Call for Papers
Themed Series of APSIPA Trans. on Signal and Information Processing on
"Deep Learning-Based Data Compression"

Recent years have witnessed remarkable advancements in data acquisition technologies. Massive data has been inevitably generated, such as image and video data from the widespread deployment of cameras, three-dimensional point cloud data from high-precision LIDARs in autonomous vehicles, medical data from advanced diagnostic and imaging equipment, and speech data, etc. Large-scale datasets have been instrumental in enhancing the performance of numerous machine learning algorithms in the current AI era. However, this abundance of data also presents formidable challenges in data transmission and storage, underscoring the urgent need for more efficient data processing and compression algorithms. Compared with traditional methods, deep learning-based solutions have shown superiority in diverse aspects, becoming increasingly pronounced in academia and industry communities. By harnessing deep learning algorithms, we can more intelligently and efficiently compress different data types, including images, videos, point cloud data, medical data, and speech data, for human and machine perception utilities.

This themed series intends to map the current landscape and explore how learning-based techniques can offer superior performance, adaptability, and intelligence in managing the ever-growing data demands in modern communication and storage systems. We welcome researchers and innovators to contribute their original work and help shape the future of data compression technology. Submissions are invited to explore a broad spectrum of topics related to deep learning-based data compression applicable to both humans and machines, including but not limited to the following:

➢ Fundamental theories and frameworks for data compression
➢ Deep learning-based data compression algorithms, including (but not limited to) image, video, point cloud, medical data, gene, speech, light field, 360-degree image/video, text, etc.
➢ Datasets and perception models for human and machine-centric data compression
➢ Joint optimization of data compression for human and machine tasks
➢ Deep learning-based feature compression algorithms
➢ Scalability and adaptability of deep learning-based compression algorithms
➢ Flexible bit allocation and rate control of deep learning-based compression algorithms
➢ Adaptive transport and delivery mechanisms over the network for learned bit streams
➢ Low complexity and acceleration of deep learning-based compression algorithms
➢ Deep learning-based compression algorithms with foundation and generative AI models
➢ Machine learning techniques for hybrid-based and end-to-end data compression algorithms
➢ Software and hardware implementations and systems
➢ Standardization efforts for deep learning-based data compression technologies
➢ Future trends and challenges in the field of learning-based data compression

Each paper submitted to this series will be reviewed using the first-come-first-serve principle. The target of the first round of decision-making is 5 weeks, and the period of the first round of revision is 2 weeks. The paper will be accepted between 8-12 weeks (depending on 1 or 2

revisions). Once the submission window has closed, accepted papers ready for publication will be published online. The series will be accompanied by an editorial written by the guest editorial team. If a paper cannot be accepted within the publication window, it will be considered as a regular paper.

If you are interested in paper submission, please refer to:
https://nowpublishers.com/Journal/AuthorInstructions/SIP.

If you have any further questions, please contact shiqwang@cityu.edu.hk and gaowei262@pku.edu.cn.

Submission Window: April 1, 2024 to July 31, 2024
Publication Window: July 31, 2024 to September 31, 2024

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