EBU
OPERATING EUROVISION AND EURORADIO

PRODUCTION
TECHNOLOGY
SEMINAR 2014

SPEAKER BIOGRAPHIES & SYNOPSES

KEYNOTE SESSION

Simon Fell (EBU)

Simon Fell is the Director of Technology & Innovation at the EBU, a position he took up in August 2013. Mr Fell has more than 35 years' experience in senior broadcasting technology roles, including at British broadcaster ITV, where he was Director of Future Technologies (2008-2009) and Controller of Emerging Technologies (2004-2006). From 1991-2004 Mr Fell worked for Carlton Television, the ITV franchise holder for the London region, where he held several executive roles linked to operations and emerging technologies. Mr Fell was until August 2013 the Chairman of the Technical Council at the Digital Television Group, the industry association for digital television in the UK. His career had previously brought him into contact with the EBU, where he sat on the Technical Committee on behalf of UK broadcasters between 2006 and 2009. He is now responsible for steering EBU Technology & Innovation in its mission of being an indispensable partner to EBU Members, driving media innovation and integration, setting standards and defining and sharing best practices in media production and delivery.

Hans Hoffmann (EBU)

Dr. Hans Hoffmann 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 production technologies department until moving to the EBU in 2000. In the EBU he has been leading many activities on media integration, production technologies, video codec evaluations, he established the EBU HDTV testing lab, and work with EBU Members on IT based digital workflows and recently UHDTV. He has been author of many EBU Technical documents; IEEE papers and is a standing speaker and contributor to international conferences.
Hans is a fellow of the SMPTE and a member of the SID and FKT and IEEE and was the SMPTE Engineering Vice President from 2011-13.

Kevin McEntee (Netflix)

How standards cooperation can boost artistic freedom and viewer delight
A perspective from Netflix on a common cause for broadcasters and streamers

- History of Netflix Streaming
- Long term perspective: these are the very early days of video entertainment
- Open standards enable both artistic freedom and viewer delight

Kevin McEntee is Vice President of Digital Supply Chain at Netflix. Kevin has held this role for two years. Prior to taking on this role, Kevin was Vice President of Systems and ECommerce at Netflix. Kevin has been at Netflix for a total of 14 years. Prior to Netflix, Kevin worked as a software developer for startups, Netscape Communications, and Apple Computer. Kevin received a Bachelor of Science in Computer Science degree from California Polytechnic State University in San Luis Obispo.

Mark Harrison
(Digital Production Partnership)

The Coming Storm - Is the cloud ready for the production community?

- Creativity is a messy business – and isn't a natural friend to IT.
- The complexity of production technology has never been so great – and productions' understanding of it so low. So how do you prove benefits?
- You cannot overstate the importance of trust in the production community.

Mark Harrison began his career as an Historian at Cambridge University, before moving into broadcasting. He spent fifteen years as a freelance film director and executive producer making programmes for the BBC, Channel 4 and The Discovery Channel across a range of genres, and working with a number of independent companies. Among the awards for this work were ones from the RTS, BFI and an International Emmy. In 2000 he became Managing Director of Soul Purpose Productions, and then in 2002 was appointed Head of Arts for the BBC. He subsequently became Head of Multiplatform Production for the BBC, and during that time established a reputation for production innovation.
In 2011 he became Controller of Production for BBC North in Salford and was responsible for defining and delivering new ways of working. Mark is a founder member of the Digital Production Partnership (DPP), created by the BBC, ITV and Channel Four in 2011 to accelerate the move to end-to-end digital production and distribution in British Broadcasting. He recently authored The Creative Revolution, a report for the DPP on how digital technology is changing creativity in television.
In September 2013 he became Chair of the DPP. He also now leads for the BBC on its end-to-end digital programme.

SESSION 1: CODECS FOR PRODUCTION & DISTRIBUTION

Dagmar Driesnack (IRT)

Studio Codec Test Results

During the last years HDTV is widely spread in the broadcasting world. The broadcasters had the choice between Panasonics AVC-I (H.264-based, I-frame-only) and Sonys XDCAM HD422 (MPEG-2-based, Long Gop) to build up the production environment and the file exchange. In 2013 the Strategic Programme Beyond HD has evaluated also the new production codecs of both manufacturers. Both implementations are now H.264-based and both have versions in I-frame-only and Long Gop. This presentation will introduce these new codecs.

Dagmar Driesnack graduated in Media Technology at the University of Applied Sciences in Mittweida. In her diploma thesis at IRT, she focused on quality investigations of HD codecs and on a comparison of HDTV formats. In summer 2006, she joined IRT as a research engineer and is now active in the department “Production Systems Television” working on topics like compression in production, contribution and distribution for HDTV and beyond HD. She was leading the EU funded project DIOMEDES at IRT. She chaired the former EBU D/HDrec-group and now vice chair of the SP BHD. She is also a member of the DVB project and the FKT.

Julien Lemotheux
(Orange Labs)

HEVC Live at Roland Garros 2013
An overview on this world’s first end-to-end HEVC delivery chain

- What is the architecture to deliver a live event using HEVC
- What are the equipments impacted by the use of HEVC
- What are actual restrictions to broadcast HEVC stream to multiscreen

Since 2007, **Julien Lemotheux** has been involved on Orange TV head end and streaming services. He is expert in HTTP Adaptive Streaming technologies, working on encoders, streaming servers and Smooth Streaming/HLS/DASH clients. He is at present technical manager on technical anticipation projects in Orange Labs.

