SINAI at VideoCLEF 2009

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Abstract

This paper describes the second participation of the SINAI research group in the VideoCLEF track. This year we only participated in the subject classification task. A training collection was generated using the data provided by the VideoCLEF organization. Over this data, a supervised learning approach to classify the test videos was conducted. We have used Support Vector Machines (SVM) as classification algorithm and two experiments have been submitted, using the metadata files and without using them, during the generation of the training corpus. The results obtained show the expected increase in precision due to the use of metadata in the classification of the test videos.

Categories and Subject Descriptors

H.3 [**Information Storage and Retrieval**]: H.3.1 Content Analysis and Indexing; H.3.3 Information Search and Retrieval; H.3.4 Systems and Software

General Terms

Algorithms, Experimentation, Languages, Performance

Keywords

Image classification, Information Retrieval

1   Introduction

This paper presents the second participation of the SINAI research group at the VideoCLEF 2009 track. The goal of the track is to develop and evaluate tasks involving the analysis of multilingual video content [6]. This year we only participate in the subject classification task. It is about automatic tagging of videos with subject labels such as "*Archeology*", "*Dance*", "*History*", "*Music*" or "*Scientific Research*". A total of 46 subject labels have been defined. The classification process only makes use of the speech transcriptions of the videos and some metadata provided.

Our group have some experience in the field of the multimedia video retrieval [4] and image retrieval, participating the last years in several tasks of the ImageCLEF track [3, 2, 1]. With regard to the video categorization, we participated in VideoCLEF 2008, applying a simple approach to resolve the classification task: to use an Information Retrieval (IR) system as classifier. The speech transcriptions were used as textual queries and we generated a search collection based on documents retrieved using the Google[1] search engine. The results obtained showed that an IR

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[1]http://www.google.com/

Experiment	MAP	R-prec
Using metadata	**0.0028**	0.0089
Without using metadata	0.0023	0.0061

Table 1: SINAI results at VideoCLEF 2009

information retrieval (IR) provides a natural mapping for construction of Mercer kernels utilized in SVM algorithms.

For the experiments and analysis carried out in this paper, the Rapid Miner[5] framework was selected. This toolkit provides several machine learning algorithms such as SVM and techniques along with other interesting features.

4   Experiments and results

The experiments carried out in this paper are a first approximation to the automatic tagging of videos using a text classifier. Two experiments have been submited: using the metadata files provided by the VideoCLEF organization and without using them, during the generation of the training corpus. The results obtained are showed in Table 1.

In order to evaluate the quality of the results, we have used two usual measures: the Mean Average Precision (MAP) and the R-precision. Analyzing the results, we can see that the use of metadata during the generation of the training corpus improves about 21.7% the average precision of the classification of the test videos.

5   Conclusions

The use of metadata as an valuable source of information in text categorization has been already applied some time ago, for example, in the categorization of full-text papers enriched by its bibliographic records [7].

We expect to continue this work by applying a multi-label classifier, instead the multiclass SVM algorithm used so far.

Acknowledgements

References

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[5]Rapid Miner is available from `http://rapid-i.com/`