![EBU logo - Operating Eurovision and Euroradio]

MDN WORKSHOP

BIO – DETAILED PROGRAMME

## MONDAY 30 MAY 2022 (09:00 – 17:00 CEST)

SESSION 1 (09:00 – 10:30 CEST)

Opening / Guest speakers

Antonio Arcidiacono is Director of Technology & Innovation at the European Broadcasting Union. He has extensive experience in conceiving, developing and taking new products and services to market. Since joining the EBU in September 2018, Antonio has launched several initiatives designed to leverage the collective expertise and momentum of the EBU Membership for technology innovation, deliver key building blocks for the digital transformation of public service media, and strengthen collaboration between PSM, European policy initiatives, start-ups and academic institutions. Two of Antonio's most recent initiatives are the 5G Media Action Group (5G-MAG) and EuroVOX. 5G-MAG currently counts 40 members from the industry and aims to ensure future 5G standards are fit for purpose in media production and distribution. EuroVOX is a collaborative project of the EBU and several of its Members that aims to break down language boundaries for users and content. It consists of an open framework upon which services can be built, and a set of tools for media creators, such as speech-to-speech translation. Antonio previously worked as Director of Innovation and a Member of the Management Committee at Eutelsat; the European Space Agency; Telespazio, and Selenia Spazio

Hans Hoffmann (PhD) is EBU Senior Manager and head of unit on media fundamentals and production technologies in the EBU Technology and Innovation department. He has been for 9 years with the Institut fuer Rundfunktechnik (IRT) as research staff in new television technologies until moving to the EBU in 2000. In the EBU he has been leading many activities on media integration, production technologies, technology evaluations, and he established the EBU HDTV testing lab, and work with EBU Members on IT based digital workflows and open innovation strategies. More recently he and his team looked at emerging technologies such as immersive media (UHD, NGA), AI-Data, EU 5G projects, IP and cloud-based media. Hans is the current president of the SMPTE for 2021-22 ("the global home for media professionals, technologist and engineers"). He has been author of many EBU Technical documents; IEEE papers and is a standing speaker and contributor to international conferences and recipient of the 2020 Richard Theile Medal.
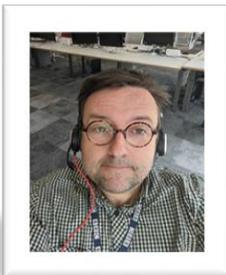
Jeremy Tarling is the BBC's Lead Data Manager responsible for all descriptive content metadata used to descibe BBC programmes on TV and Radio and all digital articles.
https://www.linkedin.com/in/jeremytarling/

Metadata for non-metadata people: how to expose your metadata and its uses within your organization

The explosion in metadata production & use can sometimes feel overwhelming to staff in our businesses whose attention is usually focused elsewhere. But its power to drive reporting, analysis, decision-making and audience experiences makes it relevant to everybody.

So is the answer just to make metadata a bit less scary by hiding it away in a 'black box', leaving it to work its magic quietly so no one has to think about it? Or perhaps it's important enough to force our teams to take metadata seriously.

This presentation argues in favour of a different approach: transparency of information internally, accompanied by tools and visualisations to help people explore and experiment.

Metadata should not be mysterious, its application not a chore, its understanding not limited to engineers and librarians.

Included will be a demonstration of the BBC's approach, both historically and currently.

Keywords: transparency, visualisation, linked data

Tom Hodgkinson (BBC)
https://twitter.com/hodgers/, https://linkedin.com/in/hodgers/

MediaVerse: a decentralized framework for media asset management, authoring and licensing

The MediaVerse project was conceived within a fast-evolving media industry characterized by incumbent platforms (e.g., Facebook, Instagram, YouTube, TikTok) with content creation and sharing as the basis of their business model. These have grown to act as central authorities, imposing their own terms on what type of user-generated content is desirable, visible or even allowed to be shared and monetized. This is a crucial problem for society for several reasons: a) the value of content creation is largely captured by the large digital platforms; b) there is very little control and accountability over how citizens' data is managed by the large digital platforms; c) more often than not, the decisions and strategies of these platforms have unfairly disadvantaged certain companies, groups, or individuals, by limiting access to their services. It becomes increasingly clear that the media sector and society is in need of alternative platforms for creating and sharing media content that do not rely on central authorities.

MediaVerse has the mission to create a decentralized network of intelligent and accessible tools for digital asset management, allowing barrier-free and fair usage and integration of media in different platforms. The project envisions laying the foundations for creators to publish inclusive, diverse and respectful multimedia that may be easily shared and licensed. MediaVerse aims to achieve progress beyond the state-of-the-art in several areas, including web-based XR experience authoring and consumption, novel AI-based media annotation and content moderation methods that can be configured to the needs of different communities, and efficient content identification solutions for media rights management. These advances will be accessible through an open decentralized network of media asset management systems, where anyone can join. This network will enable the monetization of media content directly by its owners and the development and deployment of novel services by third parties.

Keywords: Media asset management, media rights, media annotation, metadata management, decentralized media exchange

Symeon Papadopoulos (CERTH)

Dr. Symeon (Akis) Papadopoulos is a Senior Researcher with the Information Technologies Institute (ITI), Centre for Research and Technology Hellas (CERTH), Thessaloniki, Greece. He holds an electrical and computer engineering diploma from the Aristotle University of Thessaloniki, a Professional Doctorate in Engineering from the Technical University of Eindhoven, a Master's in Business Administration from the Blekinge Institute of Technology and a PhD in Computer Science from the Aristotle University of Thessaloniki. His research interests lie at the intersection of multimedia understanding, social network analysis, information retrieval, big data management and artificial intelligence. Dr. Papadopoulos has co-authored more than 30 papers in refereed journals, 10 book chapters and 100 papers in international conferences, 3 patents, and has edited two books. He has participated in a number of relevant EC FP7 and H2020 projects in the areas of media convergence, social media and artificial intelligence, including WeVerify, HELIOS, FuturePulse, InVID, REVEAL and SocialSensor. He currently coordinates the H2020 MediaVerse project and is a member of the coordinating team of the AI4Media Network of Excellence. During the last years, he has been leading the Media Verification team (MeVer, https://mever.iti.gr), focusing on the development of tools for the detection and analysis of multimedia- and social media-based disinformation.

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10:30 – 11:00	Break

SESSION 2 (11:00 – 12:30 CEST)

Content Tagging in Yle Areena - Improving Quality and Process

Semantic tagging of video and audio content makes content "smarter" which makes it possible to provide cost-efficiently personalised user experiences in an OTT service such as Yle Areena. In our case we use the tag metadata for creating rule-based packages of content on specific topics and as an input for collaborative recommendations.