 **Ken McCann** (Zetacast)	**Evolution of video codecs** Compression systems in the studio, contribution and distribution • HEVC: a new generation of video coding • What comes next? • Longer term evolution **Ken McCann**, Director – ZetaCast Ken McCann is a director and co-founder of ZetaCast, an independent technology consultancy company specialising in digital TV and related systems. Prior to founding ZetaCast in 2002, Ken worked at Philips, Symbionics and NTL. Ken contributed significantly to the development of the MPEG-2 standard and is now working on the next generation video coding standard, known as High Efficiency Video Coding (HEVC). Ken has chaired the DVB technical group responsible for audio-visual coding specifications (TM-AVC) since its inception nearly 20 years ago.

SESSION 2: PANEL DISCUSSION ON FUTURE INDUSTRY TRENDS

 **Paul Gray** (DisplaySearch)	**How Display Technology is Changing Television** The growth of TV as app and the influence of mobile devices. • The LCD panel business continues to dictate the direction of TV featuring and capabilities • Mobile devices are increasingly shaping television usage – for consumers, TV is becoming an app • The technology landscape is shifting: Plasma is stopping, OLED struggles to emerge from small screens, will LCD remain unchallenged? **Paul Gray** is Director of European TV Research for DisplaySearch. He also covers digital broadcast, connected TV, signal processing and semiconductor technology. He is heavily involved in analysis and forecasting of connected TV and new television featuring. Paul has worked his entire career in the TV supply chain, and has more than 15 years of experience in market intelligence, marketing and product management. His work includes forecasting, product strategy and investment and R&D decisions. Before joining DisplaySearch, Paul worked at NXP Semiconductors as a market intelligence manager and also as product manager for TV semiconductors. Before NXP, he held positions of increasing responsibility at Philips Display Components (later LG.Philips Displays), including Director and International Account Manager in both Asia and Europe. Paul started his career as a production shift leader in a CRT factory. Paul has a bachelor's degree in electrical engineering and a management diploma in industrial studies.
 **Frans de Jong** (EBU)	Frans de Jong holds a Masters degree in Information Theory from Delft Technical University. He has worked in the media industry all his life, both in hands-on (video editor, broadcast engineer) and in development roles (system architect, technical consultant). Since 2003 Frans works at the EBU's technical unit as a Senior Engineer, focussing on production technology topics, such as HDTV, System Integration, Subtitling, Quality Control and Loudness. Frans is fond of cable cars, which fortunately are in abundant supply in the country where he works and lives: Switzerland.
Kevin McEntee (Netflix)	See above
Mark Harrison (DPP)	See above

SESSION 3: WORKFLOWS ENABLING INTEGRATION

Dieter Bornemann
(ORF)

Changing the newsroom - mistakes you can avoid
A comparative study of six EBU members newsrooms

- Unavoidable obstacles in the change process.
- Why management have to change.
- What does multimedia mean for journalism

Dieter Bornemann - TV-Journalist and Convergence-Expert
He is a TV-journalist, elected spokesperson for all ORF-journalists, and deputy head of the economic department for the main news program in Austria.
Recently he finished an international master-programm in international media management. For his master thesis he visited several international newsrooms in the US and Europe. For the thesis he compared six EBU members newsrooms and did an extensive survey among ORF journalists, what to expect from a multimedia newsroom.
He is an experienced editor and reporter for radio (6 years), print (6 years) and TV (15 years). After starting his journalism career in newspapers, Bornemann switched to broadcast journalism in 1992. Starting as a radio journalist, he worked as Brussels-based EU-correspondent. Since 2002 he is working for the main news TV program at the ORF with numerous international assignments. 2012 he was elected as spokesman for all journalists at the ORF.
Bornemann joined a fellowship at Duke University, North Carolina and attended a course in broadcast journalism at New York Film Academy.
Since 2009 he is holding a lectureship at the University of Vienna, Institute for Journalism and Communication.

Julie Gagnon
(CBC/Radio Canada)

Content Ingest and Validation - Standardizing the ingest process at CBC/Radio-Canada

- Implementing a single centralized video content acquisition and validation workflow allows a broadcaster to simplify and standardize the content ingest process. The efficiency gain and cost reduction will allow the broadcaster to focus on valued added content transformation and multiplatform distribution, areas where he really needs to differentiate himself from other players in this industry.
- Actual workflows in tape-based infrastructure cannot be transposed into an optimized and efficient file based production environment. During the transition, workflows need to be updated and new avenues such as metadata, quality control, validation,… need to be explored to benefit from all areas that could provide gains in efficiency and cost-effectiveness.
- The success of a well-designed file-based workflow implementation will also depend on the fact that new equipment is required (orchestration system, Qc tools, loudness corrector, transcoders,..), the multiple systems need to be well interconnected and finally, the role and tasks of human resources need to be adapted.

Julie Gagnon works as a senior engineer for CBC/Radio-Canada in the New Broadcast Technology department.
While studying at the École Polytechnique de Montréal she completed internships at the school's Virtual Reality lab, EDF France and the Canadian Space Agency. After graduating in 1998, she joined Teleglobe and provided operational support for the company's international audiovisual network, and implemented new circuits (TV5's all-digital circuit, CBC's Sydney 2000 Olympic intercontinental transmission).
With CBC since 2002, she has been involved in various projects related to any segments of the broadcast chain such as, leading different work groups (loudness control, acquisition standards), evaluating production/transmission equipment; performing studies (radio/television audio levels harmonization, inter-city Desktop DTV Trial, Olympics remote production pilot trial), as well as participating in working groups for standardization organizations (ATSC for loudness, and recently AMWA for a new AS-11 North American Shim project).

