

# Supplementary materials

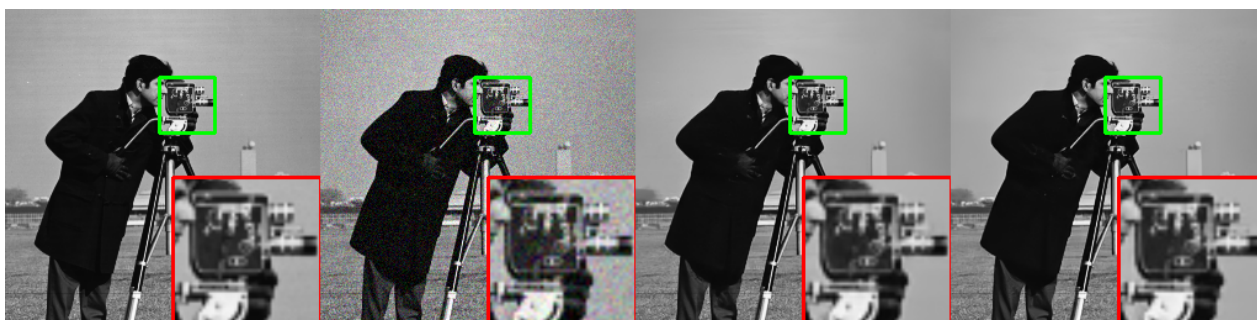
## Visualization

Due to the page limit, we provide the supplementary details about our experiments on visualization.

As you can see, although existing denoising methods have reached powerful noise removing abilities, our proposed framework (4th column) outperforms the current state-of-the-art, VDN (3rd column). Due to the design of the adaptation step in our framework, we succeed to improve the restoration performances by overcoming the tendency of blurriness after denoising which reduces the local error of images.

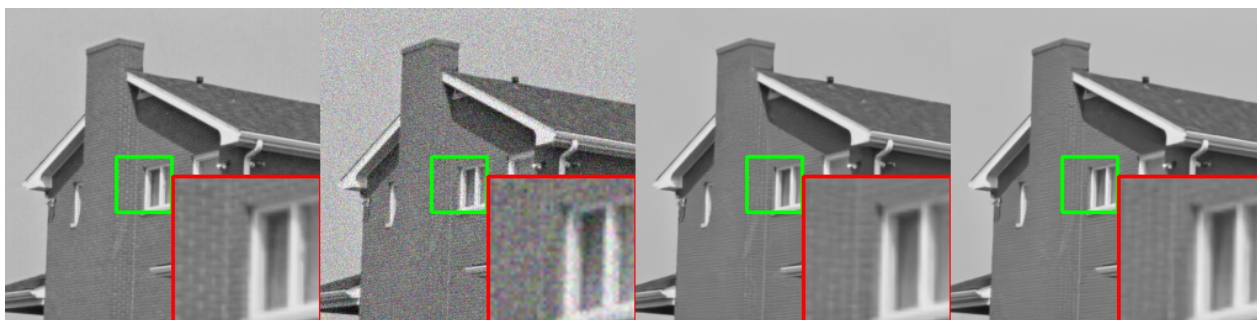
Take the dataset Set12 used in the paper as the example, the continuous texture is more clear in our proposed framework in the image Barbara. Besides, the wrinkle on the jaw is successfully restored by our framework. We also find that our framework succeed to restore the flaw on the texture of the hat in Lena. It shows that we succeed to overcome the tendency of blurriness after denoising and reduce the local error which improves the evaluating metric PSNR in turn.

C.Man



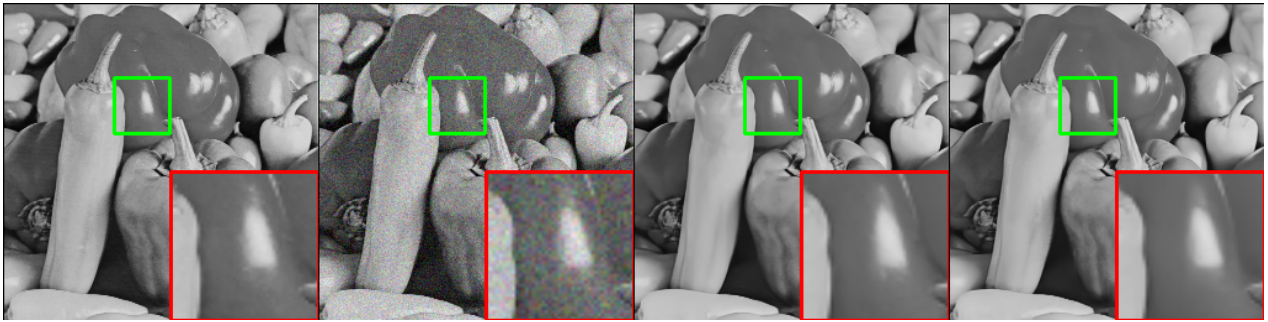
(a) Ground truth (b) Noisy image (c) VDN 35.22 (d) Proposed 35.33

