EBU
OPERATING EUROVISION AND EURORADIO

MDN WORKSHOP 2017

TUESDAY 27 JUNE

09:00 – 09:30   Registration & coffee

09:30 – 10:30   **Kim Viljanen, YLE**

AI and Yle - match made in heaven?

The Finnish Broadcasting Company Yle is currently researching the opportunities of Artificial intelligence (AI) and Machine Learning (ML). We first present our recent examples on using ML for automatic metadata extraction to improve the findability and usability of Yle's ondemand audio and video content. This includes proof of concept prototypes, the technological implementations, the outcomes, lessons learned and next steps. In the second part of the presentation, we discuss the wider strategic opportunities of AI for the broadcast media industry. We present a list of potential business cases for AI technologies, as identified by Yle, and conclude with an overview on Yle's current and planned activities in this area.

10:30 – 11:30   **Knut Olav Hoven, NRK**

Using an event store for updates on top of a semantic model

There has been much focus these last years on providing quality metadata on editorial content in order to make video and audio content published for the web more accessible to the audience, and to support editors and archivists in finding content from ever-increasing archives. But the needs for metadata for those contexts are quite different. For example the categorization presented for the audience is often different than those found in the planning systems.

What if we were to handle editorial content metadata in the same manner as the editorial content itself? Let's talk about publishing metadata - about the rights, contributors and target audience of those datasets. We often pay little attention to these metadata, and when we do we make a lot of assumptions, such as the "freshness" of the data which in turn makes caching hard to get right. By getting these data under control we become more flexible when combining data from various systems and can make more precise decisions for how we wish the content to be presented for our users.

I will present the metadata publishing platform used by the NRK Radio Archive.

11:30 -12:00   Tea, coffee

12:00 – 13:00   **Maarten Verwaest, Limecraft**

From bare audio transcription to fully automated production of well-formed subtitles

More and more broadcasters and content producers are obliged to produce subtitles. Conventional production is based on manual transcription and editing, a process which is slow and expensive, so some of the leading broadcasters are looking to radically automate the production of subtitles. In this session, you will learn how Limecraft combined speech-to-text and Natural Language Processing (NLP) technologies to turn audio into text and to subsequently cut the transcription into well-formed subtitles, thereby taking into account the specific style guide or applicable ""spotting rules"".

3:00 – 14:00   Lunch

14:00 – 15:00   **Jerome Martinez, MediaInfo**

BWF/MXF/IMF to EBUCore/FIMS: The practical side of extracting technical metadata.

MediaInfo is a flexible, open source tool used to extract relevant technical and tag metadata from an array of media file formats.

This presentation provides an overview how MediaInfo's developers implemented EBUCore and FIMS output in MediaInfo, with a focus on the challenges that arose from differences in how metadata is stored in analyzed as well as the discontinuities with how metadata schemes are designed. MediaInfo developers will review implementation traps, discuss collaboration with the EBUCore maintainer to resolve problems, and will debate about what is expected by EBUCore/FIMS users.

15:00 – 16:00

Werner Bailer, Joanneum

Real-time Content Analysis & Processing

Real-time Content Analysis & Processing (ReCAP) is a collaborative project to integrate a range of automatic content analysis services. The project aims at creating an affordable, scalable and extensible platform to enhance real-time and offline metadata-driven media workflows. The presentations will cover the relation of the work to the FIMS AME activity and the use of the open source Gstreamer framework.

16:00 – 16:30   Tea, coffee

16:30 – 17:30

Mikael Hindsberg, YLE

Wikidata as a toolbox for PSM companies

We can read on Wikipedia that ""Wikidata is a collaboratively edited knowledge base operated by the Wikimedia Foundation. It is intended to provide a common source of data"". Yle has used it for tagging for a couple of years, and we are now experimenting with modelling election data to Wikidata.

The presentation will give a short introduction to the Wikidata project. For tagging purposes has proven very useful. It provides Yle with a multilingual, crowdsourced event, person and topic source with normalized naming and permanent identifiers. Wikidatas has also increasingly developed into something of a Rosettas stone for different name space standards. Yle has for example put our Programmes Api ID:s into Wikidata.

And our latest expansion is an experiment with uploading election data to Wikidata, including a data model for the Finnish municipal elections and all elected municipality councillors (around 7000 per municipal election). This gives as very nice open democratic data set for collaborations with external partners, as well as data and Wikidatas visualisation tools to make data journalism with. But maybe most importantly it gives us permanent identifiers to most politically active Finnish persons for tagging purposes as well as a data graph with great longevity.

