

NTIRE 2017 Challenge on Single Image Super-Resolution: Factsheets

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This paper provides links to factsheets, codes, trained models, and web pages (see Table 1) for the participating teams and their solutions for NTIRE 2017 challenge on example-based single image super-resolution. We invite the reader to check also the challenge report [9] and the dataset and study paper [1] and its supplementary material [2] with results reported on both validation and test DIV2K sets for the top challenge methods as well as VDSR and A+ methods.

Table 2 and Table 3 summarize the ranked teams and solutions from the challenge.

Team	User	Report	Codes	Paper	Webpage
SNU_CVLab ¹	limbee	factsheet	solution	[8]	page
SNU_CVLab ²	sanghyun	factsheet	solution	[8]	page
HelloSR	sparkfirer	factsheet	solution		
Lab402	iorism	factsheet	solution	[3]	
VICLab	JSChoi	factsheet	x2, x3, x4	[4]	page
UIUC-IFP	fyc0624	factsheet	solution	[6]	
HIT-ULSee	chenyunjin	factsheet	solution		
I hate mosaic	tzm1003306213	factsheet	solution		
nicheng	nicheng	factsheet	solution		
GTY	giangbui	factsheet	solution		
DL-61-86	rosinwang	factsheet	solution		
faceall_Xlabs	xjc_faceall	factsheet	x2, x3, x4, x2, x3, x4	[10]	
SR2017	xiangyu_xu	factsheet	solution		
SDQ_SR	XibinSong	factsheet	a, b		
HCILab	phunghx	factsheet	solution		
iPAL	antonGo	factsheet	x2, x3, x4, train	[7]	page
WSDSR	crisovao.a.cruz	factsheet	solution	[5]	page
Resonance	arnavkj95	factsheet	solution		
zrfanz	zrfan	factsheet	solution		
UESTC-kb545	naiven	factsheet			page

Table 1. NTIRE 2017 Challenge links to models/codes/executables and reports.

Team	User	Track 1: bicubic downscaling						Track 2: unknown downscaling					
		$\times 2$		$\times 3$		$\times 4$		$\times 2$		$\times 3$		$\times 4$	
		PSNR	SSIM	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM	PSNR	SSIM
SNU_CVLab ¹	limbee	34.93 ₍₁₎	0.948	31.13 ₍₁₎	0.889	26.91 ₍₁₄₎	0.752*	34.00 ₍₁₎	0.934	30.78 ₍₁₎	0.881	28.77 ₍₁₎	0.826
SNU_CVLab ²	sanghyun	34.83 ₍₂₎	0.947	31.04 ₍₂₎	0.888	29.04 ₍₁₎	0.836	33.86 ₍₂₎	0.932	30.67 ₍₂₎	0.879	28.62 ₍₂₎	0.821
HelloSR	sparkfirer	34.47 ₍₄₎	0.944	30.77 ₍₄₎	0.882	28.82 ₍₃₎	0.830	33.67 ₍₃₎	0.930	30.51 ₍₃₎	0.876	28.54 ₍₃₎	0.819
Lab402	iorism	34.66 ₍₃₎	0.946	30.83 ₍₃₎	0.884	28.83 ₍₂₎	0.830	32.92 ₍₇₎	0.921	30.31 ₍₄₎	0.871	28.14 ₍₆₎	0.807
VICLab	JSchoi	34.29 ₍₅₎	0.943	30.52 ₍₅₎	0.880	28.55 ₍₅₎	0.845						
UIUC-IFP	fyc0624	34.19 ₍₆₎	0.942	30.44 ₍₇₎	0.877	28.49 ₍₆₎	0.821	28.54 ₍₁₄₎	0.840	28.11 ₍₁₄₎	0.816	24.96 ₍₁₅₎	0.717
HIT-ULSee	chenyunjin	34.07 ₍₇₎	0.941	30.21 ₍₉₎	0.871	28.49 ₍₆₎	0.822	33.40 ₍₄₎	0.927	30.21 ₍₆₎	0.871	28.30 ₍₄₎	0.812
I hate mosaic	tzm1003306213	34.05 ₍₈₎	0.940	30.47 ₍₆₎	0.878	28.59 ₍₄₎	0.824						
nicheng	nicheng									30.24 ₍₅₎	0.871	28.26 ₍₅₎	0.811
GTy	giangbui	34.03 ₍₉₎	0.941	30.24 ₍₈₎	0.874	28.34 ₍₇₎	0.817	33.32 ₍₅₎	0.926	30.14 ₍₇₎	0.869	27.33 ₍₈₎	0.785
DL-61-86	rosinwang							33.10 ₍₆₎	0.922	30.05 ₍₈₎	0.863	28.07 ₍₇₎	0.800
faceall_Xlabs	xjc_faceall	33.73 ₍₁₀₎	0.937	30.07 ₍₁₀₎	0.869	27.99 ₍₁₀₎	0.805	24.98 ₍₁₅₎	0.707	29.87 ₍₉₎	0.862	26.84 ₍₁₀₎	0.762
SR2017	xiangyu_xu	33.54 ₍₁₁₎	0.934	29.89 ₍₁₂₎	0.865	28.07 ₍₈₎	0.809	29.92 ₍₁₂₎	0.871	28.84 ₍₁₁₎	0.836	26.05 ₍₁₁₎	0.754
SDQ_SR	XibinSong	33.49 ₍₁₂₎	0.936					32.35 ₍₈₎	0.912				
HCILab	phunghx	33.47 ₍₁₃₎	0.934	29.92 ₍₁₁₎	0.866	28.03 ₍₉₎	0.807	31.13 ₍₉₎	0.896	29.26 ₍₁₀₎	0.849	25.96 ₍₁₂₎	0.749
iPAL	antonGo	33.42 ₍₁₄₎	0.932	29.89 ₍₁₂₎	0.865	27.99 ₍₁₀₎	0.806						
WSDSR	crisovao.a.cruz	33.19 ₍₁₅₎	0.933	29.74 ₍₁₃₎	0.864	27.92 ₍₁₁₎	0.805						
Resonance	arnavkj95							30.21 ₍₁₀₎	0.889	28.43 ₍₁₃₎	0.840	24.79 ₍₁₆₎	0.724
zrfanz	zrfan	31.87 ₍₁₇₎	0.927	28.80 ₍₁₅₎	0.858	27.67 ₍₁₂₎	0.800	21.94 ₍₁₆₎	0.618	18.03 ₍₁₅₎	0.490	26.95 ₍₉₎	0.773
assafsho	assafsho	30.39 ₍₁₈₎	0.894	27.23 ₍₁₆₎	0.806	25.74 ₍₁₅₎	0.742						
UESTC-kb545	naiven											25.08 ₍₁₄₎	0.714
spectrum	spectrum							28.76 ₍₁₃₎	0.854				
<i>bicubic interp.</i>	<i>baseline</i>	31.01	0.900	28.22	0.822	26.65	0.761	25.08	0.713	25.81	0.736	21.84	0.583