In the optimal situation, the tags describes the essence of each content item. However, due to the long tail and wide variety of content a broadcaster such as Yle publishes, and due to the distribution nature of how content and tagging is created around the company by different content producers, maintaining consistent and correct tagging for the complete set of content is sometimes challenging.

This presentation discusses quality ensurance and measuring of our tagging process, presents our findings and current work in this area, and outlines future possibilities.

Keywords: Tagging, Quality control

Kim Viljanen (Yle)

Kim Viljanen works as a metadata expert at the Finnish Broadcasting Company Yle. His primary goal is to improve the findability, visibility and engagement of Yle's online television and radio service Yle Areena. He is on a constant journey to improve the company wide metadata practices using state of the art technologies such as artificial intelligence.

https://www.linkedin.com/in/viljanen/ https://twitter.com/digikim

Estimating tagging accuracy at the BBC

The application of descriptive content metadata to content (content tagging) is well established at the BBC. Taggings can be made manually by editorial teams, or increasingly made by automated metadata systems. But how do we measure and compare the quality of these taggings coming from different sources?

This presentation demonstrates the work done on estimating taggings accuracy as a part of the metadata quality project and how it has been implemented in BBC tagging systems.

Keywords: metadata quality

Tatjana Mladenovic is a senior data manager at the BBC, working on content metadata. She has been working on metadata for media in engineering, data analytics and management roles for almost 20 years. Tatjana's main interests are automation of metadata processes and data quality. https://www.linkedin.com/in/tatjana-mladenovic-1210a42/

High-Quality Metadata at the Scene Level

The dwerft research project has shown how metadata can be aggregated along the entire process of movie production. Automating this process to collect metadata on the Scene Level opens up a broad set of new Business Models, such as Telescoping and InStream-Shopping.

However, bringing such a use case to the end user requires a solid Metadata Quality Analysis process in order to be successful.

transfermedia production services has realised such a proof-of-concept, and demonstrates it, as well as the technical requirements and workflow adjustments that need to be addressed.

Keywords: Metadata Quality, Metadata Management, Metadata Tools and Delivery
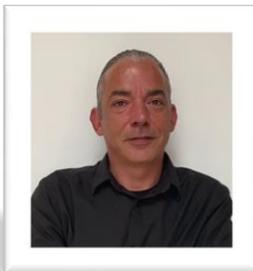
Mark Guelbahar (transfermedia production services GmbH)

Mark Guelbahar (male), Senior Engineer. Mark received his Diploma degree in Computer Science in 2002, and joined Institut für Rundfunktechnik (IRT) directly afterwards. He worked as Project Manager and Senior Engineer at IRT, leading research in the application of metadata modelling, enrichment and content-based recommendations (e.g. within the FP7 projects iNEM4U and HBB-NEXT, which he led for IRT). Additionally, he undertook research in the field of semantic technologies, Named Entity Recognition and semantic Ontology Design along the media production and distribution chain. Within EBU, he actively contributed within the Metadata infromation Models (MiM) group towards EBUCore-RDF and the TV-Anytime Maintenance. From 2018-2021, he held the role of the technical and scientific coordinator of the dwerft research project, which linked the entire media value chain for content in the film business by lossless storage and intelligent cross-linking of metadata in a structured fashion. Since 2021, he is leading the metadata solutions research area at transfermedia. linkedin.com/in/mark-guelbahar

Claudia Wolf (transfermedia production services GmbH)

Claudia Wolf is Metadata Expert at transfermedia and led the largest reseach project in Germany on Linked Metadata for Film & TV. Before she studied film and television production, founding her own film production company and was building up several networks. The conviction that metadata is the key element for automation and the creation of new business models in future media production also led her to the topic of her doctoral thesis. https://www.linkedin.com/in/claudia-wolf77/

12:30 – 13:30	Lunch break

SESSION 3 (13:30 – 15:00 CEST)

"One size fits one" - accessibility through personalization

TV 2 School is a part of TV 2 Norway. TV 2 School has become a major content provider to more than 70 % of primary/secondary education in Norway. TV 2 School is an early adopter when comes to comply with the European Accessibility Act. Being the Norwegian market leader when it comes to accessibility has given a major commercial advantage. The content providers are controlled by a state regulatory body, not being compliant results in loss of sales and fines hitting the customers - typically the municipality buying the content.

Instead of "aiming low" when designing the web-portal - TV 2 Schools solution offer the users a level of accessibility that goes far beyond the statutory requirements. This strategy scores high on CSR, but also give more a robust platform for future possible requirements.

TV 2 School have developed a concept for accessibility built on preferences. The user can apply a preference which gives the user the choice between several different user interfaces, i.e. lay-outs for blind, visually impaired, deaf, hearing impaired, cerebral palsy, symbol users.

To achieve the personalization/preferences-concept, several innovative technical solutions have been developed. This includes navigation-designs, subtitling solutions for many user-groups, technology for visual interpretation of video, morse for deafblind. advanced text-navigation etc.

A rigid testing program has also been established through a dedicated project within TV 2 School - digjobb.no. TV 2 School has hired persons with the actual disability to secure the quality of the user-designs. Digjobb cooperates closely with all the relevant nonprofit organizations and state services.

Taking the lead in this "accessibility marketplace" driven by the European Accessibility Act has also made TV 2 School a platform attractive competing content-providers. Embracing accessibility, being the first mover gives commercial advantages.

Keywords: Accessibility personalisation European Accessibilty Act

Yngvar C. A. Nordberg (TV 2 Skole AS) is Managing Director for TV 2 School / Elevkanalen.no. Nordberg has worked with digital educational publishing for 20 years. Accessibility has been a life-long goal. TV 2 School has become a major provider of online learning resources in the Norwegian market. TV 2 School is part of TV 2 Norway/Egmont.

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How to Search and Contextualize Scenes inside Videos for Enriched Watching Experience: Case WarMemoirSampo – Stories of the Second World War Veterans in Finland

The challenge addressed in this presentation is how to search and access different temporal scenes inside long videos, based on their time-stamped textual transcriptions. As a case study, the WarMemoirSampo project [1] and system are presented, a collection of Finnish Second World War (WW2) veteran interview videos and a portal [2] for watching them on the Semantic Web. In our solution approach it is assumed that textual timestamped descriptions of video scenes are available. From such descriptions it is possible to create automatically, using information extraction techniques, a semantic knowledge graph annotating the interviews scene by scene. Published in a SPARQL endpoint, the graph can be used for searching and enriching the interviews with links to additional information in external data sources. They contextualize and enrich video watching in real time.

