

Learned Image Compression With Reduced Decoding Complexity

Tech ID: 33584 / UC Case 2023-777-0

BRIEF DESCRIPTION

The Mandt lab introduces a novel approach to neural image compression, significantly reducing decoding complexity while maintaining competitive rate-distortion performance.

SUGGESTED USES

- Data compression, particularly image and video
- Real-world deployment of neural image compression in devices with limited computational resources.
- Improvement of streaming services through efficient compression without sacrificing quality
- Enhancement of cloud storage solutions with high-efficiency compression algorithms
- Applications in mobile and web platforms where decoding speed and efficiency are critical

FEATURES/BENEFITS

- Strong compression performance with low decoding complexity
- Learned compression: the method can be trained and optimized on custom data
- Low storage requirement: the neural coded is much cheaper to store on low-resource devices than existing neural codecs

TECHNOLOGY DESCRIPTION

There is an asymmetry between the computation budget for encoding and decoding in data compression. The encoding is often done only once, and the resulting bitstream is transmitted, accessed, or decoded many times. This technology exploits the asymmetry between encoding and decoding computation budgets to reduce the decoding complexity of neural image compression by adopting shallow or linear decoding transforms resulting in high Rate-Distortion performance while enjoying low decoding complexity.

PATENT STATUS

Country	Type	Number	Dated	Case
Patent Cooperation Treaty	Reference for National Filings	WO 2024/211225	10/10/2024	2023-777

Patent Pending

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INVENTORS

» Mandt, Stephan

OTHER INFORMATION

CATEGORIZED AS

- » Computer
- » Software
- » Imaging
- » Software

RELATED CASES

2023-777-0

STATE OF DEVELOPMENT

The code has been benchmarked on various data sets

RELATED MATERIALS

» [Computationally-Efficient Neural Image Compression with Shallow Decoders.](#) Yibo Yang, Stephan Mandt

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