Sascha Quillet (BCE)

Integrated and distributed production workflows

- Automated Production Workflows (editing, subtitleing, dubbing, delivery)
- Workflows for a TV Channel over the Cloud (BIG RTL India)
- Trusted Resource Sharing (Transcoding, Storage, Watermarking…)

Sascha Quillet holds a Master Degree in Computer Science.
He works since 2003 for the Broadcast industry where he was deeply involve to build monitoring systems IP based contribution networks at RTL Germany. With a short visit for a year at S4M, he was responsible for the development of a News gathering and distribution system (called Newslink) at RTL Germany in behalf of ENEX.
In 2006, he moved with the project to the Group Headquarter in Luxembourg where de finalized the first rollout of Newslink for ENEX.
In 2007 he become the leader of the development team which continues the development and improvement of Newslink and started other named projects like a Playout server, movie2me, workflow engine and a Media asset management system. His department is involved in EU research projects and as ITEA2 ICARE and ACDC.
Sascha is also responsible for workflows and solutions in various projects as the tape less broadcast implementation at RTL Croatia, the archive balancing for Viasat in between Riga and London, full workflow and broadcast of Big RTL Thrill India, workflow of RTL¦CBS Entertainment network Asia, the tape less disaster recovery workflow and systems for RTL TVI, RTL NL and RTL Germany.

SESSION 4: EMERGING AUDIO TECHNOLOGIES

David Marston (BBC)

M4: Making Musical Mood Metadata - Experiments in semantic audio production

- Currently TV and radio production uses a small selection of expensive commercial music tracks.
- Recommending music based on the mood required and exposing cheaper production music will improve costs and variety.
- The M4 project developed a mood based recommender and audio visualisation to improve navigation and choice.

Dave Marston is an R&D Engineer working for BBC R&D since 2000. He is an expert in the field of audio, with experience in subjective testing, semantic audio, audio metadata, file formats, standardisation, psychoacoustics and audio coding. His involvement in semantic audio includes being project manager of the M4 (Making Musical Mood Metadata) collaborative project. Dave has also been actively involved in EBU project groups over many years, and is currently the chairman of the FAR-BWF group working on the Broadcast Wave File Format and Audio Definition Model.

Frédéric Changenet
(Radio France)

New sounds for nouvOson - Immersive audio production case study

- Object based 3D audio for radio documentaries and live concerts PA
- 3D Audio web broadcasting using webaudio API
- EDISON 3D Project for helping the development of 3D audio content and technology

Frédéric Changenet, graduated from the ENS Louis Lumière in 2000 and sound engineer at Radio France for 12 years, my first activity was the post-production of classical music for disc and video. I then specialized in concerts and public radio shows PA at the Maison de la Radio and various French venues.
Meanwhile, I work for the research and development programs of Radio France in the field of 3D sound reproduction. I participate in research programs Bili (Binaural technology and production) and EDISON3D (object based format for facilitating 3D audio production work flow)
I also interested myself in tacit knowledge transmission by realizing “knowledge books” from top sound engineers of Radio France.
I also have an educational activity including FSMS (Pyramix DAW, music mixing basics), but also 3IS (acoustics , stereo recording) , ISIS (wireless systems) and ENSATT (wireless systems) . I also designed and animated various training programs for the Sennheiser company.

Manuel Naudin
(francetélévisions)

An audio model for the future - An update on the EBUCore advanced audio model

- Immersive, interactive and object based audio is coming
- A flexible and open exchange format is needed
- EBU is targeting initial implementation in bwf and mxf

Manuel Naudin - Graduated from École Nationale Louis Lumière in 1988.
Working as freelance production sound mixer and broadcast sound engineer from 1988 to 1997.
Joining France Télévisions in 1997. In France Télévisions, working as sound mixer on ENG, OB van, live broadcast from 1997 to 2008 in the local France 3 Ile de France production center.
Joined the Technical Engineering Department in 2008. Worked there on engineering of audio facilities and equipment (DSNG, Control rooms, Intercom systems, production centers) and as an audio support engineer. Joined the innovations&développements department in 2011 as project manager. In charge of loudness and r128 studies for France Télévisions, as well as working in the fields of metadata, semantic models and open source software.Technical Liaison Officer for France Télévisions at the EBU.Member of the EBU FAR-PLOUD and MIM-MM groups.Associate member of the French section of the AES. Happily married and father of two wonderful girls.

Florian Camerer (ORF)

Loudness – the antidote to all audio diseases?
How the EBU loudness doctors cure smashed transients, bleeding ears and hyper-compressed brains.

- Loudness normalisation is spreading over Europe
- It provides the ground for higher dynamics and quality
- TV was first, Radio is next, Music, Streaming and cinema will hopefully follow

Florian Camerer joined the Austrian Broadcasting Corporation (ORF) in 1990. From very early on, he has been mixing small programs and working on location. In 1995 he became a staff-sound-engineer ("Tonmeister") mainly in the field of production sound and post-production. High quality audio for documentaries became his field of special interest. In 1993 he started to get interested in surround sound. He mixed the first program of the ORF in Dolby Surround ("Arctic Northeast"), played an integral role in ORF's move towards multichannel audio transmission (starting with the New Year's Concert 2003, Europe's first live discrete surround sound transmission) and is now involved with all aspects of multichannel audio at ORF. He lectures on an international basis especially in dramaturgical aspects of surround sound productions, microphones for surround sound and multichannel audio for HD. Recently he has expanded his international activities to the field of loudness issues, chairing the EBU group PLOUD since 2008. This resulted in the recommendation R 128, a breakthrough in audio levelling. Camerer is also an active member of the AES, the Audio Engineering Society, serving as Broadcast Session Chair on the committee for the past 5 conventions.

