1ST PROJECT YEAR

xLiMe proposes to extract knowledge from different media channels and languages and relate it to cross-lingual, cross-media knowledge bases. By doing this in near real-time we intend to provide a continuously updated and comprehensive view on knowledge across media.

In the first year we focused our research efforts on combining speech recognition, natural language processing, computer vision and semantic technologies to:

1. extracting machine-readable knowledge (entities, sentiment, events and opinions) from multilingual, multimedia and social media content and integrate it with cross-lingual, cross-media knowledge bases,
2. searching this knowledge with structured and unstructured queries in near real-time.

In regard to real-world applications we focused on

1. augmenting selected TV news channels in different languages with up-to-date information from social media and news in near real- time and
2. monitoring of news related to certain brands across social media and TV.

    Both prototypical implementations are being evaluated with end users.

To achieve this, a sequence of technical steps has been implemented:

*   We developed a data model suited to describe and integrate all data produced by the different sources. This includes TV data, news and social media, plus accompanying information like provenance.
*   We implemented a software architecture capable of processing and distributing this data from the data providers to the consumers in near real-time.
*   We provided services to extract text from the various modalities and sources, including speech-to-text and OCR.
*   Also initial tools for object and brand recognition from visual content are provided.
*   All of this content is then being processed and integrated on two different levels. First on a textual basis and secondly on a semantic level by representing the content of media items as graphs. In addition, early research has been conducted to learn cross-modal latent representation which bridge the gap between the textual and semantic level.
*   The final technical achievement allows for querying the content by semantic and keyword search, including additional background knowledge taken from the DBpedia knowledge graph.

Impressive early prototypes demonstrate the progress beyond the state-of-the-art of this technology pipeline, by e.g., presenting related social media posts to TV-users in near-real time.

The successful integration of this complex real-time big data pipeline opens up big opportunities in terms of solving challenging research questions and building innovations with societal and economic impact. Already now, the benefits for media monitoring and delivering more relevant content to TV users are becoming obvious.