



Week 12

Stephan Boyer
UCF REU

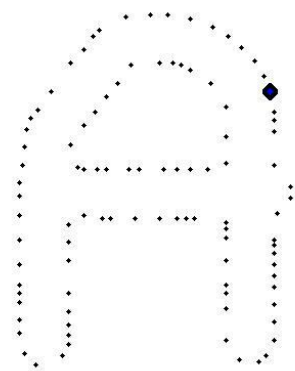
Updates

- Finished dataset
- Using shape context based feature descriptor
- Using support vector machines for classification (a bank of 1-v-1 SVMs, specifically)
- Finished website!

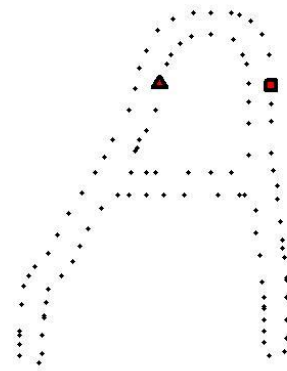
Problems Encountered

- There was little time to train the actors
- The recording environment was not optimal; side effects included leg amputations among other things. Reasons:
 - The color of the floor was apparently the same as the color of human legs
 - I noticed foreign elbows in some shots
 - Someone moved their backpack into the scene during a recording session (this interferes with background subtraction)
 - Chairs were also moved around
 - Stray shadows were cast into the scene
 - Doors opened and closed during recording (changing the lighting of the scene)

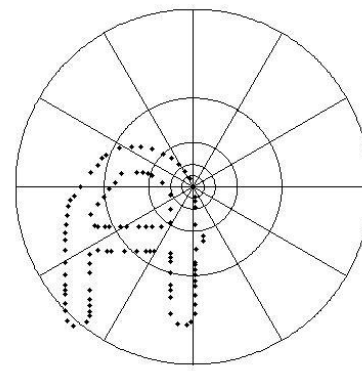
Shape Contexts



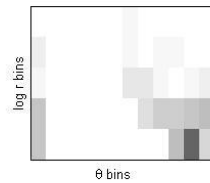
(a)



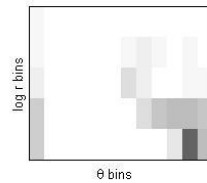
(b)



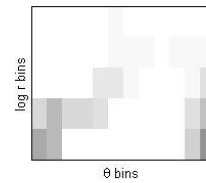
(c)



(d)



(e)



(f)

Confusion Matrix (Boyer)

38	1	0	1	0	2	0	2	0	1
0	30	2	0	1	0	0	5	0	0
0	2	34	4	1	0	0	0	0	0
0	0	1	33	0	0	0	0	3	0
0	0	0	0	25	5	0	8	1	0
1	3	1	1	9	32	0	3	4	2
0	0	0	0	0	0	39	1	3	0
1	4	2	0	4	0	1	20	1	0
0	0	0	1	0	0	0	0	22	8
0	0	0	0	0	1	0	0	5	29

Results

- Boyer: 75.8%
- Weizmann: 91.1%

Improvements

- Incorporate color, optical flow, and depth (currently only using shape)
- Replicate (Schindler and Gool '08) using Gabor filters