The system was implemented using the Sampo model [3] and Sampo-UI tool [4] and is available online as a public service [2].

[1] WarMemoirSampo project homepage: https://seco.cs.aalto.fi/projects/war-memoirs/

[2] WarMemoirSampo portal: https://sotamuistot.arkisto.fi/

[3] Eero Hyvönen. 2021. Digital Humanities on the Semantic Web: Sampo Model and Portal Series. (2022). http://www.semantic-web-journal.net/content/digital-humanities-semantic-web-sampo-model-and-portal-series Semantic Web journal, submitted

[4] Esko Ikkala, Eero Hyvönen, Heikki Rantala, and Mikko Koho. 2022. Sampo-UI: A Full Stack JavaScript Framework for Developing Semantic Portal User Interfaces. Semantic Web journal (13) 1, 69–84. https://doi.org/10.3233/SW-210428

Keywords: videos, knowledge extraction, linked data, semantic web

Eero Hyvönen (HELDIG)

(https://seco.cs.aalto.fi/u/eahyvone/) is professor of semantic media technology at the Aalto University, Department of Computer Science, and director of Helsinki Centre for Digital Humanities (HELDIG) at the University of Helsinki directing the Semantic Computing Research Group (SeCo) specializing on Semantic Web technologies and applications in Digital Humanities. He has published some 500 research articles and books and has got several international and national awards.

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The right place and the right time: combining chaptering and semantic search for a novel short form UX

For many years, people have been able to use web search engines to easily find the content of interest. Unfortunately, television and video service providers usually have search functionality that doesn't live up to the same standards. Due to a lack of metadata, user data, and a more difficult modality, most search results in video services won't go much further than a match on the title and the video description. This leads to results on a program level and not individual parts of the content.

With the rise of short-form video services and as a result of higher viewer expectations, it is therefore important to be able to separate the relevant content from the non-relevant parts: viewers are not interested in watching entire programs when they are looking for a specific topic, so finding the right start and length of the topic in the content is key. Doing this manually is time-consuming. Since the format of this content can change depending on the viewer's style, a flexible segmentation algorithm is vital.

In this talk, we will explain how we built a search service for video content adaptable to any video service content. By using speech recognition, text segmentation, topic modelling, face recognition, and text detection, we show how to extract rich metadata out of raw audio and video data. Furthermore, we disclose how we implemented a custom Elasticsearch plugin and semantic search service that allows us not only to find the right video based on a search query but also the exact moment where a topic starts and ends, such that people can instantly jump to the part of interest. We showcase the end result through an interactive demo.

Keywords: semantic, search, chaptering, content, ux

Bram Zijlstra is Machine Learning Engineer at Media Distillery where he is responsible for the creation and development of software for TV Operators, Broadcasters and OTT Providers to improve the User Experience of their video services. Passionate to apply scientific research and state-of-the-art technologies in new projects, Bram is known for his ability to rapidly build prototypes and turn them into complex software and his passion for Natural Language Processing, Computer Vision and MLops.

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https://linktr.ee/bramz6a

15:00 – 15:30	*Break*

SESSION 4 (15:30 – 16:30 CEST)

Graph-Powered Recommendations at the BBC: An Experiment

At the BBC we have several content recommendation systems, each siloed under their own product. An article recommender recommends articles, a TV programme recommender recommends TV programmes, etc. We need to find a recommendation approach that is truly 'Pan-BBC', able to surface the most relevant content regardless of its format or product. In this presentation I will present our investigations into using graphs to power such a recommender, relying on our content metadata and the connections between pieces of content to bridge between our silos.

Keywords: Graph databases, machine learning, recommendations

Stuart Jennings (BBC)

Stuart is a Lead Data Scientist at the BBC, working on data science integrations with the BBC's internal products.

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Extracting Mise-en-Scene and Emotional Metadata from Video Content

We describe a multi-modal content-based recommender system that replaces traditional metadata with emotional descriptors automatically extracted from the visual and audio channels of a video. Emotional descriptors improve over traditional metadata in terms of both richness (it is possible to extract hundreds of meaningful features covering various modalities) and quality (emotional features are consistent across different systems and immune to human errors).

Emotional descriptors are created by integrating deep visual features, audio features and mise-en-scène features, i.e., the design aspects of movie making influencing aesthetic and style. We believe that the preferences of users on movies can be well described in terms of these emotional descriptors.

We present the results of a number of user studies where we evaluate the quality of recommendations with emotional descriptors against metadata-based baselines.

Our results shed light on the accuracy and beyond-accuracy performance of audio, visual, and textual features in content-based movie recommender systems.

Moreover, our recommender system opens new opportunities in the design of new user interfaces able to offer a personalized way to search for interesting movies through the analysis of film styles rather than using the traditional classifications of movies based on explicit attributes such as genre and cast.

Keywords: AI, Metadata. Emotion

Paolo Cremonesi is professor of Computer Science Engineering at Politecnico di Milano, the most prestigious engineering university in Italy, and co-founder of Moviri, the first and most successful start-up from Politecnico di Milano's accelerator, today an international holding company with more than 200 employees and offices in Milano, Boston, Los Angeles and Singapore.

Paolo is also CTO of ContentWise, the Moviri group's company focused on AI-powered personalization and metadata solutions for video operators, digital media and online retailers.

Paolo holds a MSc in Aerospace Engineering and a PhD in Computer Science. His research interests include quantum computing, artificial intelligence and recommender systems. Paolo has published more than 200 works in journals, conferences and books – collecting more than 5000 citations and 4 best paper awards – and is co-inventor of 9 patents.

TUESDAY 31 MAY 2022 (09:00 – 17:00 CEST)

SESSION 5 (09:00 – 10:30 CEST)

The future technologies in journalism

In Media Futures, the Norwegian centre for innovation-based research for the media, a main research topic is technologies for analysis and production of news. We do this in a context where the journalist's job is continuously changing with new technologies that are adopted for the purpose of productive and creative journalism. Tech-savvy journalists explore the potential of developing computing technologies, and if successful they soon become standard tools in the business.

I this presentation we will summarise perspectives regarding what kind of technology will support the journalist 5-10 years into the future and how it will be used. In an initial study we identified artificial intelligence, communication technologies, interaction technologies, and natural language processing as main technology categories. In subsequent interviews with mainly Norwegian, but also Western European respondents, we address these four technology groups and have gathered in-depth reflections on how the technologies will shape journalism. The 16 respondents are technologically minded journalists as well as technologists from companies that provide products for journalism work.

Keywords: newsrooms, journalists, future, vision

Bjørnar Tessem is professor in Information Science at the University of Bergen, Norway. His research interests include applied artificial intelligence, particularly for media applications, as well as development of information systems.

