

SPEAKERS BIO & SYNOPSIS

Wednesday 27 November 2019

KEYNOTE SESSION

09:30–09:40 **Welcome**

Graeme Phillipson (BBC)



09:40–10:25 **AI in the BBC**

Bill and I will be discussing machine learning at the BBC and why public service organisations need to use machine learning responsibly. We will also be discussing how an organisation can go about creating an approach to responsible machine learning.

Gabriel Straub is the Head of Data Science and Architecture at the BBC where his role is to help make the organisation more data informed and to make it easier for product teams to build data and machine learning powered products.

He is an Honorary Senior Research Associate at UCL where his research interests focus on the application of data science on the retail and media industries. He also advises start-ups and VCs on data and machine learning strategies.

He was previously the Data Director at notonthehighstreet.com and Head of Data Science at Tesco. His teams have worked on a diverse range of problems from search engines, recommendation engines, pricing optimisation, to vehicle routing problems and store space optimisation.

Gabriel has an MA (Mathematics) from Cambridge and an MBA from London Business School.



10:25–10:55 **Keynote: Media and AI**

Grant Franklin Totten (Al Jazeera) is the Head of Media & Emerging Platforms for Al Jazeera Media Network. He is passionate about empowering newsrooms and journalists to tell more compelling stories to its audiences more efficiently through applying Data Science, Artificial Intelligence & Machine Learning and other emerging technologies in useful ways to radically transform media workflows and provide intelligence across the media lifecycle from contribution to distribution from content creation, curation, Media Asset Management, Production, Distribution and Audience Engagement.

With over 72 bureaux worldwide, Al Jazeera Media Network provides breaking news, analysis, programs, documentaries and research in over 100 countries in English, Arabic, French, Spanish and Bosnian languages.

Grant has worked in the Data Science space for over 23 years and has founded and supported multiple startups throughout his career.

SESSION 1: AI FOR AUDIENCE ENGAGEMENT



11:35–12:05 **Public Service Metrics – goals, trade-offs and quality control**

Media recommender systems are often trained, tested and evaluated on click-through rate and dwell-time. But Public Service Media are not in it for the money; we want to broaden minds, provide deeper understanding and enrich lives. Algorithms require quantified representations of these values, but what metrics provide them? This talk discusses how we can expand the metrics we use to evaluate our models in offline and online settings, and how to apply these metrics directly and indirectly to better serve the public.

(Bob) Robbert Nicolai van de Velde, PhD. Central to Bob's interests is the interaction of Big Data (especially tracking), AI and society. As a co-chair of the AI and Data Initiative, I work tirelessly to expand the opportunities to apply AI to improve the quality of media systems. In my role as Lead Big Data Engineer at NPO, me and my team commit to opening the rich catalogues of Dutch Public Broadcasting to the general public.



12:05–12:35 **Audience engagement and predictions**

Recap where we are coming from to highlight differences where we are going to. I predict there will be more AI tools used, to bring multiple messages to multiple audiences, thus a drastic change for an idea of what is broadcasting. I'll also challenge we don't even know the basics yet -- what really is engagement, or are people making good calls with their immense expertise and experience? With a demo of purposing multiple messages, there will be a couple of observations about potential mistakes or other ethical implications.

Alekski Rossi works at Yle, the Finnish Broadcasting Company, as a Head of Interfaces, on many things leading to future. Alekski has been leading Yle AI development activities. Yle has also been keen to promote collaborations and try out new technologies in a

pragmatic and swift way. These activities are ranging from recommendation engines to personalised promotion image production to experiments about the living room of the future.



12:35–13:05 **New forms of value – metrics other than “time spent”**

This presentation looks beyond using time spent as a measure of public service success, by exploring the idea of understanding value as an alternative. It will provide the learnings of empirical work that has explored what human value means, as well as the early work and process of transforming insights into meaningful metrics.

Lianne Kerlin is a research scientist at BBC R&D, focused on understanding value in a digital world. She is deeply interested in exploring the impact of digital media on people’s lives and how technology can enable valued experiences for people and society. Lianne leads the work around human values. At its core, she is answering the questions: What do people value and how do we measure value? In a digital age where lifestyles continue to change, maximising for attention and time spent is no longer valid or a reliable way to measure value. She is currently exploring new metrics by researching people’s core human values. Putting people at the heart of design, she is also translating psychological insight into value driven innovation to transform future media experiences.

