Query Expansion in Complex Event Detection with Zero Examples

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Introduction

• Query expansion is a way to bridge the semantic gap between object labels and human semantics of a user query
• Common knowledge bases such as ConceptNet and Wikipedia are easy to access, but noisy
• Expert knowledge bases contain specific information, but requires a lot of (manual) effort
• What method is best to use when in complex event detection?

Query (Event name)

- Match query terms (nouns and verbs) to concept
- Assign equal weight to matches

Concept Detectors (VIREO)

- 1000 from ILSVRC-2012
- 346 from TRECVID SIN 2014
- 472 from Research Set

Further Research

• Temporal Relations:
  • Automatically extract temporal relations (immediately before, before and while) from the methods:
    • Dependency relations of Stanford Parser for Wikipedia and Expert
    • HasSubEvent relation for ConceptNet
  • Take the MAX value of the concept detectors between the keyframes and multiply values
    • While: MAX over same keyframe
    • Immediately before: MAX over two successive keyframes
    • Before: MAX over two keyframes with at least one keyframe in between
  • Initial results show slightly improved performance
• Suggestions for improvement?

Further research in what kind of information improves performance by examining which part of the textual description provides most valuable information

For more information: http://www.cs.ru.nl/~mdeboer/