Special-Issue Call for Papers for

IEEE Transactions on Circuits and Systems for Video Technology

Recent Standardization Efforts for Learning-Based Visual Data Coding

Aim and Scope

Visual data coding is an enabling technology for a wide range of applications and is now ubiquitously adopted in modern image processing, communications, and computer vision systems. To enable interoperability between devices manufactured and services provided by different companies, a series of standards targeting visual data coding have been crafted in the past three decades. Several standardization organizations including ISO/IEC JPEG/MPEG, ITU-T VCEG, JVET, AVS, IEEE DCSC, MPAI, and others have been creating these standards from many contributions of academia and industry. While most of these visual coding standards have been very successfully deployed in many applications, there are many challenges nowadays, especially to accommodate the large volume of visual data in limited storage and limited bandwidth transmission links. Compression efficiency improvements are still needed, especially considering emerging data representation formats, from 8K/HDR image/video to rich plenoptic formats.

To improve compression efficiency, machine learning technologies, such as deep neural network-based ones, have shown great potential for many types of visual data. Thus, new standardization activities that exploit this potential are undergoing, some more mature than others, such as learning-based image and video coding, learning-based point cloud coding, learning-based light-field coding, etc. These standardization efforts have been attracting significant attention in the aforementioned standardization organizations.

This special issue seeks high-quality and original contributions on learning-based visual data coding with a special focus on recent standardization efforts. In this context, the goals of this special issue are: (1) to showcase and disseminate the ongoing learning-based standardization efforts in many standardization groups such as JPEG, MPEG, VCEG, JVET, AVS, IEEE DCSC, MPAI; (2) to present novel learning-based technologies for visual data coding, especially those deemed promising for upcoming standards; (3) to explore new research directions advancing the architecture, theory, and algorithmic design of visual data coding solutions.

Topics of Interest

This special issue solicits manuscripts related to standardization efforts in learning-based visual data coding, including but not limited to the following topics:

- Standardization efforts for learning-based image coding, such as JPEG AI, IEEE P1857.11;
- Standardization efforts for learning-based video coding, such as JVET NNVC, AVS-AI, MPAI;

- Standardization efforts for learning-based point cloud coding, such as JPEG PCC, MPEG PCC;
- Standardization efforts for learning-based light field coding, such as JPEG Pleno;
- Standardization efforts for learning-based video/data coding for machines, such as MPEG VCM, DCM;
- Standardization efforts for other learning-based visual data coding technologies;
- Novel learning-based technologies for visual data coding, including but not limited to image/video/point cloud/light field coding and video/data coding for machines;
- Emerging topics of learning-based visual data coding standards, such as the representation/compression of neural network models for visual data coding, the deployment of learning-based visual data coding standards, the reliability/trustworthy of these standards, among others.

Submitted papers shall present original, unpublished work that is relevant to at least one of the topics of interest. All submitted papers will be evaluated based on relevance, significance of contribution, technical quality, and presentation quality by at least three (3) reviewers. No submission, or substantially overlapping submission, may be published or be under review at another venue at any time during the review process.

Prospective authors should submit their manuscripts following the IEEE TCSVT guidelines at https://ieee-cas.org/pubs/tcsvt/submit-manuscript. Authors should submit a PDF version of their complete manuscript to https://mc.manuscriptcentral.com/tcsvt.

Important Dates

Manuscript submission by:	~~March 15,~~ **April 15**	2023
First-round review by:	June 1,	2023
Revised manuscript by:	July 1,	2023
Second-round review by:	August 1,	2023
Camera-ready by:	September 1,	2023
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