SESSION 2: AI IN THE CONTEXT OF ETHICS AND PUBLIC SERVICE MEDIA VALUES



14:20–14:50 **AI: Policy & Practice**

Myrna Macgregor (BBC) works on technology policy and ethics at the BBC – with a focus on how the BBC can develop and deploy digital technologies responsibly, and in the public interest.

She is leading work on AI/ML governance and ethical principles, and part of a team exploring new BBC data-driven services. Her portfolio also covers digital strategy, personalisation, news and disinformation.

Myrna joined the BBC after ten years in Government, with Foreign Office postings to Kosovo, Germany and Israel.



14:50–15:20 **PSM and AI – why should we care about ethics?**

The application fields for AI in the mediums of written press, cinema, radio, television and advertising are broad: automation of processes and customer relationships, social network monitoring and listening, information verification, predictive analysis of success, video creation and post-production, voice and conversation assistants, automated drafting, personalization, recommendation, optimization of content dissemination, emotion tracking, accessibility and interaction. But AI is also deep fakes, filter bubbles, bias, growing dependance on Gafa Cloud services and concerns about data. Should we just implement AI and see what value comes out or do we need rules and regulations? Why should Public Service Media care about ethics?

Kati Bremme Project Director Innovation at France Télévisions is a media expert with a 15 years' experience in digital transformation for broadcasters. With a background in Arts and Humanities, Marketing and TV Production, she specializes today in AI and it’s strategic applications for Media. She currently works as a Project Director at the Innovation Department of France Télévisions, the French public broadcaster. She is also writing for Méta-Media, a blog exploring future journalism and media literacy, and gives trainings and talks on editorial innovation and media trends.

15:20–15:50 **Panel: can AI be ‘ethical by design’?**

Moderated by Bill Thompson (BBC)

Bill Thompson is a Principal Engineer in BBC Research & Development working on ways the BBC can deliver its public service mission online as joint lead for the New Forms of Value research programme. A well-known technology journalist, Bill appears regularly on Digital Planet on BBC World Service radio and writes for a range of publications. He is an Adjunct Professor at Southampton University and member of the Web Sciences Institute advisory board.

Myrna Macgregor (BBC), Kati Bremme (FranceTV)

SESSION 3: UNDERSTANDING AND TRUSTING AI



16:10–16:40 **Seeing through the eyes of neural networks with FlashTorch**

What is explainability and why does AI need to be explainable?

Feature visualization is an area of research which aims to understand how neural networks perceive images by "looking through their eyes." It has evolved in response to an increasing desire to make neural networks more explainable.

I will introduce you to the world of feature visualization, along with code examples of using FlashTorch, to gain insights on the inner workings of AI-assisted image recognition technology.

Follow along with the interactive slide deck at tinyurl.com/flashtorch-ebu

Misa Ogura (BBC) After obtaining an M.Phil. in Cancer Cell Biology, I changed my career 180 degrees and entered the world of programming. The desire to combine my research background with software engineering skills to draw insights from data has grown strong since. Currently at BBC R&D, I’m using machine learning to automate metadata generation/extraction from broadcast materials. Promoting diversity and inclusion plays a huge part of my life. I co-founded Women Driven Development (womendrivendevel.org) to provide women and non-binary people at all stages in their career with a space to work with industry leaders

and use technology for social good. We partner up with charity organisations and run hackathons to provide digital solutions that can facilitate their programmes.

16:40–17:10 Own It: The only way is ethics

Jon Howard (BBC) is a product creator, game maker, creative coder and purveyor of digital creativity with a great interest in machine learning. Currently working on Own It - using machine learning to support children's first steps in the digital world. Thirteen years at the BBC has seen Jon deliver numerous award-winning innovative interactive experiences - working with brands from Doctor Who and EastEnders to Dick & Dom and Radio 1. A polymath, future thinker and occasional film-maker - waking hours are spent jabbing digits into a keyboard trying to make magic happen - occasionally it all comes together.



