Supplemental Material for "Adaptive Patch Exiting for Scalable Single Image Super-Resolution"

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1 Additional Experiments

1.1 Design of Regressor

Despite the one-layer MLP (1-MLP) we used in the paper, we also choose two-layer MLP (2-MLP) and Conv-GAP-MLP (C-MLP) as other designs for evaluation. We also make the regressor predict random values (Rand). We report the regressor accuracy (Top-5 means the predicted exit is in the [-2,2] range of ground-truth exit) and PSNR (by setting incremental capacity threshold to 0.1). As can be seen from Tab. 1, higher accuracy leads to higher PSNR. To our surprise, the PSNR of Rand is also acceptable despite its low accuracy. Although this experiment is very primary, we believe improving the accuracy of regressor is a promising future work.

1.2 Additional Quantitative Results

we provide additional results on Urban100 and B100 in Tab. 2 and Tab. 3. We also apply the proposed -APE strategy to RRDB and SwinIR as shown in Tab. 4. These additional results demonstrate the generalization ability of APE as the conclusion is consistent.

1.3 Visual results and analysis

Overfitting patches are illustrated in Fig. 1 (a) and show a consistent grid pattern. The actual reason will be an interesting future work for SR research. And we show one obvious visual result in Fig. 1 (b,c,d).

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Fig. 1: (a) Overfitting patches. (b) HR image. (c) EDSR/RCAN. (d) EDSR-APE/RCAN-APE. Best viewed by zooming in.

Table 1: Regressor accuray and PSNR of EDSR-APE on DIV2K.

Method	Scale	Acc.(Top-5)	PSNR
1-MLP (paper)	×4	82%	28.66
2-MLP	×4	88%	28.66
C-MLP	×4	66%	28.3
Rand	×4	56%	28.1

Table 2: Performance evaluation on Urban100 and B100.

Method	Scale	Urban100			B100		
		FLOPS	PSNR	SSIM	FLOPS	PSNR	SSIM
RCAN	×4	36.77G	25.32dB	0.7375	36.77G	27.31dB	0.7036
RCAN-APE	×4	36.23G	25.49dB	0.7471	36.74G	28.27dB	0.7413
EDSR	×4	115.83G	25.51dB	0.7444	115.83G	27.40dB	0.7066
EDSR-APE	×4	115.59G	25.63dB	0.7516	115.64G	28.35dB	0.7437

Table 3: Efficiency evaluation on Urban100.

Method	Scale	Param.	PSNR	Body FLOPs	Total FLOPs	Time (ms)
RCAN	×4	15.6M	25.32dB	34.91G	36.77G (100%)	170
RCAN-APE	×4	15.6M	25.31dB	15.27G	17.13G (46%)	113
EDSR	×4	43.1M	25.51dB	87.01G	115.83G (100%)	300
EDSR-APE	×4	43.1M	25.50dB	59.02G	90.84G (78%)	178

Table 4: Experiments on RRDB and SwinIR.

Method	Scale	Param.	PSNR	Body FLOPs	Total FLOPs	Time (ms)
RRDB	×4	14.5M	28.26dB	33.16G	36.39G (100%)	550
RRDB-APE	×4	14.5M	28.21dB	13.51G	16.74G (46%)	418
SwinIR	×4	11.9M	28.71dB	27.47G	29.41G (100%)	2320
SwinIR-APE	×4	11.9M	28.69dB	15.31G	17.25G (58%)	813