MPEG promotes Network-Based Media Processing (NBMP) to Committee Draft stage

Marrakesh, Morocco – The 125th MPEG meeting was held in Marrakesh, Morocco, from 14 – 18 January 2019

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At its 125th meeting, MPEG promoted its specification on Network-Based Media Processing (NBMP) to Committee Draft of ISO/IEC 23090-8. With the increasing complexity and sophistication of media services and the incurred media processing, offloading complex media processing operations to the cloud/network is becoming more critical in order to keep receiver hardware simple and power consumption low. The standard defines a standardized framework that allows content and service providers to describe, deploy, and control media processing for their content in the cloud. The framework includes an *abstraction layer* to be deployed on top of existing commercial cloud platforms and is designed to be able to be integrated with 5G core and edge computing. The NBMP *workflow manager* is another essential part of the framework enabling composition of multiple media processing tasks to process incoming media and metadata from a media source and to produce processed media streams and metadata that are ready for distribution to media sinks. The implementation guidelines for some interesting use cases such as remote rendering of point cloud data and guided transcoding will be provided together with the specification and the standard will reach the final milestone by early 2020.

MPEG issues Call for Proposals on Immersive 3DoF+ Video Coding Technology

Support for 360-degree video, also called omnidirectional video, has been standardized in the MPEG omnidirectional media format (OMAF) and supplemental enhancement information (SEI) messages for High Efficiency Video Coding (HEVC). These standards can be used for coding and transport of immersive visual content. However, rendering flat 360-degree video may generate visual discomfort when objects close to the viewer are rendered.

The interactive parallax feature of "three Degrees of Freedom plus" (3DoF+) will provide viewers with visual content that more closely mimics natural vision, but within a limited range of viewer motion. A typical 3DoF+ use case is a user sitting on a chair looking at stereoscopic omnidirectional video content on a head mounted display (HMD) with the capability to slightly move his head in any direction.

At its 125th meeting, MPEG has issued a Call for Proposals (CfP) on *3DoF+ Visual*. The objective is to develop a solution for coding of 3DoF+ videos that is built on the existing HEVC standard (Main 10 profile) for texture and depth information, with 3DoF+ metadata to be standardized in MPEG-I Part 7. It will be referenced at the systems level in OMAF and at the video level in SEI messages for HEVC.

MPEG starts work on MPEG-5 Essential Video Coding

At its 125th meeting, MPEG commenced work on a new video coding standard to be known as *MPEG-5 Essential Video Coding (EVC)*. There is a constant demand for more efficient video coding technologies, however, coding efficiency is not the only factor which determines the industry choice of video coding technology for products and services. MPEG-5 EVC seeks to provide a standardized video coding solution to address *business needs* in some use cases, such as video streaming, where existing ISO video coding standards have not been as widely adopted as might be expected from their purely technical characteristics.

MPEG-5 EVC will include a *baseline profile* that contains only technologies that are over 20 years old or are otherwise expected to be royalty-free. Additionally, a *main profile* adds a small number of additional tools, each of which is capable, on an individual basis, of being either cleanly switched off or else switched over to the corresponding baseline tool. Organisations making proposals for the main profile are encouraged to make a commitment to the timely publication of licensing terms. The target coding efficiency for the call for proposals was to be at least as efficient as HEVC. This target was exceeded by approximately 24% in the responses to the call for proposals, which were evaluated at this meeting. The development of the MPEG-5 EVC standard is expected to be completed in 2020.

MPEG issues Final Draft International Standard of Conformance and Reference software for formats based on the ISO Base Media File Format (ISOBMFF)

At its 125th MPEG meeting, the development of conformance and reference software for ISOBMFF-based formats has reached the last milestone, Final Draft International Standards (FDIS). The software *implements features* from various standards using ISOBMFF-based formats such as the ISO base media file format (ISO/IEC 14496-12) itself, carriage of network abstraction layer (NAL) unit structured video in the ISOBMFF (ISO/IEC 14496-15), timed text and other visual overlays in ISOBMFF (ISO/IEC 14496-30), HEVC image file format (ISO/IEC 23008-12), and omnidirectional media format (ISO/IEC 23090-2).

The software development will continue through the GitHub, https://github.com/MPEGGroup/isobmff as the textual standards evolves. The standard also offers number of *conformance files* regarding ISO/IEC 14496-12, ISO/IEC 14496-15, energy-efficient media consumption (green metadata) (ISO/IEC 23001-11), and ISO/IEC 23008-12. The latest collection of conformance files can be downloaded from http://download.tsi.telecom-paristech.fr/gpac/MPEG/ISOBMFF-Conformance/.

MPEG finalizes 2nd edition of the MPEG-21 User Description

The development of the 2nd edition of the MPEG-21 User Description specification has been finalized at the 125th MPEG meeting by approving the Final Draft International Standard (FDIS). The ISO/IEC 21000-22 User Description standard defines *four types* of descriptors: *(i)* User Description (UD), *(ii)* Context Description (CD), *(iii)* Service Description (SD), and *(iv)*

Recommendation Description (RD) to enable systems producing recommendations of a service according to the user's preference and context. This edition adds technologies related to new use cases such as visual expression, loudness control, and privacy protection.

How to contact MPEG, learn more, and find other MPEG facts

To learn about MPEG basics, discover how to participate in the committee, or find out more about the array of technologies developed or currently under development by MPEG, visit MPEG's home page at https://mpeg.chiariglione.org/. There you will find information publicly available from MPEG experts past and present including tutorials, white papers, vision documents, short articles and requirements under consideration for new standards efforts. You can also find useful information in many public documents by using the search window including publicly available output documents of each meeting (note: some may have editing periods and in case of questions please contact Dr. Christian Timmerer).

Examples of tutorials that can be found there include tutorials for: High Efficiency Video Coding, Advanced Audio Coding, Universal Speech and Audio Coding, and DASH to name a few. A rich repository of white papers can also be found and continues to grow. You can find these papers and tutorials for many of MPEG's standards freely available. Press releases from previous MPEG meetings are also available.

Journalists that wish to receive MPEG Press Releases by email should contact Dr. Christian Timmerer at christian.timmerer@itec.uni-klu.ac.at or christian.timmerer@bitmovin.com or subscribe via https://lists.aau.at/mailman/listinfo/mpeg-pr. For timely updates follow us on Twitter (https://twitter.com/mpeggroup).

Further Information

Future MPEG meetings are planned as follows:
No. 126, Geneva, CH, 25 – 29 March 2019
No. 127, Gothenburg, SE, 08 – 12 July 2019
No. 128, Geneva, CH, 07 – 11 October 2019
No. 129, Brussels, BE, 13 – 17 January 2020

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