视频挖掘(Video Mining)

Introduction

Video Mining can be defined as the unsupervised discovery of patterns in audio-visual content. Video patterns are repetitive segments in a video stream with consistent statistical characteristics. Such segments can often be interpreted in relation to distinctive semantics or concepts, particularly in structured domains like sports game and news report.

While much work in the literature explores the supervised learning techniques that are capable of learning the target structure once the domain knowledge is encoded in the training data, the choice of the feature set, the construction of the statistical model, and the design of the learning algorithms. Unsupervised mining algorithms, on the other hand, tries to find statistical descriptions of the structures with much less information available, aiming at alleviating the burden of labeling and training, as well as providing a scalable solution for generalizing video indexing techniques to heterogeneous content collections.
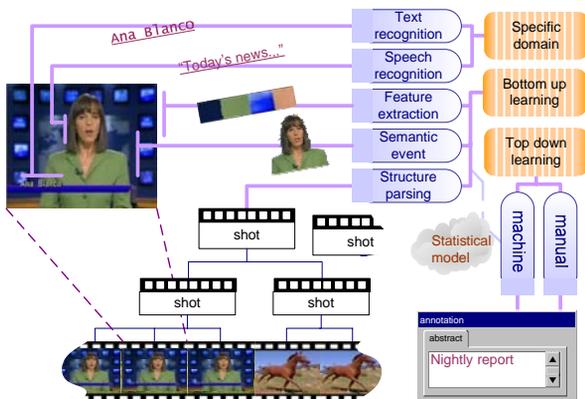

Video Indexing

Effective solutions to video indexing require detection and recognition of structure and event in the video. Existing unsupervised video indexing work primarily makes use of text, speech, audio-visual feature to identify event, structure, concepts. The rich statistical characteristics in the temporal dimension at different granularities can be explored through statistical models with domain-specific knowledge.

Video Retrieval

Video retrieval is developing technologies to automatically identify meaningful content attributes. Query-by-example, browsing the table of content, and keyword-based information retrieval techniques are fed into the smart search engine. With reinforcement process, user preferences can be learnt by relevance feedback.
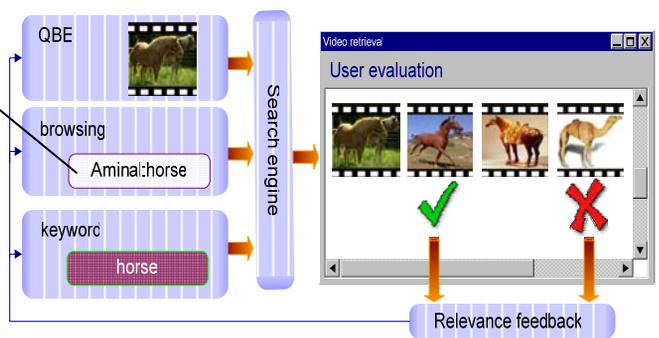
Ubiquitous Media Access

Mobile and wireless users access multimedia content from different types of networks and terminals. Content analysis plays a critical role in developing effective solutions in meeting unique resource constraints and user preferences in such usage environments. Specifically, content analysis is central to automatic discovery of syntactic-level summaries.