SESSION 5: FROM DATA TO USEFUL INFORMATION

Nigel Megitt (BBC)

&

EBU-TT in practice
Approaches to Timed Text in the UK and Germany

- Use one format through the entire chain: EBU-TT for authoring, EBU-TT for interchange, EBU-TT for archiving and EBU-TT-D for web-distribution.
- EBU-TT provides an extensible path forward for organisations currently working with STL.
- EBU-TT solves real world problem scenarios already.

Nigel Megitt has co-chaired the EBU XML Subtitles group since mid-2013, with the specific goal of working towards an open standard for the communication of live subtitle data in the broadcaster domain, as well as the more general role of working on the group's other deliverables. He has been actively involved in the group since 2011. He also co-chairs the W3C Timed Text Working Group.
Nigel is a Lead Technologist at the BBC, prior to which he gained an MEng in Information and Electrical Science at the University of Cambridge, worked as a Research and Development Engineer at BBC R&D, and as an enterprise architect in the BBC's central technology function. His experience includes business analysis and requirements capture, contract negotiation, business continuity, technology specification and software engineering. Fields he has worked in include audience-facing programme metadata, broadcast scheduling and playout architecture and access services architecture including subtitles, audio description and signing.

Andreas Tai (IRT)

Andreas Tai is engineer at the Institut for Rundfunktechnik in Munich and works on Metadata and subtitles in XML. He currently co-chairs the EBU Group of Subtitles in XML and is responsible editor of the EBU-TT Part 1 and the EBU-TT-D standard."
He has a diploma in political science of the Freie Universität Berlin and a Master Degree in Applied Informatics from the Technical University in Munich.

Giorgio Dimino (RAI)
&

Nicola Minnaia (RAI)

Transition To Tapeless: the T3 project
FIMS & EBUCore applied to file-based production at RAI

- File based production requires enterprise level integration of agile systems
- SOA and BPM are the key technologies
- Standards provide interoperability and code reusability

Giorgio Dimino RAI Radiotelevisione Italiana, Research Centre of Turin. He is head of the research unit on digital archives and television production. His interests include the application of information technology in the broadcast production chain, the design of modern media archives and the evaluation of technical quality in video and audio signals. He is chair of the EBU Strategic Programme BeyondHD and co-chair of the FIMS Task Force.

Nicola Minnaia: Engineer at RAI. He is graduate in Electronical Engineering (microwave device) in 1991 in Rome - University of Tor Vergata. Has joined RAI Television in 1992 within the Engineering - TV Production Department in Rome working as specialist in CGI, Virtual Set and complex IT systems for TV production. From the 2000 he was involved, as System Architect and Project Manager in the major large scale projects related to the archive and content restoring and digitalization, content production for internet and IPTV, teletext and interactivity. From the 2009 he taken the role as technical project leader and project manager responsable of the enterprise projects related with in Media Asset Management and TV Production's workflow: "Digital Asset Repository" enterprise storage and "T3 - Transition To Tapless project".

Kevin Anderson
(Digital Strategist)

Making sense of Big Data for journalists

- Tools for managing and analysing data have become easier to use.
- We have better techniques for simply displaying complex data.
- Journalists are developing exciting new techniques to incorporate data into visual storytelling.

Kevin Anderson has 18 years of digital media experience, including pioneering editorial positions with the BBC and The Guardian. In 1998, he became the first online journalist for the BBC outside of the US, based in the BBC's flagship Washington bureau. He joined The Guardian in 2006 as their first blogs editor, and two years later, he became their digital research editor, helping identify and implement new technologies to support the newspaper's world-class journalism. From 2010 to 2013, he worked as an independent journalist and digital strategist with his own global consultancy, while also serving on the management team of the Media Development Investment Fund from 2012 to 2013. With an ever growing client list, he has advised digital start-ups and helped journalists and news organisations around the world identify and achieve their digital goals, including Al Jazeera, India's Network18, Reed Business Information and CNN International.

SESSION 6: UHDTV - MAKING IT WORK FROM GLASS-TO-GLASS

Bill Scanlon
(Executive Producer)

Producing in UHD - New applications, new content, new genres & a new grammar.

- The merge of Film and Television
- Shooting and Posting with a new and evolving narrative
- High frame rates, greater colorimetry, more pixels, a Producers perspective
- Lessons to be learned from 3D

Bill Scanlon, Executive Producer – Worlds first live international satellite broadcast UHD60p of a major sporting event.
25 years at the top end of the film and broadcast industry, motion pictures, commercials and TV series. He made his first 4K content for the film "Mission Impossible" some 19 years ago.
He's been at cutting edge of many industry developments including the initial stages of the UK digital film industry, helping to initiate the standards that we now use for digital cinema, CGI, Visual Effects and also involved in the initiation of 3D, Bill Scanlon is now embarking upon the pioneering stages of what he believes to be the merge of film and broadcast; UHD.
He has managed the production of the VFX for over 25+ features from major studio to indie and numerous high-end TV commercials.
Scanlon believes that "UHD is better than cinema". Whilst developing new workflows in the introduction of UHD he has also a mission to ensure that investors, manufacturers, broadcasters and indeed more recently telco's embrace and understand UHD. Most importantly consider the lessons both positive and negative that must be learned from the roll-out of HD and 3D in order to ensure the success of UHD."