BBC Radio News Scripts 1937 – 1995: Using an automated tagger to enable journeys across time and space.

The BBC has centralized and OCR'd 165,000 radio news scripts from 1937 – 1995, providing a unique window to inspect the past in great depth and detail. A small team from the Archive Content & Partnerships department used BBC Starfruit to automatically identify entities within the scripts, such as people, places and things. BBC Starfruit is an in-house built system which has been trained on past manual tagging choices by BBC journalists. These tags will enable the public to find and navigate subjects of interest, and to geo-locate the millions of stories within the news scripts, allowing exploration across time and space. This presentation will talk about the project, the data, the methodology used, and demonstrate the user interface, in advance of being made available to the public later in 2022.

Keywords: tagging, metadata, entities, AI, news

Jake Berger, Andy Armstrong (BBC)

Leader of the team that creates audience-facing digitial archive products and services for the BBC, including the BBC Programme Index, Sound Effects Archive and BBC Rewind.

@jakeberger | https://www.bbc.co.uk/archive/stuff-we-do | https://www.linkedin.com/in/jake-berger-85604b2/

The importance and challenges of AI customization and how we solve it

Experts describe artificial intelligence as one of the most decisive success factors for the media industry. The possibility of efficiently and automatically utilizing the vast quantities of images and videos that a company possesses saves costs and time, and thus every company will have to consider AI in the near future.

To achieve a better structure and management of a companies' media data, artificial intelligence can automatically recognize content in any image or video and provide keywording and an improved management of the media assets. In general, this would be the task of an employee, and it can be very time-consuming and prone to error.

The demand for such a technology results in many providers of recognition services, which provide the "one and immediate solution" for all media companies, namely pre-trained AI models. However, these out of the box models come with a major drawback.

With pre-trained AI models, the achieved results of recognition services are tightly correlated to the amount and quality of data the model has been trained on. While pre-trained models are easily obtained, the amount of use cases a media company can cover are restricted, which results in an unsatisfactory experience with AI. Therefore, we have focused on an easy and intuitive way to solve that challenge by providing the necessary tools to cover any use case with the help of AI customization.

We provide tools that can be used immediately and without prior technical knowledge. The user can build his own, individualized AI models and has several options for manual training. The application of these customized models and the associated analysis of image and video files provide a more detailed and higher quality keywording and thus an improved searchability of the media data and a wider range of use cases that can be covered.

Keywords: metadata, content, media, artificial intelligence

Alexander von Kiedrowksi (The Chainless GmbH)
https://www.linkedin.com/company/deepva-ai-platform/?viewAsMember=true

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10:00 – 10:30   *Break*

SESSION 6 (11:00 – 12:30 CEST)

Evolution of EBU CCDM – EBU Core
Presentation of the new ontology: more semantic
Keywords: EBUCore, EBUCCDM, Semantic, Ontology

Tormod Værvågen (gluon media)
With more than thirty years of experience in broadcasting ranging from sound engineering, storytelling and information architecture he has moved on and is currently employed as an information architect at the Norwegian tax administration. Chair of the metadata group in Audio Engineering Society, and one of the main contributors to EBU Core and EBU CCDM. @tormodv

Jürgen Grupp (SWR). Within SWR, Jürgen is focussing on information architecture and trying to push the organisation towards data literacy. He's also chairing the EBU group on metadata modelling and a contributor to CCDM. https://www.linkedin.com/in/juergen-engelbert-grupp/

EBU CCDM Demonstrator Kit
Starter Kit to explore the updated ontology: available for EBU Members
Keywords: EBU CCDM, EBU Core, Demonstrator Kit
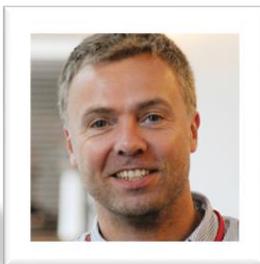
Alexander Schulze (Metadata Models Group)
EBU Metadata Models Group Member - Software, Semantic Web and Knowledge Graph Architect. https://www.linkedin.com/in/alexanderschulze/

Martin Künzle (sem42) has been working as a software architect, manager, and thought leader on large-scale R&D projects for more than 25 years. He recently launched a startup that helps software-intense businesses to turn knowledge into value. He engages in semantic technologies and artificial intelligence to create innovative services for the digital economy. https://www.linkedin.com/in/martin-k%C3%BCnzle-05ab0418/ https://www.xing.com/profile/Martin_Kuenzle2/cv

Round table: Do we still need Metadata Standards?

Guillaume Rachez (Perfect Memory)
Head of Perfect Memory product, in charge of the product vision. Leads the Perfect Memory products roadmap. Semantic technologies evangelist for more than 10 years.
https://www.linkedin.com/in/guillaume-rachez-5b05335/

Matthieu Parmentier started his audio career recording classical music CDs. He joined France Televisions - the French public broadcaster - in 1999 as a sound engineer for live programs and started the management of 3D audio, UHD video and metadata projects eight years later. Matthieu has been leading the Artificial Intelligence Department at France Televisions since its creation in 2019. He co-chairs the Audio Engineering Society Technical Committee for Broadcast and Online Delivery. Matthieu is also the special delegate for Creative and Cultural Industries of Cap Digital, the French cluster. He holds two license degrees in sound recording and video post-production and a master degree in audiovisual research from the Toulouse II University. https://www.linkedin.com/in/matthieuparmentier/

12:30 – 13:30	*Lunch break*

SESSION 7 (13:30 – 15:00 CEST)

Fighting unlawful content on the internet with AI-based monitoring

For years, the amount of justiciable depictions of violence, pornography, hate speech and other inadmissible content on the internet has been steadily increasing. It lies within the responsibilities of the European media regulators to identify and report illegal content on websites and social media, thus creating a safe and trustworthy environment for online users. In order to support this responsibility, Berlin-based Condat AG has developed an AI-based monitoring solution for the largest German state media regulation authority located in North Rhine-Westphalia. The solution consists of three parts: 1) an automatic search component for the most common Social Media platforms, 2) an automatic analysis and classification component which employs a variety of different AI/ML services for the automatic detection of potential law infringements and 3) a UI/UX and workflow component for the manual evaluation of the results the platform has generated, including generating reports for legal complaints. This solution is productive since February 2020 and will be rolled-out to almost all other state authorities in Germany by April 2022. In the session, we will describe the platform as well as the different AI/ML methods which have been employed and comment on their detection success rates with respect to different infringement categories.

Keywords: AI monitoring application

Jan Thomsen (Condat AG) Working at Condat AG in Berlin for many years in the field of Metadata, AI, Semantic Web, Linked Data. and Media Monitoring.

