

FUTURE OF CODING AND IMMERSIVE STANDARDS

In this session consisting of three lectures, we will cover coding applications in the near future. Speakers share their approaches and impressive results for coding using state-of-the-art standards and protocols.

Bitmovin presents a brief history and history of AV1 development and adoption, comparing the performance of AV1 vs VP9, HEVC/H.265 and AVC/H.264. It also brings AV1 implementation/support cases in the LATAM region and around the world.

The growing popularity of XR applications is leading the media industry to seek encoding and transmission technologies capable of supporting the immense volumes of data generated by immersive experiences. In this second lecture we will present the Visual Volumetric Video-based Coding (V3C) standard developed by the MPEG group for volumetric videos.

We will also provide an overview of the MPEG-H audio system and the TV 3.0 project requirements for the audio component. With broad industry support, the MPEG-H audio system brings immersive sound, advanced interactivity, and accessibility options, as well as advanced features such as hybrid delivery, consistent sound after user interaction, connectivity options for external sound devices, and changes settings transparently.

Chair: Hugo Nascimento - CTO of AD Digital | Coordinator of the Working Group “Industry 4.0 at SET”

• WHEN WILL AV1 BE READY FOR ADOPTION IN LATIN AMERICA? ALREADY?!

Speaker: Manfred Runkel - Senior Solutions Architect at Bitmovin

How efficient is AV1 compared to other codecs? Which browsers and devices support AV1 playback? Is AV1 ready for deployment in the LATAM region?

Join Manfred Runkel, Senior Solutions Architect at Bitmovin, as he answers these questions and more around encoding, testing and the potential ROI of adding AV1 to your multi-codec streaming strategy.

Brief history and background of AV1 development and adoption.

Benchmarking the performance of AV1 vs VP9, HEVC/H.265, and AVC/H.264.

AV1 deployment/support in the LATAM region & worldwide..

• OVERVIEW OF THE MPEG V3C STANDARD FOR IMMERSIVE VIDEO CODING

Speaker: Celine Guede - Architect in Research & Innovation – InterDigital

A volumetric video consists of a sequence of frames, where each frame is a static 3D representation of a real-world object or scene capture at a different point in time. However, such contents can consume significant bandwidth. Compression of volumetric video is required to obtain data rates and files sizes that are economically viable in the industry. Standardization is required to ensure interoperability.

The Visual Volumetric Video-based Coding (V3C) standard specified by the MPEG group defines a generic mechanism for coding volumetric video and can be used by applications targeting different types of volumetric content, such as point clouds, immersive video with depth or transparency of visual volumetric frames.

• MPEG-H AUDIO SELECTED FOR THE NEXT GENERATION TV 3.0 BROADCAST SYSTEM IN BRAZIL

Speaker: Adrian Murtaza - Senior Manager, Technology and Standards - Fraunhofer IIS

Under the name “TV 3.0 Project”, the Brazilian Terrestrial Television System Forum (SBTVD) has issued the Call for Proposals (CfP) for a next generation Brazilian digital TV system, in July 2020.

After a very strict testing and evaluation phase conducted by independent laboratories, and considering market and intellectual property aspects of all the candidate technologies, the SBTVD Forum. has selected the VVC video codec and the MPEG-H Audio system, for the next generation TV 3.0 broadcast system in Brazil.

This lecture provides an overview of the MPEG-H Audio system and the TV 3.0 Project requirements for the audio component.

• VERSATILE VIDEO CODING (VVC) – THE NEXT GENERATION VIDEO CODEC

Speaker: Ralf Schaefer - Vice President Standards – InterDigital Research & Innovation – InterDigital

The video coding standard named Versatile Video Codec (VVC), jointly developed by MPEG (ISO/IEC) and VCEG (ITU-T) in the JVET (Joint Video Expert Team) has been published respectively by ISO and ITU-T and end of 2021 VVC has been adopted by SBTVD as the main video codec for TV3.0.

VVC can be considered as the state-of-the-art next generation video codec, succeeding HEVC (High Efficiency Video Coding), with an estimated bitrate gain of 40% versus HEVC for HD and 4K formats. VVC can be seen as an incremental design on top of HEVC, with enhancements of existing coding tools, along with introducing multiple new coding tools in all components of the codec architecture.

