Creating Highlight Summaries of a Sports Game

Problem and background
One is often interested in highlights of a certain tennis match, soccer game or swimming race, for instance to show in a news overview, to refer to when discussing a certain athlete, or to assist in browsing a sports video.

Goals
The aim of this thesis is to create automatically such highlight summaries from the Olympic games videos of 2008 (BBC broadcasts) and to evaluate the impact of recognized textual events (detected in speech transcripts), visual events (recognized in video images) and perhaps acoustic events when classifying the content as containing sports highlights. The aim is to aggregate the features and recognized content in different ways, exploring possibilities of early and late fusion of information. As baselines we create textual highlight summaries and visual highlight summaries, and intersect them when their temporal pointers correlate.

Methods
A standard approach is training a highlight model from annotated data. The goal of this thesis is also to minimize annotation or supervision. Weak annotations could come from highlight summaries in news reports. We could also see the problem as an unsupervised segmentation problem into highlight and non-highlight sections, needing an objective function to determine if something is worth highlighting.

Requirements and practicalities
The student is interested in natural language understanding, has good programming skills, and has knowledge of machine learning or data mining, or is willing to acquire this knowledge.

Number of students: 1 or 2.

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Limited bibliography