WEEK 5 REPORT

Sports Video Summarization:
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Aladdin Dataset

• Testing out using causality matrix to increase accuracy of action recognition

• Accuracy
  • 60% over 163 videos in event 6 – birthday party
    • Compared with 72% accuracy without
  • Not accounting for false positives
  • Not as strong of a relationship between events in a birthday party as in a soccer game
  • A birthday part is more of a sequence of non-repeated actions
  • Not many concepts for each video which effects the ability to form a useful causality matrix
Causality Matrix
Graph Representation

- Each column represents evenly spaced segments of the entire video
- There are $n$ nodes in each column corresponding to $n$ actions
- Each node is the probability of that action occurring in that segment
- The edges between nodes come from the causality matrix and are the probabilities that one action leads to the next
Graph Representation

• Currently using the sum of the probabilities to determine the max flow through the graph by maximizing this sum

• Looking into other options for computing this max flow to get better accuracy

• Adding a node to represent a non-action
Soccer Dataset

- Confusion Matrix
Soccer Dataset

• Accuracy
  • Getting 90-95% accuracy across 14 different one vs. all SVM classifiers
  • Seems unrealistically high
Short Term Plan

• Look into combining features
  • We have MBH and STIP features for each clip

• Looking into different ways to represent the graph
  • Hidden Markov Model
  • CRF

• Looking into better algorithms for computing the max flow
Long Term Plan

- Add Audio features

- Use shot detection/classification and localization

- Add these to our current methods to better improve accuracy