This presentation aims at providing an overview of the VVC development phases, VVC use cases & requirements and of major new coding tools.



Chair: Hugo Nascimento - CTO of AD Digital | Coordinator of the Working Group “Industry 4.0 at SET”

Graduated in engineering, he has more than 15 years working in Broadcast and PayTV projects in various fields such as IPTV, DTH and production and post-production environments. In his career, he has worked in companies and clients that are reference in the market, such as Cisco, Google, Telefonica, etc., as well as in projects involving multidisciplinary teams in different countries for Telefônica, Megacable, Claro, NET and his experience includes projects in pre and after-sales service with deep technical knowledge in this market. He has worked in the most demanding markets such as Germany, the United States, Mexico, Colombia, Argentina, Spain, among others.



Manfred Runkel - Senior Solutions Architect at Bitmovin

Senior Solutions Architect at Bitmovin, enabling Customers/Developers to achieve great results on the OTT Streaming Platforms. Postgraduate Software Architect/Data Science & Microsoft Azure Solutions Architect Expert with 15 years of tech experience acting as a Developer, Cloud Architect and Software Manager.



Celine Guede - Architect in Research & Innovation – InterDigital

Celine Guede graduated in engineering in 1998 from Polytech Orleans School, France. The following year, she joined Technicolor as an R&D engineer, where she first specialized in real-time software development, and in 2013 she joined the Advanced Television Systems activities, where she dedicated her expertise to contributions to the ATSC 3.0 television transmission standards.

In late 2016, Celine joined the Point Cloud Compression project and made contributions to the emerging MPEG Point Cloud Compression standard called V-PCC (Video-Based Point Cloud Compression).

In 2019, she moved to InterDigital as an architect, where she contributed to finalizing the MPEG V-PCC standard. Since 2022, her work is dedicated to volumetric video transmission, and she is heavily involved in the dissemination of V-PCC and MIV (MPEG Immersive Video) developing a real-time codec for these technologies and preparing standard contributions.



Adrian Murtaza - Senior Manager, Technology and Standards - Fraunhofer IIS

Adrian Murtaza received his M.Sc. degree in Communication Systems from the École Polytechnique Fédérale de Lausanne, Switzerland in 2012 with a thesis on “Backward Compatible Smart and Interactive Audio Transmission”. Upon graduation he joined Fraunhofer IIS, where he works as a Senior Research Engineer.

Adrian Murtaza joined MPEG in 2013 and since then contributed to development of various audio technical standards in MPEG-D and MPEG-H. He serves as Fraunhofer’s Senior Standards Manager in a number of industry standards bodies, including DVB, ATSC, SBTVD, CTA and SCTE, and is the co-author of multiple specifications in those groups.

More recently he focused on specification of Next Generation Audio delivery and transport in ATSC 3.0 systems and MPEG-2 Transport Stream based DVB systems, as well as on enabling of MPEG-H Audio services in different broadcast and streaming ecosystems.



Ralf Schaefer - Vice President Standards – InterDigital Research & Innovation – InterDigital

Ralf received his engineering degree (Dipl.–Ing.) from the Technical University Kaiserslautern/Germany and joined InterDigital in June 2019. As full time standard professional, Ralf chairs the MPEG WG7 AhG on Video-based Graphics Coding, is vice-chair of the DVB Commercial Module and is elected member of the DVB Steering Board.

Furthermore, Ralf is an active contributor to standards working groups in DVB, ETSI, SBTVD Brazil, NorDiG and FAVN France. Previously he chaired the MPEG 3DG AhG on Point Cloud Compression, which advanced the work on Video-based Point Cloud Compression (V-PCC) between MPEG meetings and led to the publication of ISO/IEC 23090-5:2021.

Before moving to Interdigital, Ralf occupied a similar position in Technicolor, where he contributed to ATSC3.0 and NGBF South Korea. Earlier he held R&D positions at various levels in Thomson and chaired working groups in DVB related to IPTV, Home Networking and Companion Screens.