

# A Logic-Based Approach to Multimedia Interpretation

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## **Abstract**

The availability of metadata about the semantics of information in multimedia documents is crucial for building semantic applications that offer convenient access to relevant information and services. In this work, we present a novel approach for the automatic generation of rich semantic metadata based on surface-level information. For the extraction of the required surface-level information state-of-the-art analysis tools are used. The approach exploits a logic-based formalism as the foundation for knowledge representation and reasoning. To develop a declarative approach, we formalize a multimedia interpretation algorithm that exploits formal inference services offered by a state-of-the-art reasoning engine. Furthermore, we present the semantic interpretation engine, a software system that implements the logic-based multimedia interpretation approach, and test it through experimental studies. We use the results of our tests to evaluate the fitness of our logic-based approach in practice. Finally, we conclude this work by highlighting promising areas for future work.