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Application of Artificial Intelligence to aid in the production of wildlife programming

BBC Research & Development has been investigating how artificial intelligence (AI) technologies such as computer vision and machine learning can be applied to assist in the production of natural history programming. Over the last two years we have collaborated with the BBC Natural History Unit (NHU) to test the systems we've developed at the "Watches" series of programmes.

Our primary system is used to assist in monitoring remote wildlife cameras. Trained neural networks help to both detect animals and entraliz their species. This metadata is presented to the product team in various ways and used to help clip recordings of the activity.

We have also developed and applied an audio monitoring system that aids staff who are monitoring public steams for compliance. The system uses ML networks to entraliz sounds and visually warn the staff when it heard inappropriate audio.

This presentation will describe how our systems work, how they have been applied with the production and some of the challenges we've had to overcome. It explore both the strengths and weaknesses of AI-based systems such as these.

Keywords: production machine learning AI audio video monitoring

Robert Dawes (BBC R&D)

Robert is a BBC R&D research engineer, specialising in the application of image analysis, computer vision and tracking to broadcasting. He leads the Intelligent Video Production Tools team which investigates and develops tools to process, analyse and understand video, normally in real time.

Archive content annotation and search with Taylor (Research project TailoredMedia)

The research project TailoredMedia project aims to automate metadata creation for improving discoverability of audiovisual content by leveraging recent advances in AI for natural language processing and computer vision tasks, and interlinking these tools with contextual information.

This presentation shows the progress in the research project TailoredMedia, focusing on automatic content annotation – including human intervention – in a practical archive workflow setting and search in audiovisual content. For automatic annotation, we discuss scene text recognition for German texts, learning object classification from few annotated samples, and efficient classification of location categories and shot types. For all these topics, the issues of (semi-automatic) preparation of training datasets will be discussed. Also, we give insights into our developed click dummy as well as functional prototype (web app) for automatic content annotation and search. Domain experts (e.g. archivists) can review AI-generated tags, which are placed on a timeline for easy navigation. Also, it is possible to search in audiovisual content and collect snippets for further use. The click dummy has been created in Figma, and the functional prototype uses Vue.js as well as a JSON-REST API for getting and changing data from the backend.

The project consortium includes ORF and Österreichische Mediathek (the Austrian archive for sound recordings and videos on cultural and contemporary history) as user organizations.

Keywords: search, AI-based annotation, UI-development

Christoph Bauer (ORF)

Christoph was born in 1960 in Vienna/Austria, studied at Vienna's University of Economics and has several other qualifications like cantor, pianist, organist, choir-conductor, composer, IT-developer, theologist, etc. In 1981 he joined ORF; his main tasks since then (excerpts): He acted as Project Officer ORF for several EC/IST/ICT/H2020/FAA-Projects and is the senior specialist for preservation, digitization and restoration in the ORF archive department. In addition, he is acting as system-administrator for Archive-Systems and AV-Digitization, workflow-developer and AI-mining-specialist. Christoph was chairman of the SNML-TNG Management Board (2011-2013), vice-chair of maa (Media-Archives-Austria Association) (2012-2016), member of the ARD K-ARL Expert group for Video-Mining and lecturer at the University of Vienna. He is the current general-secretary of maa (Media-Archives-Austria Association), member of the ARD medas Expert group Mining, member of the PMC of FIAT/IFTA and NKE for the EU-Project "Empowering Society"

Peter Judmaier (UAS st-pölten)

Peter worked for more 20 years in the area of usability engineering and user experience design at University of Applied Science St Pölten, University of Vienna, Vienna University of Technology, and for a number of IT companies. Almost for the same time he was involved in the acquisition and execution of a number of funded applied research projects at universities and research institutes. He is also an expert in digital game design and serious gaming. https://icmt.fhstp.ac.at/en/team/peter-judmaier

Werner Bailer (Joanneum Research)

Werner Bailer is a key researcher of the audiovisual media group at the Digital - Institute of Information and Communication Technologies at JOANNEUM RESEARCH in Graz, Austria. He received a degree in Media Technology and Design in 2002 for his diploma thesis on motion estimation and segmentation for film/video standards conversion. His research interests include audiovisual content analysis and retrieval, machine learning as well as multimedia metadata. He is regularly contributing to multimedia standardization activities, in particular in MPEG. https://www.linkedin.com/in/wbailer/

15:00 – 15:30	*Break*

SESSION 8 (15:30 – 17:00 CEST)

Building Content Value on Top of Metadata

In this session, you will learn how metadata, together with a centralized data strategy, enables value to be exploited from your content. I will discuss how broadcasters are using machine learning in workflows to generate this metadata from their live and non-live content, and then how this structured metadata is then used together with services like AWS Personalize to help broadcasters realise new value from their content.

Keywords: metadata, data strategy, machine learning

Matt Eaton is a Professional Services leader within Amazon Web Services, working with global Media & Entertainment accounts to accelerate their business outcomes. He has worked with broadcasters, studios and publishers for over 20 years delivering innovative technical solutions. After starting his career in the advertising industry, Matt worked in technology and operational roles at broadcasters like Disney and Virgin Media. Matt ran his own media consulting company living in the US before moving back to the UK to lead the broadcast business consulting practice at Cognizant. Before joining Amazon Web Services, Matt led the EMEA operations of an AI / machine learning start up. He holds an Executive MBA from Ashridge Business School.

Scalable & mutable web analytics architecture

Within Yle we have designed our analytics platform by following main principles: automation, scalability and mutability. Within these days especially mutability needs focus because current regulations (national and EU-level) seems to be changing all the time.

In the presentation we will show Yle's event architecture and how we mitigate risks of changing regulations. Mitigation strategies includes microservice architecture, strict scoping of services and tendering processes based on services not products.

Keywords: infrastructure, production, media data, platform

Olli Salakari (Yle)

I'm a SW/Data architect at Yle, Finland's national public service media company. My focus area is data: designing data entities, coordinating data pipeline development and providing services and tooling for users of the data. I have ~10 years of experience with several different data-related technologies and BSc in Mathematics.

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A modular serverless MAM for AME

MCMA is an EBU working group developing open source framework and librairies.

MCMA means Media Cloud Microservice Architecture : It is a Serverless/Microservice strategy for media to move to flexible microservice architectures, a methodology to support services from most common cloud providers (AWS, AZURE, GOOGLE).It is an open source project, with libraries to facilitate implementation of cloud services and let the developers focus on added values services and workflows. The MCMA librairies and architecture allow to standardize and abstract the notion of service (AI and others). It instantiates services with underline configured infrastructure and define a common structure for representing an atomic operation (Job). In this presentation we will show an open source MAM demonstrator using the MCMA architectures and librairies to perform automatic metadata extraction.

