
MPEG-7

Metadata for Movies:

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SCOPE

This will cover primarily MPEG-7, with a brief mention of MPEG-21.

INTRODUCTION

First let's do a recap of the existing MPEG technologies:

- MPEG-1 for low-quality video (less than VHS)
- MPEG-2 for high-quality high-bandwidth video uses such as HDTV
- MPEG-4 was conceived for low-bandwidth scenarios, but now all-purpose through different usage "profiles"

New MPEG standards:

So what's this MPEG-7 and MPEG-21 stuff?

MPEG-7 is a standard for describing multimedia content

- defines the language in which multimedia objects are described

MPEG-21 is a framework for end-to-end interoperability among creators, distributors, consumers etc.

- standard format for all multimedia uses along the food chain
- covers usage of the other MPEG standards, including MPEG-7

MPEG-7

- originally designed to make multimedia material searchable like the web
- each multimedia object has a “description” which contains the metadata
- searching in a multimedia corpus can be done by searching the descriptions

MPEG-7 metadata

- each property, or “descriptor” in MP7 parlance, has a type
- a number of types are pre-defined (string, int, absolute/relative time etc.)
- new types can be defined using MPEG-7’s DDL (Description Definition Language)

SO WHAT KIND OF PROPERTIES DOES IT SUPPORT?

Creation information

- title
- author
- director
- location etc.

Division into logical segments by time, space etc.

- you can subdivide those segments further, ad nauseum
- produces a tree of segments
- could be used for implicit table of contents

Annotations

- keywords
- free-form text
- annotations can be in multiple languages

Related info

→ references/links to other URIs, segments etc.

Semantic info

- “World Cup final 2002”
- Ronaldo taking shot for goal
- view from upwards and left of goalposts

Aural and visual properties

- colour, shape, texture...
- frequency, duration...

MPEG-7 FORMAT

- is XML, yay
- DDL (Description Definition Language) is an XML schema, with some extensions

Annotation Example

```
<TextAnnotation xml:lang="en-us">  
    This is a nice apartment.  
</TextAnnotation>
```

```
<TextAnnotation xml:lang="en-uk">  
    This is a nice flat.  
</TextAnnotation>
```

OK, but how do we use it?

- supports both a text encoding and a binary encoding (BiM)
- binary encoding is deduced from the schema used
- schema must be known to both the encoder and decoder

COMPARISON TO ANNODEX AND CMML

- as is, MPEG-7 doesn't support references to time offsets into URIs
- method for multiplexing MPEG-7 data into existing media is unspecified

WEAKNESSES OF MPEG-7

- we'd have to define our own multiplexing format
- seemingly low usage profile?

QUESTIONS

You want the truth? You can't handle the truth!