LIVINGKNOWLEDGE
FACTS, OPINIONS AND BIAS IN TIME

DiversiWeb2011 Workshop on Knowledge Diversity, Mar 28th, 2011, Hyderabad
LivingKnowledge Project

http://livingknowledge-project.eu

- EC FP7 FET Proposal
- CALL 6 ICT Forever Yours
Consortium

- UNIVERSITÀ DEGLI STUDI DI TRENTO, Trento - ITALY
- FUNDACIÓ BARCELONA MEDIA UNIVERSITAT POMPEU FABRA, Barcelona – SPAIN
- SORA, Vienna – AUSTRIA
- CONSORZIO NAZIONALE INTERUNIVERSITARIO PER LE TELECOMUNICAZIONI, Parma ITALY
- STICHTING EUROPEAN ARCHIVE, Amsterdam – NETHERLANDS
- UNIVERSITÀ DEGLI STUDI DI PAVIA, Pavia – ITALY
- UNIVERSITY OF SOUTHAMPTON, Southampton, UNITED KINDOM
- DOCUMENTATION RESEARCH AND TRAINING CENTRE, INDIAN STATISTICAL INSTITUTE, Bangalore, INDIA
- GOTTFRIED WILHELM LEIBNIZ UNIVERSITÄTET Hannover, GERMANY.
- MAX PLANCK GESELLSCHAFT ZUR FOERDERUNG DER WISSENSCHAFTEN E.V., Muenchen – GERMANY.
Objectives

- Investigate diverse disciplines with a view to a multi-disciplinary understanding of evolution, diversity and bias, and their impact on knowledge;

- Develop a formal knowledge model which makes it possible to represent, manage and maintain over time knowledge that reflects evolution, diversity and bias.
Goals

• Creating a deep understanding of diversity
  – interdisciplinary approach combining know-how and experiences from areas such as media research, multimodal information theory, library science, natural language processing and multimedia data analysis
Goals

- Developing methods of detecting Bias
- Exploring the temporal dimension of diversity
- Making bias, diversity and evolution tangible and digestible by a new generation of search technologies that supports opinion-aware, diversity-aware and time-aware aggregation and exploration of knowledge
Research Challenges

**Information Extraction:** extraction of facts and entities from web pages and documents, opinion mining, integration of related and complementary knowledge fragments
Research Challenges

Understanding and detecting bias and diversity: which includes understanding interdisciplinary foundation of diversity and bias expressed in text and multimedia
Research Challenges

Knowledge Evolution: which includes analysis of evolution of classification patterns and hierarchies; opinion evolution; diversity aware knowledge representation etc
Research Challenges

Enhanced search and retrieval technology: which includes information aggregation and summarization
Research Areas - RAs

RA1: Foundations of Evolution, Diversity and Bias in knowledge
RA2: Information Extraction
RA3: Knowledge Evolution
RA4: Bias and Diversity
RA5: Clustering and Aggregation
RA6: Enhanced Search and Retrieval Technology
The proposed framework

- Media Content Analysis
- Research questions
- Facet Analysis
- Faceted Classifications
- DOCUMENT CORPUS
- CODEBOOK variables indicators
- STATISTICAL ANALYSIS
- FEATURE EXTRACTION
- ANNOTATION
- Multimodal Genre Analysis
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**Subjective Sentence**
- Can be explicit/implicit
- Has polarity / intensity (pos-neg)
- Can have many diversity dimensions
- Can be expressed with images (or manipulation of images)

**Fact**
- Source independent
- No polarity by itself
- Can be true/false
- Has values (measures)
- Could be represented as vector
- Has no bias (the source could be biased by presenting only some facts)
- Can be expressed with images (and manipulation can be objective)

**Opinion**
- Source: Journalist, community, organization...

**Opinion Leader:**
- Analysing time dimension?

**Statement**
- Time dependent (changes over time)

**Relevance**

**Query**

**(Opinion) Target:** entities, persons, abstract topic
Media Content Analyzer (MCA)

LK MCA to emulate the SORA method
Multi-pronged approach

- Bias and Diversity detection: L3S
- Evolution studies and modeling: Max Plank Institute
- Multimodal Semiotic Analysis: Pavia
- Multimedia Media Analysis: CNIT, Southampton
- Facet Modeling: DRTC/ISI and Unitn
- Image Forensics and analysis: CNIT and Southampton
- Media Content analysis: SORA
- Future Predictor: Yahoo!
- Multi-domain data sets: European Archives
Future Predictor

- Searching the future: searching current references for explicit mentions of plans and estimates for future events
- Predicting the future: Inferring new implicit future events based on past occurrences, trends and plans for the future
- Mining the future (temporal evolution): finding the most important topics associated with a given time segment.
Thank you!