Multimedia Information Retrieval (An Introduction)

© Apostolos Papadopoulos Yannis Manolopoulos

Department of Informatics, Aristotle University, 54124 Thessaloniki, Greece

1 Abstract

Information Retrieval (IR) is an active research area for many years. Initially, the field focused on the efficient and effective processing of user information needs expressed as a set of keywords. In fact, this model is still active today (e.g., web search engines). However, large volumes of information are available in non-textual form, such as images, audio files and videos. The research field of Multimedia Information Retrieval (MIR) deals with the efficient and effective processing of queries involving multimedia objects. The big challenge here is to provide "retrieval by content", which means that we do not just want to provide results based on metadata or textual descriptions of the objects, but based on the content of these objects. In this talk, we perform a gentle introduction to the field, starting from stabilized methods used in text-based retrieval, and then moving on to the fundamentals and challenges of multimedia-based retrieval. We discuss the representation of multimedia objects as vectors in a multi-dimensional space, the organization of these representations by means of indexing schemes and the retrieval of similar objects based on user queries.

The outline of the talk is as follows:

- text representation
- information retrieval vs data retrieval
- components of an IR system
- indexing text databases
- boolean and vector-based retrieval
- efficiency and effectiveness
- similarity queries
- feature extraction (images, audio, video)
- indexing multimedia objects (R-trees and X-trees)
- index-based processing
- current trends
- conclusions
- bibliography

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1.1 Basic Bibliography

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