17:10–17:40 Databox: Platform for Privacy-Aware Personal Data Analytics

Hamed Haddadi is a Senior Lecturer (~Associate Professor) and the Director of Postgraduate Studies at the Dyson School of Design Engineering at The Faculty of Engineering, Imperial College London. He leads the Systems and Algorithms Laboratory and is an Academic Fellow of the Data Science Institute. He is also a Visiting Professor at Brave Software. He enjoys designing and building systems that enable better use of our digital footprint, while respecting users' privacy

17:40-17:50 Wrap-up of Day 1

Grame Phillipson (BBC)

Thursday 28 November 2019

KEYNOTE SESSION



09:00–09:30 **The EBU Artificial Intelligence and Data Initiative (AIDI)**

Léonard Bouchet (RTS), 41, is an expert in digital transformation and development and co-chair of the EBU Artificial Intelligence and Data Initiative. Since January 2016, he has been heading the Swiss-french Public Media Data and Archives Department, where teams are exploring the amazing possibilities of new modes of collaboration (agility and holacracy) and innovative technologies (artificial intelligence) to increase the impact of audiovisual archives and give a new strength to the essential data they contain. From 2013 to 2016, he was head of RTS' multimedia production department. Developer and project manager in the public service since 2009, he also has 10 years of previous experience in the private sector.

Bob van de Velde (NPO) see above

SESSION 4: AI IN THE NEWSROOM



09:30–10:00 **Describing gender representation in French TV and radio with AI**

David Doukhan is a research engineer working at INA (French National Audiovisual Institute). He received his Ph.D. in Computer Science from Paris Sud University in 2013 and is coordinator of ANR funded Gender Equality Monitor project. His research deals with machine learning, speech analysis, music information retrieval, corpus linguistics and digital humanities.



10:00–10:30 **Language Technologies for a multilingual news environment**

Andrew Secker leads the Language Technology work-stream for BBC News Labs. Andy has a PhD in machine learning, was a successful academic, and prior to joining News Labs spent 8 years at BBC R&D. Andy's work for News Labs focuses on the production of prototypes and tools for BBC World Service and leads a portfolio of projects predominantly centred around speech to text, automatic translation and text to speech technologies for non-English languages. He specialises in leading external research collaborations and transferring the output of these into the team. Andy has co-authored 25 peer reviewed publications and has contributed to formal standards published by agencies such as MPEG, DVB and ETSI.



10:30–11:00 **Newsroom coordination countering misinformation**

Rory Smith is a Senior Investigator at First Draft in London. With a background in data journalism, investigative reporting and international development, he will be looking into the various ways in which disinformation spreads as well as the evolution of disinformation and its myriad global networks. He will also be working with CrossCheck's partners on more in-depth investigations around disinformation both in a supportive and collaborative role. Before joining First Draft, Rory worked for CNN, Vox, Vice and Truthout, covering various topics from immigration and food policy to politics and organized crime.

SESSION 5: AI AND IMAGE PROCESSING



11:30–12:00 Machine Learning approaches at video compression

Shaping the Future of Video”: for about 30 years the basic design of all major video coding standards followed the so-called block-based hybrid approach. Each block of a picture is either intra-picture coded, without referring to other pictures of the video sequence, or it is temporally predicted. In the last years we have assisted to the rise of the artificial neural networks that have been adopted for a broad range of tasks in multimedia analysis and processing, such as visual classification, extraction of multimedia descriptors or image and video coding. Also MPEG (Moving Pictures Experts Group) is now exploring the use of neural networks applied to the representation of weights and parameters and to the filtering for video coding.

Roberto Iacoviello (RAI) is a Senior Multimedia Research Engineer, graduated from the Politecnico di Torino. Since 2007 he has been working at the Rai R&D where he has developed the following skills: End to end video compression for broadcast, Computer Vision Algorithms, Augmented and Virtual Reality, Multimodal interfaces for TV, Smartphones and Head Mounted Display.

His current research focuses on Artificial Intelligence applied to video compression, next-generation TV Services, in particular High Dynamic Range and High Frame Rate and Augmented Reality in broadcast television.

He follows the activities of the European Broadcasting Union (EBU), Digital Video Broadcasting (DVB) and actively participates in MPEG (Moving Picture Experts Group) meetings.

He has established collaborations with national and international research institutions, in research projects and students tutorship and he counts several publications in international journals and conferences.

In 2011, he won the Innovation Award in Computer and Media Technology Communication for an Augmented Reality application.

12:00–12:30 AI in the field (literally). Detecting and recognising animals in the wild

Robert Dawes has worked for BBC R&D for over a decade. For much of that time he's has worked on using Computer Vision to enhance television programmes and their production process, particularly in live production. He's helped to develop systems and tools used on air for the analysis of sports including football, golf, athletics and diving at the 2012 Olympics. Recently he's been investigating how AI based tools could be used to enhance these real-time workflows.

