

Assignment 3

623.915 (20S) Content Search with Deep Learning

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Dataset

- Three videos with approx. 10 minutes in total per class
- Similar resolutions
 - Downloaded with 360p
 - Small differences due to aspect ratio
- Uniformly sampled every second to ensure similar number of keyframes
- 90% used as training data per class

Results

- Around 50% accuracy (depending on actual training set distribution)
- Sample output:

```
Calculated histograms for 615 frames in ./sports-1m/bmx/  
Finished 24.6493%  
Calculated histograms for 633 frames in ./sports-1m/marathon/  
Finished 50.02%  
Calculated histograms for 709 frames in ./sports-1m/parachuting/  
Finished 78.4369%  
Calculated histograms for 538 frames in ./sports-1m/skateboarding/  
Finished 100%  
SVM setup and training finished in 0.147694 seconds for 2244 elements  
Correct: 124 from 247 (0.502024)
```

Correctly Classified Results



Incorrectly Classified Results



Classified as marathon



Classified as bmx



Classified as parachuting

Conclusions

- Fast training but only moderate results
- Suboptimal training and test data
 - Raw keyframes uniformly sampled
 - No black intro removal, duplicates removal, normalization, ...
- Results improve for more detailed histograms
 - 47.37% for 64 bins
 - 53.44% for 256 bins
 - For same shuffling seed