

**Special Issue on Multimedia Semantics - Papers from the
Third Workshop on Multimedia Semantics, held June 22-24, 2005, in Pisa, Italy.**

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Introduction to the Special Issue on Multimedia Semantics

What follows are expanded versions of six papers which were presented at the Third Workshop on Multimedia Semantics, held June 22-24, 2005, in Pisa Italy.

Information is increasingly becoming ubiquitous and all-pervasive, with the World-Wide Web as its primary repository. The rapid growth of information on the Web creates new challenges for information retrieval. The goal of much research in the last few years has been to bridge the, so-called, semantic gap between the ways in which users request web pages and the real needs of those users, ultimately improving the quality of web information retrieval.

The development of feature-based techniques for the retrieval of multimedia information has emphasized the notion of similarity with respect to low-level features. Many researchers in content-based retrieval are now concentrating on extracting semantics from multimedia documents so that retrievals using concept-based queries can be tailored to individual users. It is very important that we outgrow the 'one size fits all' approach to semantics. Following the semantic web paradigm, techniques for the semi-automatic annotation of multimedia information should be developed, but with the added caveat that they are sensitive to individual users.

This workshop concentrated on various techniques for this grand vision. The first paper, 'On Semantics as a Social Construction,' by Simone Santini, is a very interesting philosophical discussion concerning the nature of emergent semantics. In this paper, Santini solidifies his work on develop interactive systems whereby particular user semantics emerge from operations within the system itself.

The second paper, 'Semantic Notation and Retrieval in Art and Architecture Image Collections,' by Peter L. Stanchev, David Green, Jr., and Boyan Dimitrov do a comparative study of various techniques in the field of semantic image retrieval. They compare MPEG-7 descriptors with the more domain dependent ontologies existing in the art and architecture field, with some very interesting results. The third paper, 'Video Event Representation Assisted by Domain Knowledge,' by Dan Song, Hai Tao Liu, Miyoung Cho, Moosong Oh, Sangdong Ra, and Pankoo Kim, continues this topic by discussing an MPEG-7 friendly system for video event representation that also utilizes a video object ontology at the upper levels, combining low-level (MPEG-7) ontologies with higher-level domain knowledge. The fourth paper, 'Semantic Image Retrieval Based on Ontology and Relevance Model: A Preliminary Study,' by Ernest Weke Maina, Manabu Ohta, Kaoru Katayama, and Hiroshi Ishikawa, also in this vein, shows the improved search capabilities of systems which utilize various domain ontologies.

The fifth paper, 'LINGOES: A Linguistic Ontology Management System,' by F. Mostowfi, F. Fotouhi, S. Lu, and A.A. Aristar, is a linguistically-based textual annotation tool that allows linguists to take advantage of semantic web technologies. It demonstrates how annotations can be inherited by other non-annotated documents and supports various types of queries.

The last paper, 'Searching Multimedia Documents: An Application in Patent Examination,' by Forouzan Golshani and Youngchoon Park, concerns correlated, multi-modal multimedia search in a very interesting environment, that of patents, where the data consists of text, OCR data, diagrams, images, and record-based metadata.

During the workshop also short position papers about the future of the multimedia semantics were presented. Here we present only one of them "Intrinsic Limits and Possible Results for Research in Multimedia Semantics" from Fausto Rabitti and Carlo Meghini

William Grosky

Paper Selected:

1. On Semantics as a Social Construction
Simone Santini
Very interesting philosophical discussion concerning the nature of emergent semantics.
2. Semantic Notation and Retrieval in Art and Architecture Image Collections
Peter L. Stanchev, David Green Jr., Boyan Dimitrov
A comparative study of semantic image retrieval comparing MPEG-7 descriptors with more domain dependent ontologies in the art and architecture field.
3. Video Event Representation Assisted by Domain Knowledge
Dan Song, Hai Tao Liu, Miyoung Cho, Moosong Oh, Sangdong Ra, Pankoo Kim
An MPEG-7 friendly system utilizing a video object ontology at the upper levels. Combines low-level (MPEG-7) ontologies with higher-level domain knowledge
4. Semantic Image Retrieval Based on Ontology and Relevance Model: A Preliminary Study
Ernest Weke Maina, Manabu Ohta, Kaoru Katayama, Hiroshi Ishikawa
Web-based CBIR utilizing ontologies. Improved search capabilities.
5. Lingo: A Linguistic Ontology Management System
F. Mostowfi, F. Fotouhi, S. Lu, A. A. Aristar
Allows linguists to take advantage of semantic web technologies.
Linguistically-based textual annotation tool
Annotations can be inherited by other non-annotated documents.
Querying supported.
6. Searching Multimedia Documents: An Application in Patent Examination
Forouzan Golshani, Youngchoon Park
Correlated, multi-modal multimedia search: text, OCR data, diagrams, images, record-based metadata.
In the patent domain
7. Intrinsic Limits and Possible Results for Research in Multimedia Semantics
Fausto Rabitti and Carlo Meghini
Position paper about the future of Multimedia semantics