Markup of MPEG-7 video

Introduction

Researchers at the department of Interactive Media and Learning (IML)[1] at Umeå have developed a method for adding, externally stored, descriptive information (metadata[2]) to XML-documents. This is done by "pointing-in annotations", using RDF[3], Annotea[4], and xPointers[5]. The method makes it possible to add semantic descriptions to a part of an XML-document, without touching the original file, leaving the syntax of the XML intact. The markup is carried out in the web browser.

The system has been used to create dynamic relations between different information sources. In[6] we have described how the system is used to connect objectives in course plans to the descriptions of digital learning resources. The article also describes how the system is used to create digital "compendium" by marking sections (in the web browser) of a text that are then compiled to a digital compendium. This technology is useful as a pedagogical tool in organizing learning resources, as well as in describing relations between different information, using metadata and ontology[7]. The technology is described in more detail in[8]

Objective

The objective of this master project is to examine the possibility to use this method for adding descriptive metadata to digital video as well. The idea is to use the XML stream in MPEG-7 for adding annotations, using the method described above. The purpose is to provide a method for connecting digital video to other digital resources (such as learning objectives) and vice versa. The method will also be used to mark video sections in order to create video "compendiums" in the same manner as text compendium were created using the current prototype, as described above.

The expected outcome of the project is a working prototype for MPEG-7 markup.

Previous knowledge

Java knowledge is needed, and knowledge (or an interest) about Ajax and Ruby is an advantage. Experience from working with digital video is also an advantage. Much of the development work will focus on web-based application development. It is also important that you have the ability to work independently.

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[1] http://www.iml.umu.se/
[2] http://en.wikipedia.org/wiki/Metadata
[3] http://www.w3.org/2001/sw/
[4] http://www.w3.org/2001/Annotea/
[5] http://www.w3.org/XML/Linking
[6] http://www.frepa.org/wp/go.php?http://www.frepa.org/papers/paulsson-echallenges-2005-published.pdf
[7] http://en.wikipedia.org/wiki/Ontology_%28computer_science%29
[8] http://www.frepa.org/wp/go.php?http://www.frepa.org/wp/wp-content/files/Treating-metadata-%20annotation-Paulsson060904v2.pdf