Yvonne Thomas (EBU)

The UHDTV roadmap
From content creation to consumption

- UHDTV Phase 2 is the next big chance – and it`s starting now!
- There are still many challenges to solve in the world of UHDTV
- Seeking for the longer term solution with better pixel, not more pixel

Yvonne Thomas graduated in Television Technologies and Electronic Media Engineering from University of applied Science Wiesbaden (HSRM), Germany, in Oct. 2010. She received a prominent award of the ARD/ZDF Academy for her thesis in September 2011 at the IFA in Berlin.
Following these studies she started beginning of 2011 to work at the EBU in the Technology & Innovation Department. Since then she is responsible for internal and external projects on 3D and Future Television technologies, such as UHDTV or LED studio lighting. Yvonne coordinates the EBU`s Strategic Program BeyondHD in which she led the creation of UHD-1 and 3D test content.

Further to this the involvement in several standardization bodies, such as DVB or SMPTE, build the basis for more political discussions and decision making for UHD technologies, which have taken place for example at the DVB-EBU meeting or the UHDTV "Voices & Choices" workshop of the EBU in 2013, for which Yvonne was responsible for.

Per Böhler (NRK)

Lenses and Cameras - Dos and Don'ts for early adopters

- Using the larger S35 image format is a challenge for live productions.
- Everything (cameras & lenses) need to be tested to get the results your production deserves.
- For UHDTV productions don't be tempted to use a HDTV lens together with an S35-adapter (you will regret it).

Per Böhler has been with the Norwegian Broadcasting Corp. (NRK) since August 1963. After graduating from the NRK Engineering School he worked for a few years as an operational engineer. In the remaining years he has worked in the Engineering Development/Technology Departments. His professional work has entirely been dedicated to video origination equipment, video processing/recording/compression/display technologies and optical testing of camera lenses for both film and TV cameras.

Per Böhler has been actively involved in EBU work since 1982 until this date. He has chaired several EBU project groups over the years and co-chaired/chaired the EBU Production Technology Management Committee (PMC) for 16 years. He is currently the Chairman of the EBU BHD (Beyond HD)-LED project.

He retired from NRK on December 31st, 2013.

Andy Quested (BBC)

&

Pavel Korshunov (EPFL)

Higher Dynamic Range
Technical parameters and testing

- UHD is more than just pixels
- Brighter pictures *always* look better and sharper
- But does the audience really want it?

Andy Quested was a much sought-after editor with BBC Resources for many years, working on programmes as diverse as The Human Body and Keeping Up Appearances but about ten years ago Andy gave up the life of a hermit editor and moved into the sunshine and bright lights of the BBC Technology Group.
Since 2005, Andy has been leading the BBC's high definition technology strategy as Head of Technology for HD and leading the work for the BBC's automated quality control project. He also chairs the EBU strategic Quality Control programme.
During 2010 the BBC started a series of transmission and production 3D trials. As part of this Andy has also taken on the role of Head of Technology for the BBC's 3D output and strategy. Part of his role is to be part of the process of developing standards for 3DTV production and international programme exchange.
As part of the process of developing 3DTV standards, Andy was asked to become an ITU Special Rapporteur with the task of examining the current world 3D production status and providing a report with recommendation at the November 2013 ITU meetings in Geneva. Andy also chairs a new ITU Rapporteurs group examining the case for an extended image dynamic range for the Ultra High Definition standard.

Pavel Korshunov is a postdoctoral researcher in Multimedia Signal Processing Group at EPFL. He received his Ph.D. in Computer Science from National University of Singapore and Dipl. Sci. in Mathematics from Saint-Petersburg State University (Russia). He is a recipient of ACM TOMCCAP Nicolas D. Georganas Best Paper Award in 2011. He is involved in EC funded VideoSense project (privacy in video surveillance), as well as, COST Actions HDRi (high dynamic range imaging) and Qualinet (quality of experience in multimedia). His research interests include computer vision and video analysis, video streaming, video and image quality assessment, crowdsourcing, high dynamic range imaging, and privacy issues in multimedia.

SESSION 7: EFFICIENT PRODUCTION INFRASTRUCTURES

Robert Wadge (BBC)

Making the IP studio a reality

- What is the BBC R&D IP Studio?
- Building a distributed TV production system on an IP network
- Challenges and Solutions, focussing on
  a/ Timing and Sync in the IP domain
  b/ Configuration, Discovery and Introspection:

Robert Wadge is a Senior Technologist at BBC Research and Development, where as a key member of the IP Studio project team he has spent the last 3 years working on applications of network technology and software-based systems in TV production environments. Before joining the BBC he had a long career in the design and development of software for video and audio equipment, from Digital TV receivers to large-scale digital audio mixing consoles for music, film and TV production.

Félix Poulin (EBU)

Networked Production
It is more than just replacing SDI by IP!

- Many opportunities to seize – Many challenges ahead
- Task Force report: the pieces of the puzzle
- Priority: interoperability!

Felix Poulin has grown up in television studios and control rooms as his parents worked in TV production. His inherited interest in media production led to a diploma in electrical engineering at the École Polytechnique de Montréal completed by research at the Massachusetts Institute of Technology. After graduating he began work as a radio frequency and digital audio expert on international productions, including Cirque du Soleil.
Prior to the EBU, he has worked for the public broadcaster CBC/Radio-Canada as a technology advisor specializing in production equipment and workflows. Felix is managing activities related to media networks and storage at the EBU Technology and Innovation department.

