

Call for Papers

Special Issue on Learned Visual Data Compression for both Human and Machine

Aim and Scope

Due to the rapid advance in the sensor and imaging technology and significant improvement of communication capacity, the volume and diversity of visual data has increased significantly. On one hand, in addition to the traditional image and video signals, the applications of more recent visual data like point cloud, light field or 360-degree image and video are becoming increasingly popular. On the other hand, the proportion of visual data consumed by the machine vis-a-vis human is increasing dramatically. A good example is video surveillance where most of the time it is processed by algorithms for abnormal event detection that may trigger some human intervention. Therefore, it is necessary to develop highly efficient visual data compression algorithms for both machine and human. Considering the successful applications of deep neural networks in different vision, imaging, and compression tasks, it is beneficial to build learned visual data compression systems, for human as well as machine consumption. Furthermore, the compressed visual data are often used as the input for the subsequent processing and analysis tasks (e.g., enhancement, detection, or segmentation), which also increasingly rely on deep neural networks. Therefore, there is a potential for bridging the gap between learned visual data compression, learned enhancement and machine perception. This opens the doors to an end-to-end learned visual data compression suitable for both human and machine.

This special issue seeks high quality and original works on learned visual data compression. The goals of the special issue are three-fold: (1) investigating fundamental theories and advanced frameworks for learned visual data compression; (2) presenting novel deep learning techniques applicable to existing visual applications; (3) exploring new research directions for the joint visual compression and human/machine perception.

Topics of Interest

Manuscripts are solicited to address a wide range of topics on the learned visual data compression for both human and machine, including but not limited to the following:

1. Fundamental theories and frameworks for visual data compression
2. Learned visual data compression, including (but not limited to) image, video, point cloud, light field, etc.
3. Methodologies for learned visual data quality and performance assessment
4. Video coding for machines
5. Joint optimization of visual data compression and visual enhancement
6. Joint optimization of visual data compression and analysis
7. Joint optimization of visual data compression for human and machine tasks
8. Deep learning for visual data processing and analysis (e.g., super-resolution/denoising /deblurring, activity recognition, video event recognition, object localization and segmentation in images/videos)

Submitted papers should present original, unpublished work, relevant to one of the topics of the Special Issue. All submitted papers will be evaluated based on relevance, significance of

contribution, technical quality, scholarship, and quality of presentation, by at least three independent reviewers. It is the policy of the journal that no submission, or substantially overlapping submission, be published or be under review at another journal or conference at any time during the review process.

Prospective authors should submit their manuscripts following the IEEE T-CSVT guidelines at <https://iee-cas.org/pubs/tcsvt/submit-manuscript>. Authors should submit a PDF version of their complete manuscript to <https://mc.manuscriptcentral.com/tcsvt> according to the following schedule:

*** Important Dates ***

Manuscript submission by:	31 th January	2022
First review results by:	1 st April	2022
Revised manuscript by:	1 st May	2022
Second review results by:	1 st June	2022

Final manuscripts by:	1 st July	2022
Anticipated publication:	3 rd or 4 th quarter	2022

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