

Encoder-Decoder Residual Network for Real Super-resolution

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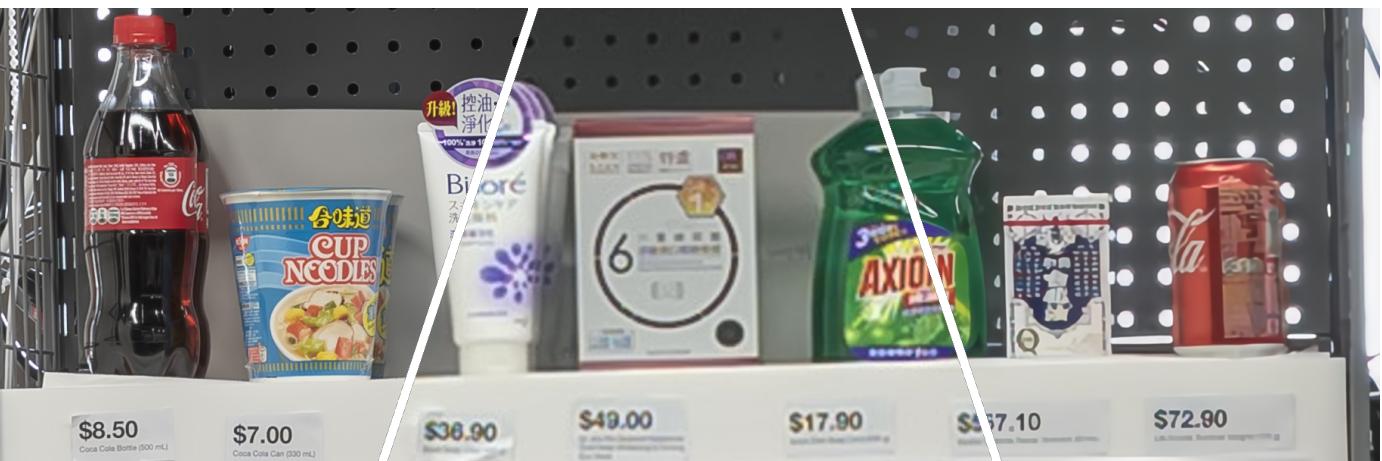


LONG BEACH
CALIFORNIA
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Motivation

Real super-resolution (SR)

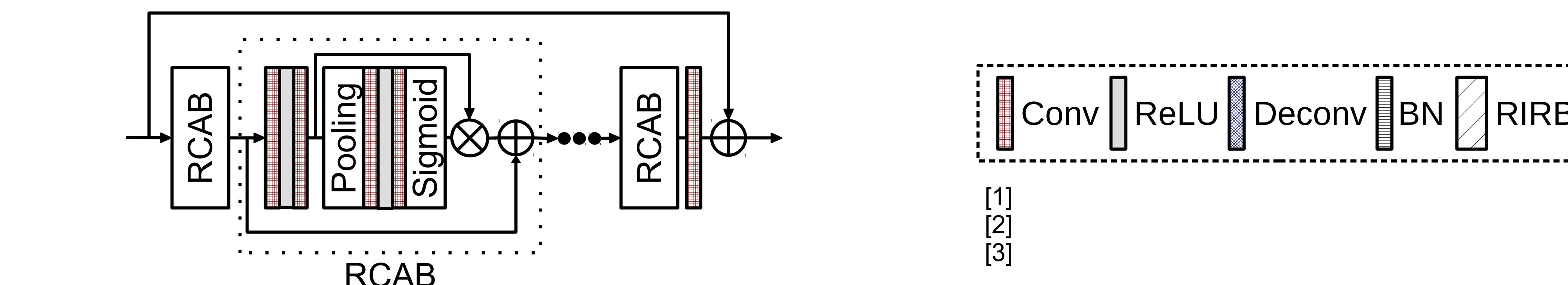
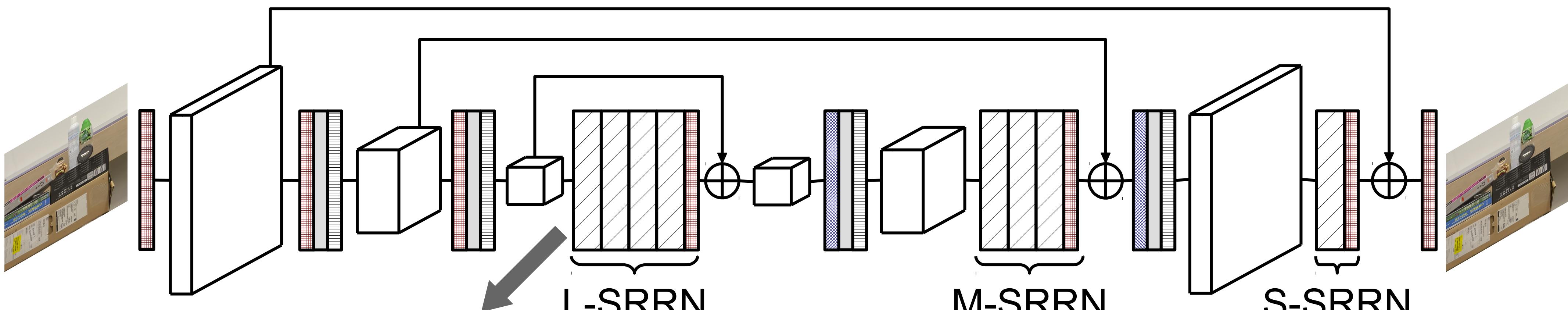
It is challenging to ...