Rune Hagberg
&


Tormod Værvågen
(NRK)

NORDIF3 – file interchange project
A file exchange service using EBUCore as its metadata scheme.

- How to succeed with a complex technical project between 5 broadcasters and still be friends.
- Nordif 3 - News, long format and RAW exchange between SVT, YLE, DR, RUV & NRK.
- How to integrate understanding, not data fields.

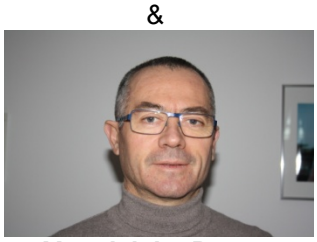
Rune Hagberg:
Responsible for all non-linear editing equipment in NRK (4 years)
Part of the SMART production group in NRK. (4 years) Testing new file based workflows. Making standards inside NRK for file based production.
System Architect in the Programme Bank project (MAM) in NRK (5 years)
System Architect for the Nordic exchange solution. (1 year)
Project manager for the Nordic exchange (2 years)
System architect for Digital Spedisjon. (3 years) (File based exchange system for NRK)
Project manager for Digital Spedisjon (4 years)
Part of EBU project for file exchange (1 year)

Tormor Værvågen, Educated as an audio- and video engineer at Gjøvik University College in 1989 Tormod worked in radio production as recording and balancing engineer until the end of 1999. From 2000 he has developed services for mobile devices and web in NRK, including the invention of the gluon system integration tool, development of metadata and xml services.
From 2010 he has been working as systems architect. He is a member of MIM-MM, active in the work on the EBUCore, and is now chair of MIM-MDN (Metadata developer network). He does similar work in the Audio Engineering Society on both audio and metadata.

TUTORIALS

Andy Quested (BBC)
&


Jouni Frilander
&


Ilkka Tuomela (YLE)
&


Yannick Le Dreau
(Tektronix)

A: Automated Quality Control Workflows

This workshop will explore automated QC with a mix of examples from the work of the EBU QC group and the real life journey that's just beginning for YLE. The session will include a practical demonstration and discussion with plenty of time for questions.

Andy Quested (same as above)

Jouni Frilander studied computer science at the Commercial Institute of Helsinki and graduated on 1994.
He has developed and managed broadcast related IT systems since early 1990's. Those systems include metadata management, information retrieval, digital sound archive, computer aided radio system, DAM system for video, audio and still images, video file workflow automation system and automated video file QC systems.
He has worked in various roles including System Analyst, Systems Manager, and Development Manager. Currently he works as Technology Advisor at Finnish Broadcasting Company's Technology and Development department.
He is member of the Technical Committee of International Association of Sound and Audiovisual Archives.

Ilkka Tuomela, was born 1975, and joined Yle in the year 2000 as a trainee, after graduating from Media School. After several months training he worked for some years as a sound engineer in Yle's Radio Division, and later on as an editor in Production. He now works as Media Manager for Yle.
Ilkka has many years of experience in file-based production, delivery and transmission systems. He is really keen on preserving high video and sound quality for broadcasting and archiving purposes. He has been working as Media Manager since 2008 in the Archives, Research, Media Management and Information Services department of Yle, where his main responsibilities are transcoding and quality control tools, while also focusing on developing file-based workflow automation.

Yannick Le Dreau has been working at Tektronix since 1985.
Move from sales to the Video AE team in 2008 to manage the team of 4 Application Engineers (including me). The team is covering Europe and Middle East.
His role in Tektronix is to support our customer (mainly Broadcaster, PostProduction house and Manufacturers) by helping them using our tools (based band waveform monitors, Mpeg product and

file based QC tools.
His is mainly focus on Automated QC tools.

Peter Schut (Axon)
&

Luc Andries (SDNsquare)
&

Markus Berg (IRT)
&

Bob Edge (Consultant)
&

John Stone (Sony)

B: Networks in Production

This tutorial will talk about technologies that will potentially enable the fully networked production environment. It will cover Ethernet AVB, SDI over IP and Software Defined Networking, and will share early experiences.

Peter Schut - Chief Technology Officer | VP of R&D - Axon's CTO Peter Schut is responsible for the company's technical strategy and roadmaps, definition and conceptual architecture of all in-house developed products.
He joined Axon in September 1994 as a design engineer working on the original modular FR-Range, that evolved into the current Synapse modular range. Peter's career path also evolved from one role into the other, each time taking on more responsibilities and rising in the company's hierarchy. From a position at Customer Support, via stints at Application Engineering and Product Management he ultimately joined the board of directors in December 2007. Prior to being employed at Axon Peter worked as a design engineer in the high end audio segment, working on CD-players and top end audio amplifiers; he then worked for the Ministry of Defence, where he was involved in several high tech projects related to battle tanks and armored vehicles. Peter has a Bachelor's degree in Electronics, is member of several forums and associations in the broadcast industry, where he is known for his drive and contagious enthusiasm when discussing (new) concepts.

Luc Andries, CTO & Co-founder SDNsquare. Luc Andries started his career in broadcast at VRT in 1998, after 15 years of experience in research and development and computer integrated manufacturing in the connector industry. First as a network and storage specialist in the IT department and later as infrastructure architect in the research lab he was appointed as top expert in 2005. Luc Andries is CTO and Co-founder of SDNsquare. He uses his expertise in the areas of storage and network technology driving SDNsquare forward to develop rock-solid solutions for its digital media customers. Luc's research focuses on the modeling of storage and network technologies and media work flows/data flows facing the challenges given by the digital media and broadcasting industries. Luc and his team are attempting to bridge the gap between IT and media. Luc is frequently asked as invited speaker at media conferences all over the world and is very well appreciated as consultant in media IT. He holds a Master Degree in Experimental Physics from the University of Antwerp and published a variety of papers in national and international magazines.

