

# Uncertainty Guided Multi-Scale Residual Learning-using a Cycle Spinning CNN for Single Image De-Raining (Supplementary Material)

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## 1. Introduction

In this supplementary material, we provide additional quantitative and qualitative performance of UMRL method and compare it against several recent state-of-the-art methods [6, 1, 2, 7, 4, 5].

## 2. Quantitative Analysis

We compare the performance of UMRL with cycle spinning on the *Rain800* dataset from [3]. As can be seen from Table 1 that UMRL outperforms RESCAN [5](ECCV'18) and many other recent methods.

Table 1: Quantitative performance of UMRL with cycle spinning.

Dataset	<i>Rain800</i>	
Measure	PSNR	SSIM
DSC [6]	18.56	0.60
DDN [2]	21.16	0.73
JORDER [7]	22.24	0.78
JORDER-R [7]	22.29	0.79
RESCAN[5]	24.37	0.84
ours	<b>24.59</b>	<b>0.87</b>

## 3. Qualitative Analysis

We also provide some additional results on both synthetic and real-world rainy images.

## References

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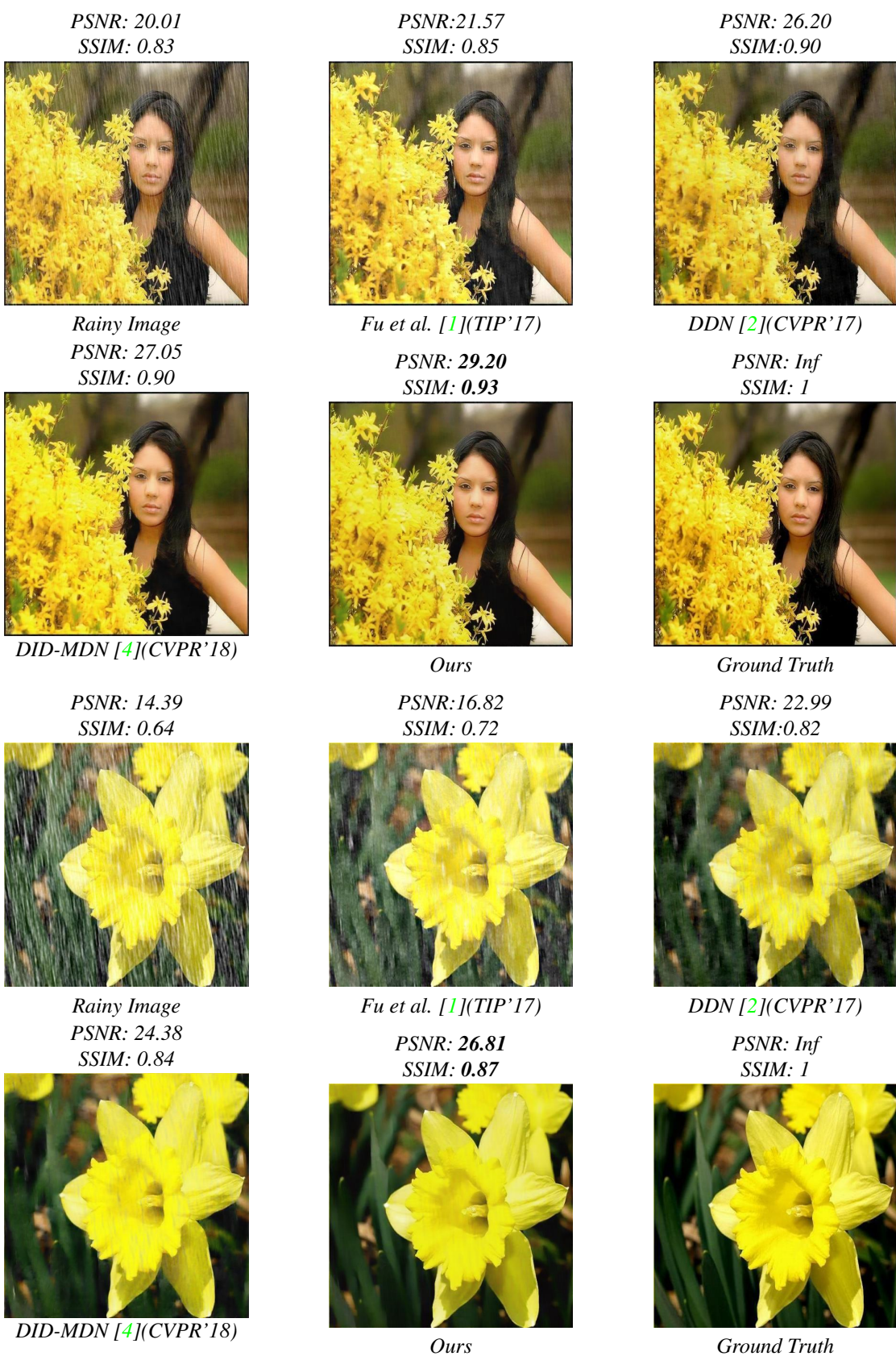


Figure 1: De-rained results on synthetic images from *Test-2* dataset from [1].





