

# Abstract

## VIDEO CLASSIFICATION USING SEMANTIC CONCEPT CO-OCCURRENCES

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The objective of this paper is to classify videos based on Concepts (semantic attributes). One of the challenges in this area of research is to eliminate errors produced in concept detection.

Since concept detectors are using a relatively small time slice to detect concepts, this paper uses information in other sequences in the video and a training set to obtain better confidence in detecting concepts.

The approach proposed reduces the problem of assigning concepts to each sequence, to a Generalized Maximum Clique Problem (GMCP). By using multiple versions of this graphs, each associated with a different class of video in the training set, the video will be assigned to the class with maximum weight.

The Graph setup is described below

1. For each sequence we have a cluster of nodes.
2. For each Concept there is a node in every cluster.
3. Each node is connected to every node in other clusters.
4. The weight of the edges are determined by concept detector and co-occurrence matrix (Obtained from a dataset).

The maximum weight complete sub graph will contain one and only one node from each cluster and also will determine the concepts with the highest possible probability of occurrence given other concepts.

Each selected vertex represents the concept label to its sequence.