Contribution

- Proposed **Encoder-Decoder Residual Network (EDRN)**
- Investigated the influence of Batch Normalization for real SR
- Won **Top5 SSIM & 9th PSNR** in NTIRE2019 real SR challenge (36 team)

Encoder-Decoder Residual Network (EDRN)



	PSNR (dB)	Down / Up	Coarse-to-fine	
BN (all)	29.96	1	✓	
BN (part)	29.21	2	✓	
Without BN	29.49	3	✗	
		4	✗	
		5	✗	

Quantitative Results

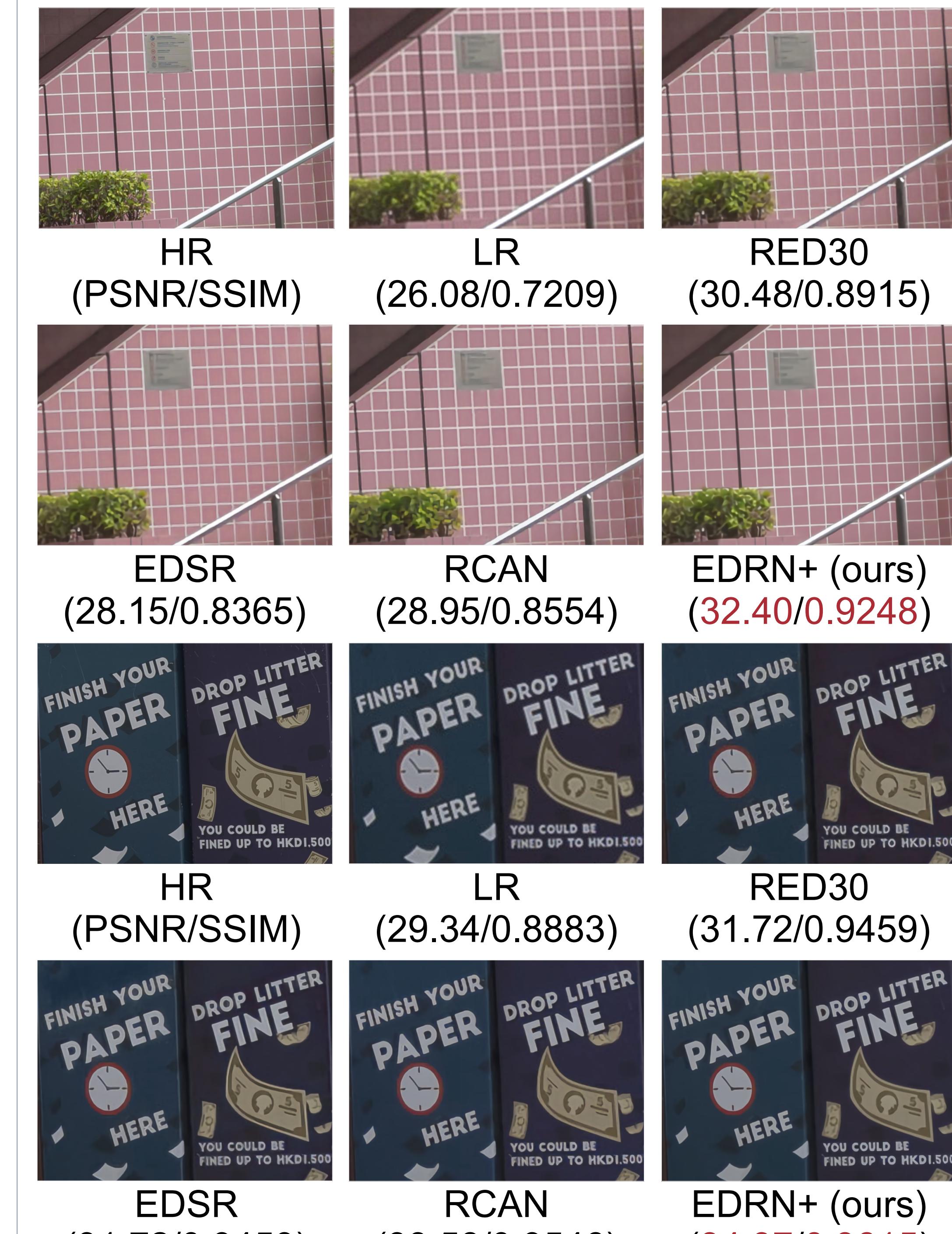
Table 1: Benchmark results on validation dataset

Method	PSNR (dB)
RED30 [NIPS2016, pp.2802-2810]	29.13
EDSR [CVPRW2017, pp.1132-1140]	29.21
RCAN [ECCV2018, pp.294-310]	29.49
EDRN (ours)	29.98
EDRN+ (ours)	30.10

Table 2: NTIRE Real SR Challenge final ranking

Team	PSNR (dB)	SSIM
SuperRior	29.00	0.84
SuperSR	28.97	0.84
BMIPL_UNIST_DW	28.93	0.84
David_MM_AI	28.93	0.83
LuluVision	28.88	0.84
TeamInception	28.88	0.83
LiveMe_AILab	28.87	0.83
rainbow	28.81	0.83
IVIP-LAB (ours)	28.79	0.84
Future	28.76	0.83
YZSR	28.73	0.83
HIT-UltraVision	28.72	0.83
Meteor	28.63	0.83
ECNU	28.61	0.83
AiDDle	28.60	0.83
BOE-IOT-AIBD	28.54	0.83
xuxu123	28.53	0.83
VIPSL	28.52	0.83
AP_FStone	28.48	0.83
ZXHresearch@fudan	28.46	0.83
⋮	⋮	⋮

Qualitative Results



Further information

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↓ Code & Model

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