SEMANTIC CONTENT-BASED VIDEO RETRIEVAL

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ABSTRACT

This study proposes an innovative approach to extract information from multimedia data using high-level features in the visual description. Ontology and machine learning techniques are used to map the low-level in high-level features to compose a document which describes the multimedia data content and is readable and understandable by a human being. The document is used in the indexing and retrieval operations using the inherited techniques of the text mining field. Therefore it is possible to perform a search by using directly a query expressed in natural language.

CURRENT WORKS

SEMANTIC COLOR FEATURE

Instead to use the standard color histograms techniques [1] we propose an innovative approach called: "**semantic color feature**".

- A set of color names extracted by a semantic dictionary [2].
- A human perceptive metric extracted by perceptive experiments.
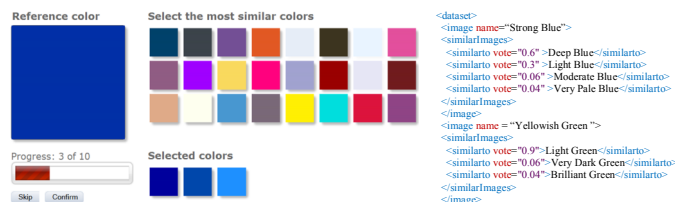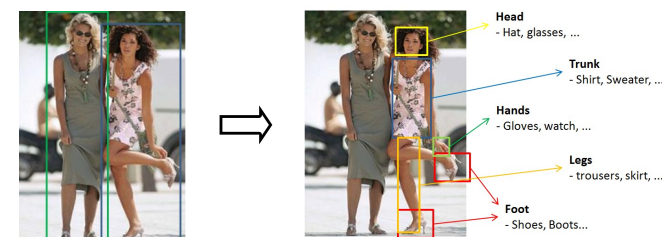

SOFT OBJECT OF INTEREST DETECTION

A set of pre-processing filters which can separate, with a satisfying margin of accuracy, the **object of interest** from the background.

| | Original Image | Bidimensional Center Filter | Border Sampling Filter | All Filters Enabled |

### PEOPLE DETECTION AND DRESSES EXTRACTION

We are developing a set of algorithms, inherited from the pedestrian detector systems, in order to detect **occluded** and **cropped** people in **different poses**. The first goal is to extract information about their dresses.

Head - Hat, glasses, ...
Trunk - Shirt, Sweater, ...
Hands - Gloves, watch, ...
Legs - trousers, skirt, ...
Foot - Shoes, Boots...

SEMANTIC SIGNATURE

Using a document instead of an image.
This approach differs from the standard CBIR techniques[3] and from the new trends of Semantic CBIR[4]. The **high-level features** developed in this study are used as a collection of words in order to form a **document** which describes the image's content. Once the document is composed it is possible to use it to index and retrieve operations using all the techniques in the text mining field.
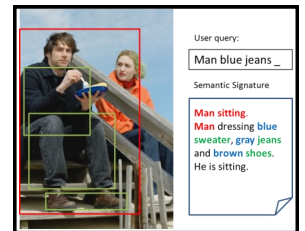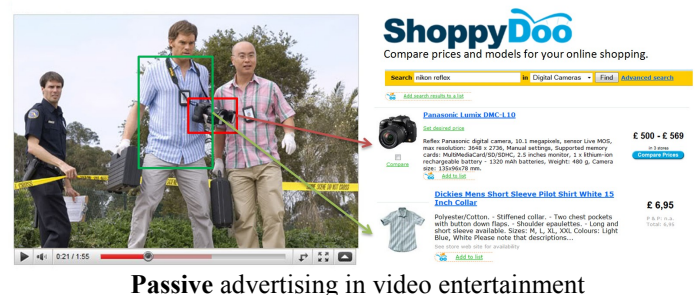

ADVANTAGES

- Understandable an readable description
- Using user's query expressed in natural language
- Indexing and Retrieving using Text Mining Techniques

ADDITIONAL FUNCTIONALITIES

- Adding Web Information (metadata, annotations, ..)
- Adding Relevance Feedback

APPLICATIONS

Passive advertising in video entertainment

Active advertising in video entertainment

FUTURE WORKS

- Texture Extraction
- Gender/Age Estimation
- Pose Estimation

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[4] Y. Liu, D. Zhang, G. Lu, and W.-Y. Ma. A survey of content-based image retrieval with high-level semantics. Pattern Recognition, 40(1):262 – 282, 2007.