Markus Berg joined the IRT's Digital Networks department in January 1997 after he graduated in communication engineering at the Technical University of Saarbruecken. He worked as a research engineer and project leader in the field of adaptation of broadcast applications on high speed networks, especially ATM and IP, leading projects dealing with co-operative postproduction over ATM/IP networks, Wide Area Networking Technologies and research on QoS issues for broadcasters. Since April 2002 he is head of IRT's "Network Technologies" department.
Markus is a regular speaker on national and international conferences and seminars on networking and is the chairman of the EBU's (European Broadcasting Union) newStrategic Program on Future Networks and Infrastrtucture (SP-FNS)
, and chairman of the EBU project groupFNS/VCIP (Video Contribution over IP).

Bob Edge, President; Bob Edge TV Consulting
Bob Edge has been active in Television standards work for over 18 years, including participation in the Society of Motion Picture and Television Engineers, some European Broadcasters Union projects, Video Services Forum, Advanced Media Workflow Association and other organizations. He has served as a SMPTE Engineering Director and as a Technology Committee Chair. He is a Life Fellow in the Society. Bob has contributed to the development of over a dozen SMPTE standards and RDDs. Bob is the author of many technical papers describing the application of IT and data networking for television production. Bob has a bachelor's degree in Computer Science from Oregon State University.
In 2011 Bob retired from Grass Valley and he is now consulting on standards projects representing vendors and end-users. This work includes writing standards, managing projects and providing technical expertise to engineers and managers.

John Stone
General Manager, Sony Broadcast & Professional Research Labs (BPRL)
Since 2002 John Stone has been General Manager of Sony Broadcast & Professional Research Labs in the UK. The mission of BPRL is to provide innovation and new technology for the Sony B2B business in the areas of professional media and broadcast as well as other markets such as healthcare and security. John leads a strong team of engineers with expertise in activities ranging from feasibility study, algorithm development, system prototyping through to product and solution development. The current focus of the BPRL team is in the areas of 4k content creation, sport

	production, video codec as well as IP networking for broadcast production.
 **Florian Utsi Martin** **&**  **Milan Krsljanin** **&**  **Henning Rädlein** (ARRI)	**C: HDR - HD post for life-like screens** High Dynamic Range displays are poised to bring new levels of image accuracy to HD productions. Screens with wider dynamic range and higher contrast can display the full latitude of today's high-end digital cameras producing images with precise colour accuracy and sharpness. This creative opportunity also represents a creative challenge, putting an emphasis on post-production and how to get the most from acquired rushes for today's and future HDR screens. Experts will practically demonstrate how the HDR challenge can be turned into an amazing creative opportunity. Using purpose-shot material with different settings and formats will allow exploration of optimal post-production techniques for future programmes. **Florian 'Utsi' Martin**, Lead Digital Colorist for ARRI Cine Technik in Munich. He currently develops "workflows" and "color-pipelines" for film projects and is grading feature-films. At ARRI he developed a complete "color-pipeline" from set to the final DCP for the first feature-film shot on the ALEXA camera, "Anonymous" (directed by Roland Emmerich) and completed the grading. 2001 Florian 'Utsi' Martin moved to New Zealnd where he worked for over three years as Lead Digital colorist on the Trilogy "The Lord of the Rings". After these years he worked as freelance colorist worldwide. Since 2010 he is part of the digital workflow solutions team at ARRI in Munich with emphasis on grading, VFX and workflows. **Milan Krsljanin**, Director Business Development at ARRI says:"The best part of my job at ARRI is the constant interaction with filmmakers. They consistently come up with a wide diversity of production ideas, wishes and requirements. Going through them provides great insight and inspiration for creating products and services that fully meet their needs, often exceeding their expectations." After obtaining degree in Electronics, Krsljanin spent first decade of his carrier in TV production and later on for almost two decades pioneered Digital Cinematography and HD at Sony, moving to ARRI in 2003 to help with introduction of ARRIFLEX D-20/D21 and ALEXA later on. **Henning Rädlein**, studied Photography in Berlin, later Mediatechnology at „Hochschule der Medien“ in Stuttgart. Postproduction supervisor and editor with a commercial production company, 1991 project manager for the postproduction company ARRI Film & TV. From 1998 on visual effects supervisor and producer for international feature films and TV productions. 2001 Head of Digital Feature Film at postproduction group Das Werk AG. 2003: back to ARRI, building the first digital intermediate facilities in Germany, since 2010 Head of the Digital Workflow Solutions group within ARRI providing application and workflow support, documentation and training during the market introduction of digital cameras - and later.... Runs the ARRI Partner Program.
 **Jean-Pierre Evain** (EBU) &  **Mike Matton** (VRT)	**D: Demystifying Semantic Web Technologies** This tutorial will cover semantic modelling, semantic search and linked data. The advantages of semantic technologies will be presented with a specific focus on archives, but also for production and distribution. **Jean-Pierre Evain** joined the EBU’s Technical Department in 1992 to work on “New Systems and Services” after several years spent in the R&D laboratories of France-Telecom (CCETT) and Deutsche Telekom. He is now looking after “Media Fundamentals and Production Technologies” and coordinates all EBU technical activities concerning metadata and new production architectures. He is the co-author of several EBU metadata specifications. He is actively promoting the use of semantic web technologies in broadcasting. He is the Project Manager of the joint AMWA-EBU FIMS Project on Service Oriented Architecture. He represents EBU in many standard groups and industry forums like AES, ETSI, IPTC, MPEG, SMPTE, UK-DPP, W3C, among several others. **Dr. Mike Matton** holds Master’s degrees in Informatics (2002) and Artificial Intelligence (2003) from the Katholieke Universiteit Leuven. He obtained his Ph.D. Degree in engineering science (computer science) from the Katholieke Universiteit Leuven in 2009. His Ph.D. research involved example based methods for speech and pattern recognition. He joined the research labs of the VRT broadcasting organization in October 2009 as a researcher in the research domain of information management. This involves investigates techniques for the (automatic) creation, management and exchange of metadata for broadcast media. His main interests include artificial intelligence, automatic audio and video analysis and multimedia retrieval. As such, he has been involved in several research projects focussing on novel content annotation and search technologies. He is chair the the MIM-SCAIE group at EBU technical, working on automated information extraction in media production.