WEDNESDAY 28 JUNE

09:00 – 10:00

Lauri Saarikoski, YLE

Getting to know automated metadata extraction on archive photographs

AME services on images seem to be readier for use than those focusing on audio or video. Yle Archive image team has compared these services and their features and will pilot one or more of these services in small scale during spring 2017. Depending on the stage of piloting by the time of MDN 2017, we'd like to share our ideas and experiences on setting up such a test, current market of services available, ways to evaluate ontology compatibility etc.
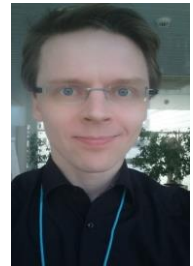
10:00 – 11:00

Kjell Ove Skarsbø

GPO and Metadata – Lessons learned and the road ahead of us (Paved with gold).

TV 2 Greenfield project (GPO) is a groundbreaking project and one of the first digital transformation projects in the media industry, that has built a futureproof and versatile multi publishing infrastructure end-to end, and that combine workflows and infrastructure for both traditional broadcast and OTT services.

& Are Tverberg, TV2, Norway

With the flow of bidirectional metadata at GPOs core it allows TV 2 to address new markets and new business models through standard web technologies. Assets metadata is added at the earliest possible point in the production, throughout the production chain, and added at the latest possible point, in many cases at the end user devices, increasing the quality of our output. This creates a unique user experience that could be personalized. Metadata is also collected from the end user device and harvested into the same database for business intelligence. Processing these data would allow for new ways when it comes to acquisition of content and the way content is presented to each end every user. This makes us able to collect all data in one master system for optimizing and significantly improves our accuracy in strategic planning, procurement, ROI and business publishing strategy.

This presentation addresses the challenges encountered being one of several subprojects in the big and complex GPO project. With the metadata project being technology driven, challenges arise on the borders between us, the operational layer and the business layer.

11:00 – 11:30   Tea, coffee

11:30 – 12:30

Michael Barroco, EBU

Peach: the innersource approach to personalization

The PEACH (Personalisation for EACH) project is a joint international initiative of European Public Broadcasters. The goal is to co-develop white label software solutions empowering broadcasters and editorial teams to deliver personalized media services and experiences. The presentation will walk you through the details of the collaborative approach and gives you an overview of the components of the system.

Michael Barroco (EBU) is currently heading the software engineering team in EBU Media Technology and Innovation. He holds a Master's degree in Computer Science from EPFL (Lausanne, Switzerland). Previously, he used to work at Livestream in New York and BBC Research & Development working on Realtime analytics and User Authentication protocols. During his career, Michael coordinated several EBU working groups around Personalization. His current focus is to implement Innersource and foster Opensource development within the EBU community.

12:30 – 13:30   Lunch

13:30 – 14:30

Montagnuolo Maurizio, RAI

AgileRAI: a parallel computing platform for online content enrichment

AgileRAI is a framework that supports real time ingestion of video streams on which different machine learning techniques, such as global and local visual features extraction and matching, are applied in a parallel and scalable way. Extracted features are matched to a reference database of visual patterns (e.g. faces, logos, monuments) in order to produce a set of meta-tags describing the ingested contents. Furthermore, these tags are semantically enriched using open semantic data repositories. The system is designed with a scale-out pattern architecture based on Apache Spark, ensuring high-performance in Big Data management environments. This speech presents the underlying infrastructure and technology on which the AgileRAI system is built, including the design principles, as well as the use case implemented and tested at RAI labs.

14:30 – 15:30

Mika Rautiainen Valossa

Extracting metadata from video

Valossa launched a comprehensive multimodal intelligence service for video understanding at NAB Show 2017. Valossa Core API can recognize audiovisual context, people and identities, analyse co-appearances of people, extract uniquely descriptive speech keywords and highlight explicit content for each moment of the video. Valossa AI determines video topic category based on IAB taxonomy and visualizes the dominant things in the video using unique Content Heatmap tool. The complete detection output is available as Valossa Core metadata, that allows integration of true multimodal intelligence for video applications; from asset management and advertising to creating new digital experiences.

15:30 – 16:00   Tea, coffee,

16:00 – 17:00

Thomas Eskénazi

Presentation of SAMY and LADIO

Mikros Image is currently involved into two European R&D projects, SAMY and LADIO, whose data models implement the CCDM standard, both projects being not delivered yet. The presentation will give an overview of the metadata structures, the choices that lead to them, and how CCDM was able to answer to two practical but pretty different use cases of the Media & Entertainment industry.