House



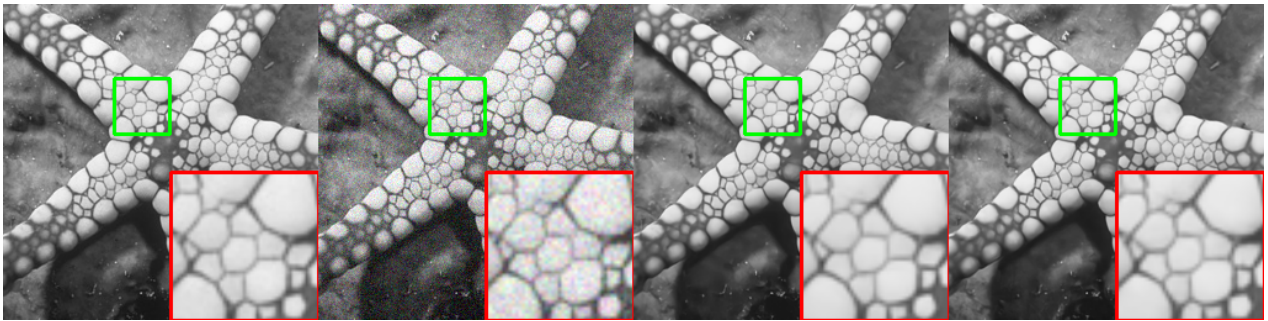
(a) Ground truth (b) Noisy image (c) VDN 37.24 (d) Proposed 37.31

Peppers



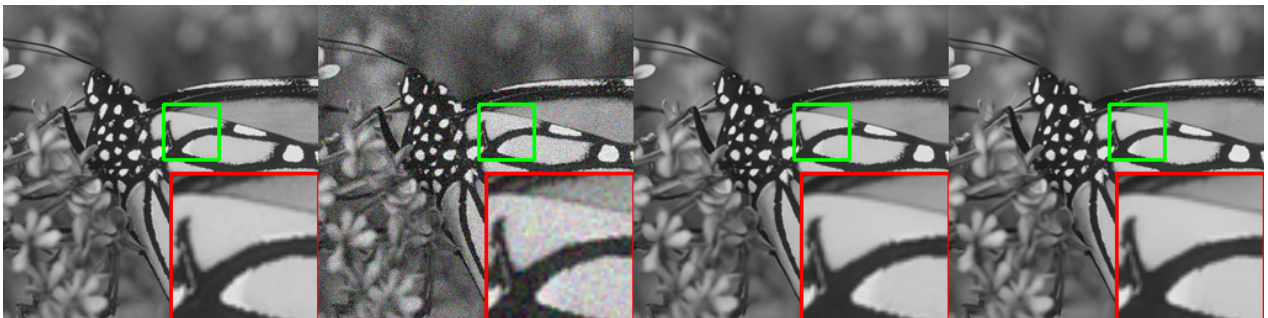
(a) Ground truth (b) Noisy image (c) VDN 35.49 (d) Proposed 35.69

Starfish



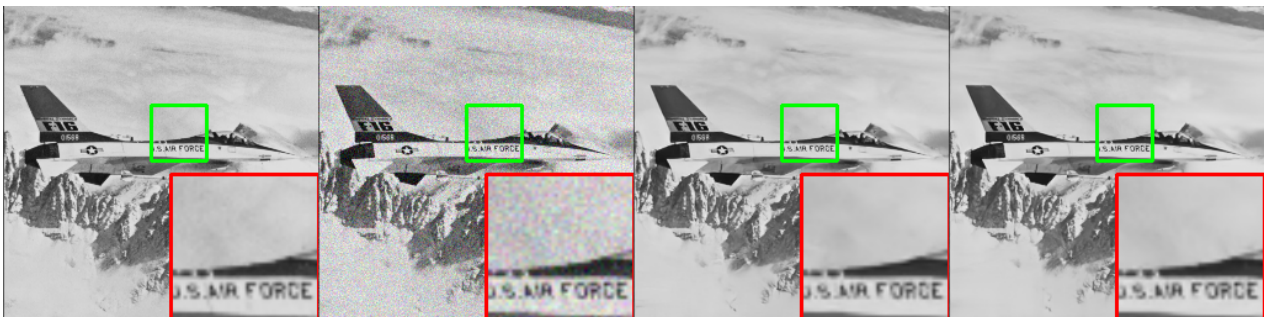
(a) Ground truth (b) Noisy image (c) VDN 34.86 (d) Proposed 35.03

