



ISO/IEC JTC 1/SC 29 "Coding of audio, picture, multimedia and hypermedia information"

Secretariat: JISC

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Liaison statement from SC 29/WG 2 to ITU-T SG 16, SC 29/WG 1 and 3GPP SA 4 on Feature Compression for Video Codings for Machines [SC 29/WG 2 N 322]

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Description

In accordance with Recommendation 4.3.1 at the 13th WG 2 Meeting, 2023-10-16/20, Hannover, Germany, the SC 29 Secretariat sends this liaison statement to ITU-T SG 16, SC 29/WG 1 and 3GPP SA 4. [Requested action: For SC 29's information]

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MPEG Technical requirements
Convenorship: SFS (Finland)

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**INTERNATIONAL ORGANIZATION FOR STANDARDIZATION
ORGANISATION INTERNATIONALE DE NORMALISATION
ISO/IEC JTC 1/SC 29/WG 2
MPEG TECHNICAL REQUIREMENTS**

**ISO/IEC JTC 1/SC 29/WG 2 N322
Hannover, DE – October 2023**

Title	Liaison to ITU-T SG16, ISO/IEC JTC 1 SC 29/WG 1 and 3GPP SA4 on Feature Compression for Video Coding for Machines
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ISO/IEC JTC 1/SC 29/WG 2 (MPEG Technical Requirements) would like to thank you for your collaboration with WG 2 activities and to inform you the evaluation result on FCVCM (Feature Compression for Video Coding for Machines) CfP (Call for Proposals).

At the 142nd MPEG meeting in April 2023, WG 2 has issued a CfP for technologies and solutions enabling efficient feature compression for machine vision tasks that could outperform the state-of-the-art VVC.

At the 144th MPEG meeting in October 2023, a total of 12 responses to FCVCM CfP were received. Responses were evaluated on 3 tasks across 4 datasets according to various metrics including: bpp/bitrate, task performance, time and space complexity, etc. The reported BD bitrate saving is up to 94% against the feature anchors and 69% against the video/image anchors.

According to the responses, the overall pipeline of FCVCM can be divided into two stages: feature reduction and feature coding. Technologies in relation to feature reduction stage include neural-network-based feature fusion, temporal and spatial resampling, adaptive feature truncation, and beyond. Technologies in relation to the feature coding stage include learning-based codecs, existing block-based video codecs, and hybrid codecs. All requirements that were defined by WG 2 were addressed by different proposals and a test model has been defined.

For more information, please refer to the document links:

[WG 2 N 318](#): Call for Proposals responses report for Feature Compression for Video Coding for Machines

[WG 2 N 319](#): Updated Call for Proposals on Feature Compression for Video Coding for Machines

Given the success of this call, MPEG will continue working on video compression methods for machine vision purposes. The work has been transferred to WG 4 (Video Coding) where a new standardization project will be started.

MPEG looks forward to further communication and exchange of information with you on the progress on Feature Compression for Video Coding for Machines and other matters of potential joint interest.