

ROBUST VIDEO DENOISING LOW-RANK MATRIX COMPLETION

Group details:

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Paper:

We will analyse and implement [Robust video denoising using Low-rank matrix completion](#) paper, which uses a patch-based video denoising algorithm capable of removing serious mixed noise from the video data. By grouping similar patches in both spatial and temporal domains, the authors have formulated the problem of removing mixed noise as a low-rank matrix completion problem, which leads to a denoising scheme without strong assumptions on the statistical properties of the noise. This approach helps in handling images corrupted with mixed noise (eg. Gaussian noise mixed with impulse noise) as opposed to the usual assumption of a single statistical noise model used by most of the other algorithms.

If time permits we will explore other applications of low-rank matrix completion (eg. Recommender system or Image inpainting)

Dataset:

- 1) We will verify our implementation on the same dataset as is used in the original paper: <https://media.xiph.org/video/derf/>
- 2) We will also make a custom dataset (if time permits) where we will add mixed noise to videos available on Youtube.

Validation/Evaluation Strategy:

We will evaluate the results of our implementation by calculating the Peak Signal to Noise Ratio (PSNR) of the reconstructed videos and also observe the results visually.