Christoph Bauer (ORF)

&

Michael Jordi (JORDI AG)

E: Archives

Exploring the archive as an important asset in modern AV-production; “productive” archives versus repositories; how to fulfill the needs of “tri-media” production through archive services; and the "Open Archive", myth vs, actual need.

Christoph Bauer, System Administrator & Project Manager for ORF.
Born in 1960 in Vienna/Austria, studies at Vienna’s University of Economics, further studies and engagements: cantor, pianoforte, organ, choir-conductor, electronic music, IT-development, theology, etc.; joined ORF in 1981, main tasks since then (excerpts):

- Project Officer for several EC-Projects (PRESTO, PRIMAVERA, FIRST, NODAL, PRESTOSPACE, eCHASE, PRESTOPRIME, DAVID* etc.)
- Chairman of the SNML-TNG Management Board (2011-2013)
- Vice-Chair of maa (Media-Archives-Austria Association)*
- Film and Audio Specialist in Conservation, Digitization and Restoration*
- Project Manager for Digital Migration & Preservation projects*
- System Administrator for Archive-Systems and AV-Digitization*
- Workflow Development*
- Lecturer at University of Vienna
- Member of the Digitalization & Migration Commission of FIAT/IFTA*

Michael Jordi (Switzerland) is the owner and CEO of JORDI AG Communication, a leading Company in Broadcast System Integration; like Video Archive Migration, File Based Workflow integration for News TV Studios, Custom Design Soft- and Hardware in Video technics and Avionics (airborne Camera Systems).
Michael Jordi is in broadcast technology since 1994, starting with the configuration of nonlinear editing systems and network systems consulting and now advanced to the construction of news production systems and the development of ADAM.
Jordi AG developed the ADAM (Automatic Digital Archive Migration) System in cooperation with RSI (Radiotelevisione svizzera, Swiss TV at Lugano) started in 2005. Jordi AG also equipped WDR mediagroup, Köln and RBB/IVZ, Berlin with a ADAM System and System Integration into the Achive Workflow.
JORDI AG did several projects for private News channels in Switzerland, brought them into the file-based workflows from ENG Camera to the Playout. For example, TeleZüri a larger HD workflow project, with more than 22 server channels.

Alberto Messina (RAI)

F: Automated Metadata Extraction

This tutorial will cover the basics of how to automatically and efficiently extract descriptive information from the analysis of multimedia content (pictures, sound, text and their combination). The fundamental methodology will be explained and some of the main technologies of the area will be illustrated with the help of concrete examples.

Alberto Messina (MSc, PhD) works at the RAI Centre for Research and Technological Innovation, where he leads research concerning automated analysis and management of multimedia information, a field in which he counts more than 80 publications. He is involved in several research projects in the field of digital archiving, automated documentation, and automated production. Former chairman of the EBU Expert Community on Metadata, he now chairs the Strategic Programme on Media Information Management (SP/MIM). As part of his professional activity he has been working in several EC projects and he is now involved in FP7 TOSCA-MP, VISION Cloud and BRIDGET. He regularly serves in the programme committee of scientific conferences and workshops, and he has been General Co-Chair of the International Workshop on Automated Media Analysis and Production for Novel TV Services (AIEMPro) until 2011. He participates in international standardisation bodies, specifically MPEG, where, most notably, he recently contributed to amending MPEG-7 Part 9 (AVDP - AudioVisual Description Profile) and currently is involved in the development of MPEG User Description and Visual Search technologies for Video.
In 2010 he received two important national awards for his contribution to RAI projects Hyper Media News and ANTS and his and his team’s work in VISION Cloud has been recently internationally recognised with the IBC 2013 Special Award.

Lidwine Hô
(francetélévisions)

G: Immersive audio production

Exploring technical aspects of 3D audio (How to record it? With what tools? How to listen?) as well as the benefits it can bring in terms of immersion, information and localization. Some case studies will be presented, including problems encountered and how they were solved.

- The contribution of 3D sound on audiovisual contents
- 3D sound on production
- Confines and benefits of immersive audio
- Examples of production in 3D audio

Lidwine Hô works as a R&D project manager at Francetelevisions. She is in charge of contents productions on Bili : collaborativ projetc on binaural listening.

Lidwine Started her audio Carrer in 1995 working on sound editing, foleys and voice recording on tv movies, and mixing of documentaries.

In 2000 she joined a young french radio : le mouv', as a sound engineer.

Since 2002 she has been working on musical tv shows, movies and live music as sound engineer.