Figure 2: De-rained results on synthetic images from *Test-2* dataset from [1].

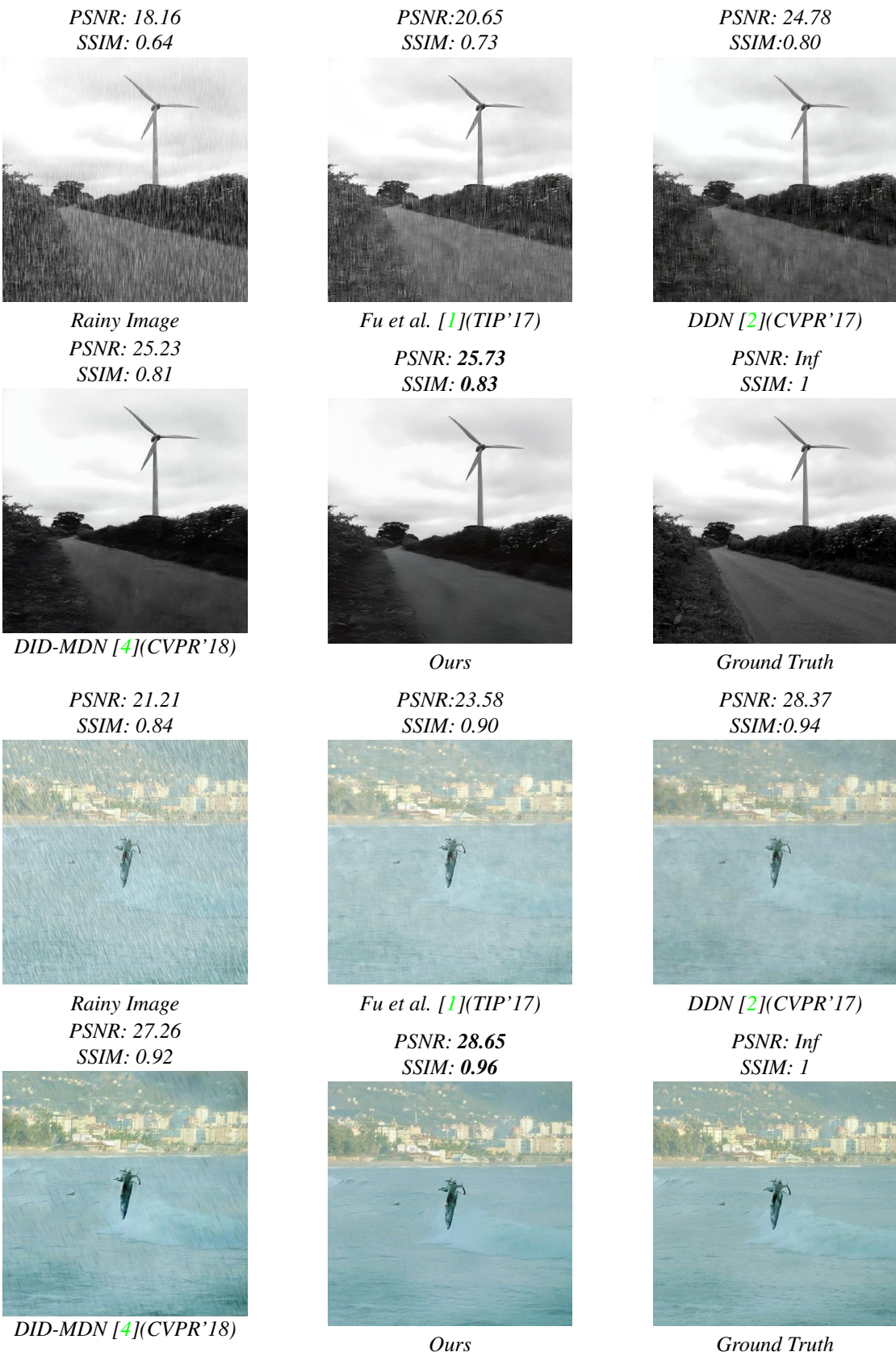


Figure 3: De-rained results on synthetic images from *Test-1* dataset from [4].





Figure 4: De-rained results on synthetic images from *Test-1* dataset from [4].





*Rainy Image*

*Fu et al.  
[1](TIP'17)*

*DDN  
[2](CVPR'17)*

*DID-MDN  
[4](CVPR'18)*

*Ours*

Figure 5: De-rained results on sample real-world images.