Monar



(a) Ground truth (b) Noisy image (c) VDN 35.83 (d) Proposed 36.03

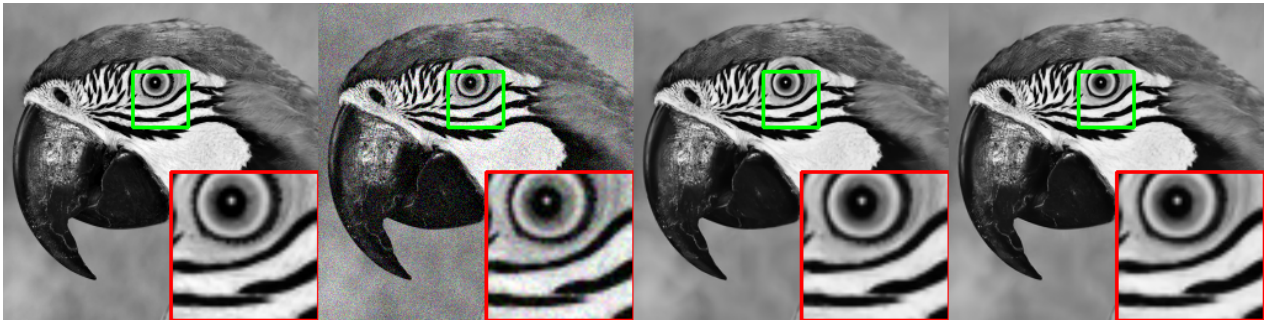
Ailpl



(a) Ground truth (b) Noisy image (c) VDN 34.50 (d) Proposed 34.54

Parrot





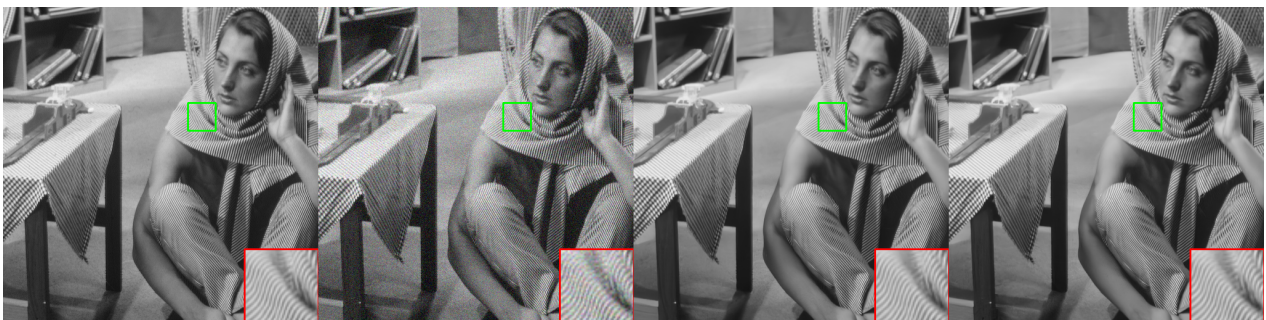
(a) Ground truth (b) Noisy image (c) VDN 34.60 (d) Proposed 34.73

Lena



(a) Ground truth (b) Noisy image (c) VDN 34.60 (d) Proposed 34.66

Barbara



(a) Ground truth (b) Noisy image (c) VDN 35.20 (d) Proposed 35.30

Boat



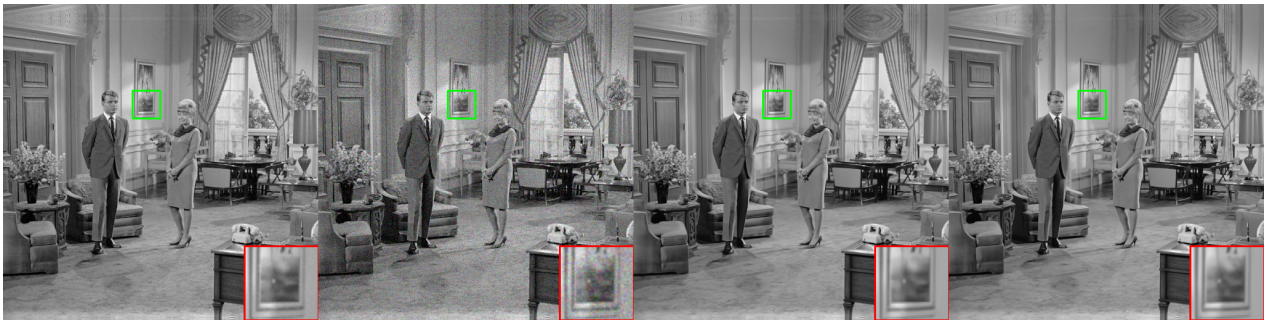
(a) Ground truth (b) Noisy image (c) VDN 34.66 (d) Proposed 34.66

Man



(a) Ground truth (b) Noisy image (c) VDN 35.00 (d) Proposed 35.07

### Couple



(a) Ground truth (b) Noisy image (c) VDN 34.84 (d) Proposed 34.88