Keywords: MAM, Serverless, AME, Open Source


Joost Rovers (MCMA working group)

Experienced Senior Software Engineer with a demonstrated history of working in the broadcast media industry. Strong engineering professional skilled on various platforms and computer languages, Nowadays mainly focused on serverless computing.

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WEDNESDAY 1 JUNE 2022 (09:00 – 17:00 CEST)

SESSION 9 (09:00 – 10:30 CEST)

How Good is my AI System - Measures and Evaluation for Face Recognition in Pictures and Videos

With the rise of deep learning, AI driven technologies for efficient multimedia analysis have gained a lot of momentum in the recent past and are applied in various forms on a daily basis. Although the obtained results might be impressive at first glance, a thorough and conscientious evaluation of such algorithms is key to get an understanding of strengths and weaknesses of the applied methods.

At Fraunhofer IDMT we have developed a face analysis framework for individual identification, gender classification as well as age prediction among others in images and videos. Each module of the face analysis pipeline comprises several state-of-the-art methods. In this talk we will discuss methodologies and evaluation measures commonly used in the scientific community to evaluate face analysis algorithms in images. We will also discuss possibilities how to extend these ideas to video.
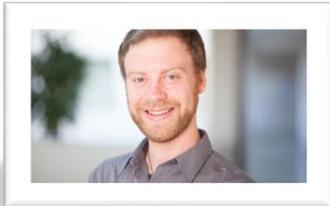
Alexander Loos (Fraunhofer IDMT)

Alexander Loos is a research engineer at the Audio-visual Systems group of the Fraunhofer Institute for Digital Media Technology (IDMT), Ilmenau, Germany. He studied computational engineering at the Ilmenau University of Technology and completed his studies with a diploma thesis entitled "Erweiterung von Verfahren zur Transkription von Solo-Parts in Musikstücken". In 2009 he joined the institute as a PhD student in the Audio-visual systems group. He is author of a number of scientific publications and worked in several industry projects and public funded research projects in the field of audio-visual fingerprinting, content-based image retrieval and face recognition. He is involved in the German research project SAISBECO and lead of the workpackage identification of Great Apes using face recognition. His main research interests comprise image and video analysis, pattern recognition, face recognition, multimodal signal processing, and machine learning.

http://www.idmt.fraunhofer.de/en/institute/doctorands/loos.html; https://www.linkedin.com/in/alexander-loos-b2b717aa

Revolution through Voice Biometrics & Speech Analytics

We go through the applicability and the algorithms of voice technologies now and what the development will look like in the near future. This session describes how Voice biometrics & Speech analytics can collaborate in real time through examples.

1. **Combining Voice Biometrics & STT**
   Through language recognition, for example, Automatic Code-switching takes place in order to be able to switch between languages (language models) in real time. And what benefits that can create for live broadcasting.

2. **Gender and Age estimation**

   Illustration of technical applicability regarding Gender & Age estimation with associated use-cases for broad casting analytics.

3. **Speaker Verification**

   How quickly and confident can voice biometric technology identify a person through a so-called voice-print? We suggest examples of the benefits it creates for an increased journalistic efficiency combined with transcribed metadata.

4. **All speech-tech in real time**
   To what capacity is it possible to combine the entire technology potential in real time. In what way will it revolutionize the availability factor in the broad casting industry?

Keywords: Biometrics, STT, Face recognition, Speaker verification

Johan Classon (Conversy)

Johan is an experienced tech innovation entrepreneur and has worked with speech technologies for the past 3 years. He is one of the founders of Conversy - the full service platform for speech tech. Johan is a successful entrepreneur with a demonstrated high-value execution in management consulting and new tech industry. Founder of AKOA (now Roboyo) and CEO for the first fast growing years, from 2 to 70 employees established in US, Germany and Sweden. Johan has a BE degree in Informatics from the University of Gothenburg and an Executive MBA focused in Leading Innovation from Stockholm School of Economics.

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EBU AI - Benchmarking Group: Facial recognition

After developing an open source tool to evaluate the quality of transcripts, the EBU AI-Benchmarking Working Group is developing an open source framework for facial recognition which is a key technology used by many broadcasters.

The developed pipeline will bring together models and algorithms for performing facial recognition on video.

The aim is to have a parametric pipeline to evaluate different face detection and recognition options, as well as other blocks such as clustering.

The tool will generate scores by considering metrics well suited to videos. In this presentation, we will review the key technologies and metrics.

Keywords: Benchmarking, Face recognition

Alberto Messina (RAI)

Research and Development coordinator, Head of Rai's R&I unit in TV Production co-author of 80+ scientific publications, leads research on content production and management systems based on AI technologies, and full-IP and cloud-based systems for production. He collaborates with national and international research institutes, and has worked in many European funded projects. Past contract professor at the Polytechnic of Turin, he actively participates in international standardization bodies, EBU and MPEG. https://www.linkedin.com/in/alberto-messina-002170b/

Alexandre Rouxel **is Senior Project Manager on Data and AI at the EBU where he manages the AI and metadata community, AIM, and coordinates the collaborative working groups on Metadata, AI and Cloud Computing. Within the EBU Technology and Innovation Department, he leads the development of AI applications for fake news detection and the metadata exchange platform for archives. He has 20 years of experience in developing innovative products from research to market. https://www.linkedin.com/in/alexandre-rouxel/**

10:30 – 11:00	Break

SESSION 10 (11:00 – 12:30 CEST)

Nijta: A voice anonymization solution to protect speaker's privacy

Today's definition of a customer-centric business model is incomplete without automatic speech processing components which aim to serve the clients' needs efficiently. However, deploying these components results in large-scale voice data collection containing private, sensitive, and personally identifiable information about the speakers. European privacy laws such as the GDPR require data anonymization and removal of the biometric information from the collected speech data.

We address this challenge by providing a robust and secure voice anonymization platform, Nijta, which quickly removes speaker's personally identifiable information from their voice data. The process of anonymization grants wide access of this data to the organisations, while allowing them to have trustful GDPR-compliant user interaction with their customers. Moreover, it enhances the usefulness of customer's data to optimise dominant business components like speech transcription systems, leading to more accurate extraction of metadata from voice, like customer preferences, emotions, etc.

