Supplementary Material

1. Details for noise parameters calibration

Here, we provide more details on noise parameters calibration for three smartphone cameras in the SIDD dataset. Following the DNG document [1], we estimate two noise parameters (β_1, β_2) for each sensor under the typical Poisson-Gaussian distribution. Specifically, β_1 denotes the total gain factor inner the camera and β_2 is the variance (Gaussian distribution) for the signal independent noise. For β_1, we first capture a series of *flat-field frames* by adjusting the uniform illumination and use the Photo Transfer method [2] to fit the linear relationship between the mean and variance of the *flat-field frames*. For β_2, we capture *black frames* for each ISO settings and remove their black levels. The variance parameter β_2 can be estimated under the Gaussian distribution.

2. More qualitative results.

In fig. 1, we show more qualitative results from the ELD dataset. Our method can produce more textures than other methods. And, the color around the dark areas also can be preserved well.

References

[1] ADOBE SYSTEMS INCORPORATED. Digital negative (dng) specification. https://www.adobe.com/content/dam/acom/en/products/photoshop/pdfs/dng_spec_1.4.0.0.pdf, 2012. 1

[2] James R Janesick, Kenneth P Klaasen, and Tom Elliott. Charge-coupled-device charge-collection efficiency and the photon-transfer technique. *Optical engineering*, 26(10):261072, 1987. 1

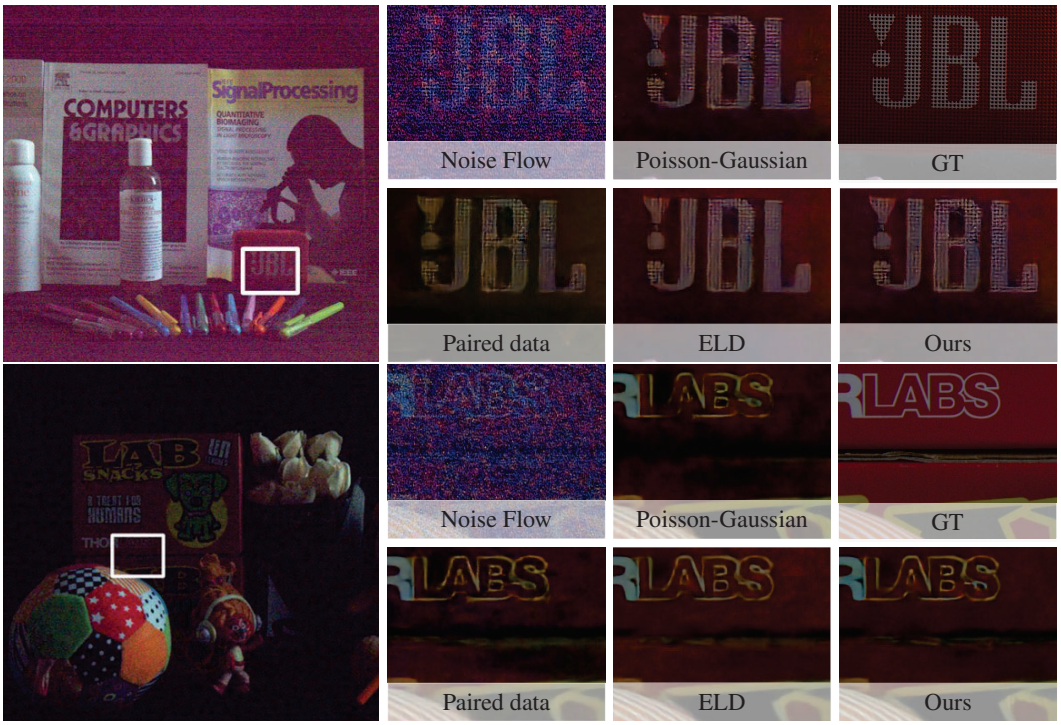

Figure 1. Qualitative results from the ELD dataset (**top**: scene 6, **bottom**: scene 1).