The Smart Advertising Media traceabilitY (SAMY) is a proof of concept part of the EGTA working group, that represents the interests of television and radio sales houses. The project aims to improve the metadata management during the whole lifecycle of an advertising campaign, involving advertisers, creative agencies, media agencies, post-production houses, sales houses and broadcasters.

The Live Action Data Input / Output (LADIO) ICT H2020 project aims to create a central hub with structured access to all data generated on a film production set. On top of editing and color grading, that can already initiated on set nowadays, this will allow on set support digital visual effect integration between live action and computer graphics elements. The final objective is to achieve higher quality and more cost-effective visual effects, based on a new streamlined production dataflow.

17:00 – 18:00

Mike Matton

Wall of Moments – Editorial interfaces for interactive radio

This presentation will focus on some recent work VRT Research & Innovation has been performing together with its radio department. More and more, radio stations are expressing a need to become more interactive with their (on-line) community. This interactivity can appear in many ways: from a poll all the way to engaging the community to share interesting content with the radio station, e.g. during a live event.

Achieving true interactivity is a challenge however as it is impossible for an individual radio presenter (even if supported by an editor) to dig through each and every interaction to spot interesting contributions and identify trends. We have been developing a proper solution for managing all this interactivity, including the corresponding metadata management, in order to make it easy for a radio presenter to grasp what is going on.

& Rik Bauwens, VRT

Furthermore, we have been incorporating automated content analysis techniques, such as cognitive services, in order to automatically generate metadata around what's going on. During the presentation, we will also dive a bit deeper in those cognitive services and explain a use case we have developed using the Clarifai cognitive services.
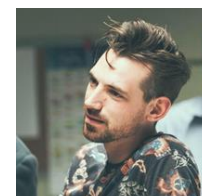
THURSDAY 29 JUNE

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09:00 – 10:00

Workshop on fostering innovation and collaboration around metadata

- **Work Progress in MIM**

- **Fake news, by popular demand**.
  Is fake news the result of the fragmentation in publishing? The flip side of using social media as a publishing channel.

- **Fragmented storytelling. SKAM.**
  How do excising metadata standards, production- and play out flows cope with concepts like this. Will they ever do.

10:00 – 11:00

The SIMOR project [**S**emantic **I**nteraction with **M**edias, **O**bjects and **R**ights]

Titan Asbl, who federates software editors, broadcasters and experts, is a "Do Tank" that has been working for more than 15 years on automatic enhancement of audiovisual assets and on cross-synchronization of broadcasters' sources and resources. Titan delivered a recommendation (AXIS CSRM : Autonomous packages eXchanges for Interoperable Systems - Conceptual Semantic Reference Model) and led several projects that deals with raw textual content enrichment (AXIS-GATE with RTBF), connecting physical Resources of the real world and its digital Representations (with the Mariemont Museum), providing Event-centric indexing for media content (AXIS-SOW with RTBF, Memnon, SGT and Perfect Memory).

On the top, Titan has built up the foundation for a synchronized cross sources and cross resources (text, video, sound, picture) of an [Event]. It benefited Perfect Memory, member of Titan, to build up its Smart MAM: an open, scalable and agile Digital Asset Management platform.

The speech aims at:

- offering a contribution to the dissemination dynamic on interoperability issues
- demonstrate an Asset Management platform "Rights and Event" aware that improves Broadcasters' Digital Marketing and asset monetization through the Perfect Memory's Smart MAM Showcase. This developments are also connected to the UNESCO "Memory of the World" OK (Organizing Knowledge) project.
- Introducing the SIMOR project (Semantic Interaction with Medias, Objects and Rights), the next level that targets the management of the semantic integrations between broadcasters' Media, Object and Rights at the "writing" level.
- looking for future partners for developing the "reading profiles levels".

Guillaume Rachel &

Steny Solitude,

11:00 – 11:30   Tea, Coffee

Jean-Pierre Evain, EBU

11:30 – 12:30

FIMS in the cloud

FIMS has demonstrated how to run a workflow on Amazon at NAB 2017. The presentation will explain the different parts of the implementation using S3 (storage of content and associated metadata), step functions, API Gateway (REST), lambda functions and dynamoDB for temporary storage of metadata. The workflow at NAB consisted of validating semantic data associated with the editorial object and hires essence, the automatic extraction of technical metadata using mediainfo, the creation of a lowres proxy, the extraction of a thumbnail and the push of the aggregated metadata into a semantic repository at the end of a series of processes orchestrated by step functions. The presentation will report on lessons learnt and future activities in FIMS.

12:30 – 14.00   Lunch / End