Enriching Unstructured Media Content About Events to Enable Semi-Automated Summaries, Compilations, and Improved Search by Leveraging Social Networks

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Agenda

● Toolbox
  ○ Events
  ○ Social Networks
  ○ Event-related Media Content

● Work Done
  ○ Event Selection
  ○ Micropost Annotation
  ○ Media Content Annotation

● Future Work
  ○ Media Content Ranking
  ○ Media Content Compilation

● Conclusion
  ○ Questions
Objective of this Thesis

Creation of a framework that allows for the semi-automatic generation of summaries or compilations of several pieces of media content covering a certain event.
Events - Linkin Park Concert

Source: http://www.flickr.com/photos/tchi-tcha/1407597152/
Events - French Nuclear Center Incident

Source: http://www.tagesschau.de/multimedia/bilder/marcoule100_v-grossgalerie16x9.jpg
Events - Earthquake in Japan

Source: http://www.flickr.com/photos/usnavy/5519780485/
Events - Shared on Social Networks

Impressions from last night's Linkin Park concert: http://www.youtube.com/watch?v=Aeo_2CfM2eY

linkin park 16. june (kaisaniemi, helsinki) http://twitpic.com/5o7z6m

Individual microposts about a concert on popular social networks such as Facebook or Twitter.
Aggregated view of microposts on the event "Spanish Revolution".
Events - Shared on Social Networks

Lots of event-related media content to choose from. Media content is oftentimes already shared as the event happens.

Source: [http://youtu.be/Aeo_2CfM2eY](http://youtu.be/Aeo_2CfM2eY)

Source: [http://twitpic.com/5o7z6m](http://twitpic.com/5o7z6m)

Are We Still on Track?

Objective for this thesis: creation of a framework that allows for the semi-automatic generation of summaries or compilations of several pieces of media content covering a certain event.

Source: http://cbskits.files.wordpress.com/2011/06/iphones1.jpg
We have split up our work into five tasks with scientific contributions:

- Event Selection ✓
- Micropost Annotation ✓
- Media Content Annotation ✓
- Media Content Ranking ✗
- Media Content-Compilation ✗
We have analyzed recent conference events and the surrounding media content, e.g., WWDC 2011 and SemTech 2011.

We have disambiguated the event names and locations with very accurate results.

An example for WWDC 2011 can be seen on the right.
Future Work

We will keep an eye on a wide variety of events, always given there is enough social media coverage and media content available.

We will archive social network communication produced around these events for further analysis.
Sample micropost on a concert annotated by DBpedia Spotlight.

Impressions from last night's Linkin Park concert: http://www.youtube.com/watch?v=Aeo_2CfM2eY

Source: http://spotlight.dbpedia.org/demo/index.xhtml
Micropost Annotation ✔

Screenshot of the Chrome extension Facebook Swarm NLP

Source: https://chrome.google.com/webstore/detail/nhcgonkeclhijbkpelhmclmjjiphafhk
Micropost Annotation ✔

Screenshot of the Chrome extension Twitter Swarm NLP

Source: https://chrome.google.com/webstore/detail/dpbphenfakflfmdlanimlemacankjol
We have tested our micropost annotation framework on 92 seven-day active users with very accurate results in the context of news trends detection in tweets.

An example shows the detection of the tsunami catastrophe in Japan.
Future Work

We need to further increase recall and precision by incorporating more Natural Language Processing engines both for English and FIGS languages (French, Italian, German, Spanish).

Work on improving entity consolidation and ranking algorithms when different NLP services have agreeing or contradicting results for the same input text.

Main constraint will be the processing time.
SemWebVid, an Ajax application for the automatic RDF annotation of videos from YouTube.

Source: http://tomayac.com/semwebvid
With SemWebVid, we have implemented an interactive application for the automatic RDF annotation of videos on YouTube. A command line version is available. Results so far are promising, need to improve precision and recall.

Source: http://www.youtube.com/watch?v=hzFp3rovfY0
Exemplary RDF annotation for a YouTube video on C64 music and the artist Timbaland.

```xml
 a event:Event;
 event:time [
   tl:start "PT0.171S"^^xsd:duration;
   tl:end "PT0.177S"^^xsd:duration;
   tl:duration "PT0.006S"^^xsd:duration;
   tl:timeline :timeline;
 ];
 event:Factor <http://dbpedia.org/resource/Commodore_64>;
 event:Factor <http://mpi.de/yago/resource/Commodore_64>;
 event:Factor <http://dbpedia.org/resource/Timbaland>;
 event:Factor <http://mpi.de/yago/resource/Timbaland>;
 event:Product [
   a bibo:Quote;
   rdf:value """"On the Timbaland produces song Do It, the Commodore 64 can clearly be heard from the background.""""@en;
 ].
```
Media Content Annotation

Very accurate results for whole video genre tagging and entity depiction.

In-video annotation still sparse.

Exemplary entity depictions for a YouTube video.
Future Work

We need to further increase precision and recall by analyzing content piecewise.

We need to support more media content platforms apart from YouTube.

Main constraint will be the processing time.
No results yet. Planned feature is to let the user interactively tweak weights of ranking criteria such as view count, duration, recency, etc.

Development of an interactive media content ranking platform.

Agreement on objective ranking criteria.

Source: http://cbskits.files.wordpress.com/2011/06/iphones1.jpg
No results yet. Planned feature is to let the user interactively tweak video summary constraints such as composition, duration, etc.

Goal is to compare against a gold standard of professionally produced event summary videos.

Development of an interactive media content compilation platform.

Agreement on objective media summary quality criteria.

Source: [http://www.youtube.com/watch?v=skrz1JsxnKc](http://www.youtube.com/watch?v=skrz1JsxnKc)
Conclusion

We have the basic bricks in place, both for media content annotation, and for social network communication enrichment.

Now we need to put the two pieces together in order to get a working product.

HTML5 Multimedia and HTML5 Semantics.

Source: http://www.w3.org/html/logo/
Thank you & Acknowledgements

Questions?

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Source: http://www.twitvid.com/OEFJA

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