Report Meeting Week 9

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TRECVID High Level Feature Extraction

Optical Flow

- This week
  - Figured out how to precompute kernels using libsvm
    - Allows for averaging of kernels
  - More optical flow experiments

Optical Flow

- Now using OpenCV Lukas Kanade With Pyramids
- Combine Image planes in matlab
- Normalize optical flow values to 0-255
- Compute Optical Flow between keyframe and 2nd frame after keyframe

Keyframe

Optical Flow “Image”

Results

	Optical Flow		Regular		Combined (average)	
	PD	PFA	PD	PFA	PD	PFA
Person-riding-a-bicycle	57.6%	47.0%	69.7%	28.8%	77.3%	34.9%
People Dancing	51.7%	35.0%	78.3%	30.0%	70.0%	31.7%
Person-playing soccer	30.0%	8.3%	58.3%	5.0%	50.0%	3.0%
Person-eating	68.3%	68.3%	61.7%	41.7%	66.7%	41.7%
Traffic Intersection	61.1%	51.9%	87.0%	9.3%	87.0%	16.7%

Using Optical Flow Differently

- Prevous approach does not look promising
- New Attempt:
  - Create histogram of optical flow orientation
  - 360 bins

Results

	Optical Flow		Regular		Combined (average)	
	PD	PFA	PD	PFA	PD	PFA
Person-riding-a-bicycle	70.0%	36.7%	66.7%	16.7%	70.0%	10.0%
People Dancing	60.0%	60.0%	73.3%	30.0%	60.0%	23.3%
Person-playing soccer	63.3%	16.7%	73.3%	16.7%	76.7%	13.3%

Things to do..

- Finish up optical flow experiments
  - Don't count vector if magnitude is below a threshold
- Speed up extraction of frames
  - Have tried Matlab, OpenCV, and FFMPEG
- Integrate into our system
- Explore “Soft-weighting” of words
  - Columbia University/VIREO-CityU/IRIT TRECVID 2008

Soft-Weighting of Words