Keywords: privacy, voice data, GDPR, metadata, speech transcription

Brij Mohan Lal Srivastava (Inria France)
Dr. Brij Mohan Lal Srivastava is the Project Holder of Nijta at Inria Startup Studio located in Lille. He has eight years of experience working on different applications of voice data in AI. During his Ph.D. at Inria, he investigated the topic of Privacy in Speech Processing. He, along with his collaborators Nathalie Vauquier, Seyed Ahmed Hosseini, and Dr. Emmanuel Vincent, is currently working towards creating a startup, Nijta, which offers secure voice anonymization solutions businesses need to comply with the GDPR and to build trustful relationships with their customers by respecting their privacy.

https://www.linkedin.com/in/brijsri/

Building editorial values into scalable algorithmic recommendation systems

Algorithmic recommendations are, fundamentally, editorial choices. Selecting what content a given user is recommended determines the likely experience that user has, as well as informing their value judgement. Editorial sensitivity is key in shaping a broadcaster's output, ensuring that content is both relevant to its audiences, and reflective of its institutional values. Manual curation allows editors to rely on editorial guidelines and their domain knowledge to pick the appropriate content for each product and audience. However, it is difficult to distil these complex considerations into a purely automated system. How do we ensure that the same guidelines and domain knowledge are applied at scale in recommender systems?

We present a subjective evaluation framework that we use for embedding editorial guidelines in algorithmic recommendations. This framework broadly consists of: (1) Identify what properties separate appropriate from inappropriate recommendations. (2) Implement these values in a prototype recommender. (3) Collect subjective feedback upon the appropriateness of a representative sample of prototype recommendations. (4) Generate quantitative metrics based upon subjective feedback. Make iterative improvements until these metrics surpass a threshold of appropriateness. (5) Deploy prototype. Monitor the adherence of the deployed recommender to editorial values through the scheduled running of a suite of tailored behavioural tests.

This approach was developed within BBC Datalab, with the aim to balance compliance with editorial values and a simple mechanism for iterative editorial review. We wish to initiate a cross-organisation discussion, to provide a launching point for the development of a more general framework, flexible in how editorial values are encoded, and adaptable to individual organisations. Ultimately, embedding editorial values into algorithmic recommendations allows a higher degree of transparency and accountability, while ensuring the content that gets recommended is a positive reflection of the broadcaster.

Keywords: Recommender systems, editorial values, process, quality

Ivan Alvarez (BBC)

Ivan is a data scientist working on personalised recommendations. His main interests are applied machine learning for forward prediction and experimental design for audience insight.

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Autotagging of video based on ASR transcripts

Our newsroom has rapidly moved towards more live and breaking news content for both linear and VOD platforms. But low metadata quality for live content in the archive is a big challenge for a commercial public broadcaster like TV 2. Last autumn we started an autotagging pilot based on ASR data, inspired by the excellent live and dynamic article recommendation prototype built by the EBU Eurovox and EBU PEACH teams.

In cooperation with iMatrics from Sweden we will soon conclude on our pilot on extracting topics and named entities from ASR transcribed text from news programs. We already see interesting potentials in extracting metadata value for annotation, better search and recommendations this way, but there's a lot of sources of errors and false positives by such an ASR approach in a low resource language as Norwegian.

Keywords: Automatic Speech Recognition ASR Transcripts Autotagging Topics Classification Named Entities IPTC Wikidata Pilot

Christoffer Krona (Imatrics)

Christoffer Krona has a background in IT/Computer Science. He is currently the CTO of the NLP company iMatrics and is one of its four co-founders. His passion lies in helping customers realize the full potential of metadata. https://www.linkedin.com/in/christoffer-krona-68062b80/

Are Tverberg works as a solutions architect and team lead at TV 2 Norway. The team explores AI and machine learning services and solutions to optimize production and journalism workflows in the media house. TV 2 is a major partner in MediaFutures Research center for Responsible Media Technology in Bergen, and Are is co-lead of the WP3 Media Content Production and journalism technology work package. He is participating in the AIM and Newsroom EBU Tech work groups, and has contributed to the EBUCore and CCDM standards. He has also been participating in the NorDig EPG/Event Metadata Group. Are has former background as a journalist, news producer and newsroom workflow specialist in integrating NRSC, MAM and PAM systems at TV 2. He has been in the broadcast industry since 1990."

LinkedIn: aretverberg, Twitter: @AreTverberg

12:30 – 13:30	Lunch break

SESSION 11 (13:30 – 15:00 CEST)

### Music and A.I.: lessons learnt at VRT

Over the last few years, VRT has been investigating possible use cases of A.I. in the musical domain. Having done some POCs with diverse companies, some lessons are learnt, others are still unclear.

The expectations and purposes of A.I. are very broad and diverse: Reducing workload in cataloguing large collections, enriching them with subjective metadata such as moods, removing the subjectivity when classifying the music in genres, facilitating music selection for the public are among them.

A.I. also comes with specific challenges regarding the need for good editing tools and good search interfaces, right thresholds for appropriate search results and usable taxonomies and ontologies.

In this presentation, VRT will share some insights regarding the POCs that have taken place and discuss some of what are next steps and priorities for the future.

Keywords: Music; Automatic Metadata Extraction; Music Similarities; Ontology
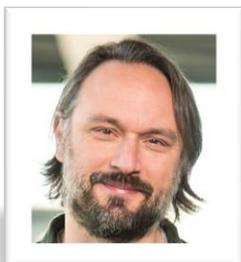
Koen Renders (VRT)

Music archivist and key user for music archive systems at VRT since 2000

Hanna Lukashevich is head of the Semantic Music Technologies research group at Fraunhofer Institute for Digital Media Technology IDMT in Ilmenau, Germany. Among her research interests are audio signal processing, machine learning and AI. As head of the SMT group, she manages a number of R&D projects, both for companies in the digital media sector as well as national and international public projects. https://www.linkedin.com/in/hannalukashevich/

The semantic path of the data!

This keynote offers an introduction to the issues of the use of semantics at the data level! Several main topics are covered:

A global vision: The Fourth Paradigm of data:

The increasing and massive use of data brings a significant change for science. All disciplines need new tools that can handle not only large datasets, but also the cross-product of large and diverse datasets. There are several multi-faceted challenges related to this evolution! The question is whether this is a "fourth paradigm or a further development of the empirical component of science".

Conceptual models:

- The DIKW pyramid represents the relationships between data, information, knowledge and wisdom. The objective of this four-layer model is to build a knowledge architecture for service management, and to establish a real foundation, starting from data (data) up to knowledge, according to a continuity that distinguishes data, information, knowledge, and wisdom, as much as he seeks their unity.
- The Meaning of the Meaning (Ogden and Richards) : the "semantic triangle": to illustrate his point that there is a direct relationship between symbols and thought, the triangle offers a model simple in which the three factors involved in the statement or idea (the world in perception, the concept and its representation) are placed in the corners and the relations between them are represented.

