1st Face to Face Meeting of the W3C XG Multimedia Semantics
ISWeb @ XG MMSEM
Thomas Franz
ISWeb Interests by Books

Ontologies

Text & Multimedia

P2P

Webservices

Semantic Web and Peer-to-Peer

Grading Knowledge

Semantic Management of Middleware

Lecture Notes in Artificial Intelligence 1744

Steffen Staab

Extracting Degree Information from Texts

Daniel Oberle

Steffen Staab

Steffen Staab

Steffen Staab
Projects

- Ontologies
  - aceMedia
  - Ornamente
  - K-Space
  - X-Media
  - Tagora
  - ASG
  - P2P & Complex Systems

- Text & Multimedia
  - NeOn
  - Health-e-Child
  - EML
  - Vladimir
  - Makess
  - Webservices

- Webservices

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What we would like to do... vs What we can do

- Send family recent Christmas photos...
- Send friends pictures that include them...
- Show a friend where we live...
- Exchange opinions about what are the best shots
- Record „photo copies“ of signed contracts
- Query for all architecture images built for X-Media proposal...
- Find images similar to another image ...
- Get the song to the lyrics I know ...

List to be continued...

Store pictures in a folder
- Query for picture name and date

The Semantic Gap
Strategies for Narrowing the Semantic Gap

- Image understanding
  - Scene classification
  - People recognition
  - Artifact recognition
- Context understanding
- Shared Annotation
- User Feedback

Highly domain-dependent

Google
Flickr
Little explored wrt Semantics
The wonderful world of ontologies@ISWeb

Multimedia
- Carsten Saathoff
- Bernhard Schüler
- Richard Arndt
- Alex Kubias

Sergej Sizov
- Simon Schenk
- Thomas Franz

Klaas Dellschaft
- Olaf Görlitz
- Rabeeh Ayaz

P2P & Complex Systems

Web Services
- S. Mir
- F. S. Parreiras
- C. Ringelstein
- B. Tausch
• works in aceMedia
• Focus on High-Level Image Understanding
  ▪ prototypical knowledge for automatic image annotation
    • visual ontologies
  ▪ constraint reasoning
  ▪ learning visual ontologies
• M-OntoMat Annotizer
  - creating visual ontologies
  - next steps
    • manual (and automatic) annotation of images

• SEA: Semantic Exchange Architecture
  - tagging for the desktop
  - sharing of (meta-)data
Points of interest (Bernhard Schüler)

- Multimedia information retrieval/ object detection
  - Object detection using random field based models
- Uncertainty
  - Adequate representation of information obtained by multimedia information retrieval
  - Integration with background knowledge
  - Feasible reasoning with uncertainty to answer simple queries
Development of a multimedia ontology

- Provide machine accessible semantics of MPEG-7 in an ontology
  - Enable interoperability of MPEG-7 metadata
- Cover only frequently used core of MPEG-7
  - Design of an extensible ontology to include further description tools on demand
- Domain independent ontology that may be reused for widespread multimedia applications
- Representation of low level features through instances of logical concepts as the first step to reduce the semantic gap
  - Uniform treatment of high level object descriptions and low level data processing results
Development of a multimedia ontology

- Focus on clean design of the ontology to reach the two main design-goals:
  - Extensibility
  - Reusability
- Allignment with the DOLCE foundational ontology to enforce clean classification of multimedia concepts
- Research is done in the context of two EU projects:
  - KSpace
  - X-Media
1. Narrowing the Semantic Gap requires an Integration of Multiple Techniques

2. Some of the techniques need not be very sophisticated
   - e.g. tagging

3. Some sophisticated techniques may not range very far
   - person recognition trained for my family doesn’t recognize Carsten

4. Different communities need to speak to each other

5. Large chances for the Semantic Web crowd!