Robust Video Denoising using Low Rank Matrix Completion

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OVERVIEW

We will Implement patch-based video denoising algorithm (mixed noise) as a low-rank matrix completion problem by grouping similar patches in both spatial and temporal domain without strong assumptions on statistical properties of noise. We will also experiment with different mixed noise models for robustness and effectiveness. We will try to implement VBM3D method(if time permits) and compare with this model

Reference Papers

1. https://ieeexplore.ieee.org/stamp/stamp.jsp?arnumber=5539849
2. https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=4271520
3. https://ieeexplore.ieee.org/stamp/stamp.jsp?tp=&arnumber=7098781

Dataset

https://media.xiph.org/video/derf/

Experiments

We will be measuring our performance by PSNR values and compare our results with PCA-Denoising and VBM3D models for different mixed noise models.