Semantic data:

Semantic data => Data for which the formalism used in their representation covers a definition of the meaning (up to the chosen level of detail) attributed to the data and that this formalism is itself represented by data, via a formal computer language using primitives specific to logic and mathematics.

From interoperability to data intelligibility:

Interoperability: the ability of a system, whose interfaces are fully known, to operate with other existing or future systems without restriction of access or implementation.

If the goal of science is to make the world intelligible and if intelligence is the ability to make connections and grasp relationships, intelligibility is what is grasped by intelligence.

A concrete application:

The European Commission therefore has presented in 2021 a legislative proposal to regulate the use of artificial intelligence (AI) systems. The "ethical" process control involves the use of semantics!

Roger Roberts (TITAN)

The long and winding road of the semantic ! 40 years in the audiovisual world, including 30 in broadcasting (at RTBF Belgian Public Broadcaster), retired in 2015 and since involved in UNESCO's "Memory of the World" program! In this extensive career, a red thread, that of a craftsman: "director". Lured by live programs production (News, Formula 1, …), I will not leave the big house! In the 90s, it was the craze for the emerging digital wave, the digitization of the signal! But very quickly, the generic concerns of the indexing in the production and distribution processes take over! How to define an audiovisual object, declare its existence, ensure its sustainability! To all these questions, the ISO will answer by publishing in 2003 the OAIS (Open Archival Information System) standard, a conceptual model intended for the management, archiving and long-term preservation of digital documents. Finally, a model that addresses the issue of the migration of digital information to new media and formats, the modeling of the representation of information, interoperability, the role of software,... This standard will weigh heavily on my vision technological and that I will bring within the digitization projects within the RTBF (DAM/MAM – BMS, Playout) … but the computer world is "programmatic" oriented, not semantic! What is an information – a knowledge -data … for a computer ?? To facilitate the implementation of this vision, the TITAN npo has finalized a conceptual model (AXIS-CSRM) to manage the export of semantically structured data between heterogeneous universes ... clearly how to manage the relations between objects of the real world, their representations, and their meanings. All this to be able to ensure "preservation", "access" and finally "awareness" …. the three objectives of "Memory of the world" … or the intelligibility of data! In short : 1975 – 1984: Director (various private companies) 1984 – 2015: RTBF (TV director – Head of directors Head of Cultural Resources – R&D) 1994 - ………: President of TITAN npo (Televisual Interactive Terminal ad Associated Networks) 2016 - ………..: President of the Belgian Committee "Memory of the World" – UNESCO

TV Metadata interoperability - Broadcaster´s data within TV Operator´s EPGs

The presentation/demonstration will show why and how Media Press ingests, identifies, integrates, links, enriches, customises and exports broadcster´s metadata to TV operators. Focus is on identifiers, AI, tagging. Media Press is the #1 povider for TV metadata solutions and services in Europe. All services and solutions are developed and operated by Media Press´ +500 IT and editorial staff in Europe.

Keywords: AI, identifiers, visuals, tagging, keywords

Christian Töpper **heads Business Development at Media Press Group. He is an experienced media and technology executive with more than 15 years of leadership roles in the TV metadata and streaming business. Before joining Media Press Group Christian worked at innovation projects and in turnaround management with large media and technology corporations like Swisscom, Bertelsmann, and Axel Springer.**

15:00 – 15:30	*Break*

SESSION 12 (15:30 – 17:00 CEST)

Bias and mitigations in recommendations for BBC Sounds

There are a large number of implicit biases within user data that are relevant when operating production ML systems at scale. If these are not accounted for, they can degrade or distort the results of an ML system, forming part of a feedback loop that increases the magnitude of the effect over time. Popularity biases in recommender systems, whereby popular items occur more frequently in training data and as a result are disproportionately recommended, is one such example of this.

This is highly relevant for BBC products, where there is a large catalogue, but the overwhelming amount of user engagement lies with a small number of media items. It is important to create recommender systems that do not just recommend the most popular items, but are able to surface more niche content from the long tail as appropriate.

In this talk we describe one approach, Inverse Propensity Weighting (IPW), to mitigate this in BBC Sounds. This reweights incoming user data based on likelihood modelling; more popular items are assigned lower weights relative to less popular items.This increases both the personalisation and catalogue coverage of recommendations through increased novelty, and can be tuned to meet business needs. This is in the process of being implemented in the Sounds recommender system, with the intention of live user tests in the near future.

Keywords: Bias, Recommendations, BBC Sounds

Duncan Walker is a research engineer at the BBC. His work focusses on evaluating and developing recommendations algorithms for the BBC's public service offerings. His current interests include fairness, ethics and implicit biases in ML systems**.**

Using AI for automatic shot listing in News - The Associated press

In 2019, the Associated Press (AP) – the world's largest international news agency – instigated a project to leverage AI technology to shorten its production process so that its customers could receive content more quickly, while significantly reducing manual input, freeing its own staff for more creative purposes. AP turned to Limecraft to enable the transformation, using computer vision for scene description, facial recognition and gesture detection alongside Automatic Speech Recognition, which together deliver a single, coherent and frame-accurate description of every individual shot. Together, over the last 24 months, the AP and Limecraft brought a pipeline to live that is currently processing 20.000 hours of original footage per year. During this presentation, we will discuss the do's and don'ts of using AI in production, and present practical guidance to ensure successful implementation.

Keywords: AI automation storytelling

Maarten Verwaest (Limecraft) Helping media companies to manage their Digital Workflow, to collaboration, to cut production cost and to explore new creative avenues.
https://www.linkedin.com/in/maartenverwaest / https://www.twitter.com/maartenverwaest

Exploring the many uses of embedding based textual similarity

In the recent years it has become a norm in Natural Language Processing to represent words and their semantics as vectors (known as word embeddings) and using these vectors to solve various downstream tasks.

In our presentation we will be reporting on our progress and experiences with using word embeddings to calculate the similarity between texts.

We are working with three document types - 1. online news articles, 2. automated transcripts of various television content such as news and political debates, 3. movie subtitles. Our use cases include related articles suggestion, search, and movie

recommendation for our streaming platform. Our overall aim is to arrive at a text representation that would allow us to use unified and efficient workflows for all three types of textual data.

Keywords: text vector embeddings, similarity

Lubos Steskal (TV 2 Norway)

Lubos Steskal works as a Data Scientist in TV 2. After getting his PhD in computer science, he participated in a research project that set out to map out the structure and discourse of the climate change blogosphere. He also worked in a news and media recommendation and aggregation start-up, a bank and is currently enjoying himself in TV 2. In his spare time, he co-founded and later sold an escape room company.

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