12:30–13:00 Imaging and Machine Learning – facts, fakes, and fiction



Prof. Dr. **Sabine Süsstrunk** is the Director of the Images and Visual Representation Laboratory (IVRL) in the School of Computer and Communication Sciences (IC) at the Swiss Federal Institute of Technology in Lausanne (EPFL). Since 2015, she is also Director of the Digital Humanities Institute at EPFL. Her research interests are in computational imaging, computer vision, machine learning, and computational aesthetics. She has authored or co-authored over 150 peer-reviewed publications and has served on a number of international conference committees. Sabine is Member of the Foundation Council of the SNSF (Swiss National Science Foundation), Member of the Board of the EPFL WISH (Women in Science and Humanities) Foundation, and of the SRG SSR (Swiss Broadcasting Corporation). She received the IS&T/SPIE 2013 Electronic Imaging Scientist of the Year Award for her contributions to color imaging, computational photography, and image quality, and the IS&T 2018 Raymond C. Bowman Award for excellence in teaching. She is a Fellow of IEEE and IS&T.

SESSION 6: AI IN PRODUCTION



14:15–14:45 Automated metadata extraction with AI – real use cases and challenges in production

Sébastien Ducret is an IT consultant at Kalyss and has been working for Radio Television Suisse (RTS) for several years. He recently joined the Archives department development team which works to open up the audiovisual archives to the public.

&

Charlotte Burki (RTS) is an environmental engineer specialized in machine learning who recently started working for Radio Télévision Suisse as an expert in artificial intelligence



14:45–15:15 Thinking like a director – film editing patterns for virtuals

I will be presenting an overview of my research on film analysis and synthesis, through the design of Film Editing Patterns, a language to model sequential patterns of high-level cinematic features in movies (shot size, shot angle, character framing, camera motion). I'll first be showing how such patterns can be expressed and searched through movie sequences, and how these patterns can be exploited to ease the creation of cinematographic sequences on virtual content. I will draw on this research to share my belief that with the ability of deep-learning technologies to extract high-level features in real footage, the tasks of editing/re-editing and tailoring contents to specific audiences will be fundamentally changed through the provision of smarter and more creative editing tools.

Marc Christie (IRISA) is an associate professor at University of Rennes 1. His research is focussed on virtual cinematography which is the application of real cinematography techniques to virtual 3D environments. The research covers a wide range of challenges such as extracting cinematographic features from real movies or learning elements of style (shots/transitions/editing patterns), and proposing generative approaches on virtual contents, computing camera angles / trajectories and cuts in automated or interactive

approaches. Techniques have been applied to the automated orchestration of multiple cinematographic drones, and exploited in esports to create cinematographic sequences of user's playing sessions.

**15:15-15:45 Learning from Archives: Intelligent Cinematography for TV**

The AI in Media Production team within BBC Research & Development are investigating how AI and Machine Learning could impact television production. An analysis of the large video archives at the BBC was performed to determine a set of rules of cinematography, that could be used to develop new production tools. These rules have been used in conjunction with ML techniques to develop Ed, an AI director of panel shows.

Tamsin Nooney is a Graduate Engineer in BBC Research & Development. Her current work involves investigating how AI and Machine Learning could impact the way media is made, as part of the AI in Media Production project. Previously she has worked within the video coding team, researching the use of super-resolution convolutional neural networks for video enhancement. Before joining the BBC, she completed a PhD in particle physics at Queen Mary University of London, and worked on developing software frameworks for proteomics research as a Postdoctoral Research Assistant.

15:45-16:15 Lip Reading In the Wild

Joon Son Chung (VGG Oxford University), **Andrew Zisserman** (VGG Oxford University),



Andrew McParland (BBC). I am focussed on helping people discover things that are of interest to them, especially TV and Radio programmes, in whole or in part. To do this I work on metadata extraction from text, audio and video, and recommender systems using machine learning techniques. I also work with universities to improve the state of the art in machine learning using BBC data.

I will describe a system that uses large amounts of video, audio and subtitle data that can accurately read lips, built by Oxford University using BBC data.

EVENT WRAP-UP**16:15-16:30 Take-aways & conclusion**

Léonard Bouchet (RTS)
