * b*

With scale = 0.5

2b: The best confusion matrices you achieved

i) For P1

1	0	0
0	1	0
0	0	1

ii) For P2

1	0	0
0	1	0
0	0	1

ii) For P3

1	0	0
0	1	0
0	0	1

Description of actions required to achieve this result:

The trick to get a Identity confusion matrix is the cleaning process and theta value.
After hell lot of trial and error, I figured out erosion followed by dilate with kernel of size (12, 12) on a gray image, then thresholding it with a theta of 5.0 give the best result.

2b: Average of the confusion matrices

1	0	0
0	1	0
0	0	1