

Call for Papers
IEEE Journal of Selected Topics in Signal Processing
Special Issue on Deep Learning for Image/Video Restoration and Compression

The huge success of deep-learning-based approaches in computer vision inspired research in learned solutions to classic image/video processing problems, such as denoising, deblurring, super-resolution, and compression. Hence, learning based methods have emerged as a promising nonlinear signal processing framework for image/video restoration and compression. Recent works have shown that learned models can achieve significant performance gains over traditional methods. Hence, the state of the art in image restoration and compression is getting redefined. Yet, compelling research challenges still remain to be addressed. These include: i) learned models contain millions of parameters, which makes real-time inference on common devices a challenge, ii) it is difficult to interpret learned models or to provide performance bounds on results, iii) it is important to provide a loss function, for training, that accurately reflects human perception of quality, and iv) the performance of learned models trained on synthetically generated data drops sharply on real-world images/video, where the quantity and quality of training data is limited. This special issue invites original contributions in innovative architectures and training methods for effective and efficient networks for image/video restoration and compression to address these and other challenges. Topics of interest include (but are not limited to):

- New architectures for image and video restoration, including super-resolution, denoising, deblurring, dehazing, and inpainting.
- Novel learned methods for motion compensation and image/video compression.
- Computationally efficient networks for image/video restoration and compression.
- Explainable deep learning for image/video restoration and compression.
- Training with novel loss functions that accurately reflects human perception of quality.
- Robust methods on real-world image/video, where the training data is noisy and/or available training data is limited.

Important Dates: Extended

Manuscript Submission Due: 1 July 2020

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Revised Manuscript Due: 15 October 2020

Second Review Completed: 1 December 2020

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