Workshop 6:

MPEG-7 Audio: What is it about?

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Why This Workshop?

- MPEG Audio standards: A success story
- Past workshops about MPEG-4 Audio (Version 1 @ 106th AES, Munich; Version 2 @ 108th AES, Paris)
- Next member of MPEG standards family: MPEG-7, to be published in 10/2001
- It's time for an update ...
MPEG-7 or: “Is there an MPEG life after source coding?”

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<td>MPEG-1 (1992)</td>
<td>• First generic audio coding standard, Layers 1-3, (DAB, Worldspace, DVB, Internet Audio/“MP3”)</td>
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<td>MPEG-2 (1994)</td>
<td>• Extending MPEG-1 coders towards lower sampling rates &amp; multi-channel...</td>
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<td>MPEG-2 AAC (1997)</td>
<td>• More powerful mono ... multi-channel coding</td>
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<td>MPEG-4 (1999+)</td>
<td>• New functionalities (scalability, object oriented representation, interactivity ...)</td>
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<td>MPEG-7 (2001)</td>
<td>• “Multimedia Content Description Interface” Metadata standard (not compression!)</td>
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Explosive Growth of Available A/V Data

Drowning in data ...

• Rapid growth of available A/V material on world wide scale
• Huge A/V databases → WWW/Internet!

How to find?

• How is efficient search for multimedia content possible?
• Currently: Efficient text-based search is provided by well-known search engines (e.g. Yahoo, Lycos, ...)

Vision

• “Audiovisual data should be just as ‘searchable’ as text!”
• Enable intelligent navigation & search
The Concept of Content Description ("Metadata")

Idea

• Supplement A/V data with Content Description ("data about data")

A description is ...

• linked to actual A/V data, but not necessarily on same location/media
• independent of format of actual A/V data

Descriptions ...

• characterize
• enable search / filtering
• enable navigation
• ...

→ enable efficient content handling
→ see also Workshop W-14 (Tue)!
How to Generate Descriptions

Types of extraction/creation:

Automatic (Extraction)
- Signal-based attributes - low semantic level (level, pitch, color, shape, ...)

Manually
- Higher level attributes (title, composer, scene description including persons / objects)

Note
- Frequently descriptions are created as a by-product of the production process (e.g. storyboard for a movie production)
## Areas of Work in the “Metadata” Context

### What are the issues?
- Advancement of extraction methods
  - automatic / semi-automatic
  - Analysis of complex content
  - Semantically meaningful
  - Efficient

### Standardization of description formats
- Enables **interoperability** between metadata databases and applications on world wide scale
- Some standards already on the way (SMPTE, EBU, Dublin Core, MPEG-7, ...)

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The MPEG-7 Standard

- Standardization of “description language”:
  - Extensible by means of Description Definition Language (XML-based, describes/defines MPEG-7 syntax)
  - Provides elaborated concepts for describing
    - Generic properties of A/V data
    - Visual data
    - Audio data
Questions To Be Answered ...

• What is MPEG-7 Audio about?
• What are the basic concepts?
• What novel functionalities can MPEG-7 Audio give you?
• What are the applications?
• “Could we see some demos?”
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