Table 2. NTIRE 2017 Challenge results and final rankings on DIV2K test data. (*) the checked SNU_CVLab¹ model achieved 29.09dB PSNR and 0.837 SSIM.

Team	Track 1: bicubic downscaling			Track 2: unknown downscaling			Platform	CPU (at runtime)	GPU (at runtime)	Architecture (at runtime)	Ensemble / Fusion (at runtime)
	$\times 2$	$\times 3$	$\times 4$	$\times 2$	$\times 3$	$\times 4$					
SNU_CVLab ¹	67.240	28.720	20.050	8.778	4.717	2.602	Torch (Lua)		GTX TITAN X	36 ResBlocks	Track1: flip/rotation ($\times 8$), Track2: 2 models
SNU_CVLab ²	14.070	7.340	5.240	4.600	2.310	1.760	Torch (Lua)		GTX TITAN X	80 ResBlocks	Track1: flip/rotation ($\times 8$), Track2: 2 models
HelloSR	27.630	27.970	18.470	11.540	19.260	15.360	Torch (Lua)		GTX TITAN X	stacked ResNets	Track1: flip/rotation ($\times 4$), Track2: 2/3 models
Lab402	4.080	5.120	5.220	4.120	1.880	1.120	Matconvnet+Matlab		GTX 1080ti	wavelet+41 conv. layers	none
VICLab	0.539	0.272	0.186				Matconvnet		TITAN X Pascal	22 layers	none
UIUC-IFP	1.683	1.497	1.520	1.694	1.474	1.523	TensorFlow+Python		Titan X Pascal	8 \times GPUs	flip/rotation ($\times 8$)
HIT-ULSee	0.370	0.160	0.100	0.370	0.160	0.100	Matlab		Titan X Pascal	20 (sub-pixel) layers	none
I hate mosaic	10.980	8.510	8.150				TensorFlow+Python		Titan X Maxwell	Joint ResNets	rotation ($\times 4$)
nicheng					0.241	0.175	Torch (Lua)		Titan X Pascal	modified SRResNet	none
GTy	4.400	4.230	4.320	4.370	4.390	4.210	Theano (Lasagne)		Titan X	stacked 4 modified VDSRs	none
DL-61-86				2.220	3.650	1.160	Torch7 + Matlab		Geforce GTX 1080	blind deconv+SRResNet	none
faceall_Xlabs	0.050	0.050	0.050	0.050	0.050	0.050	PyTorch / Matlab caffe		GTX-1080	20/9 layers ResNet	none
SR2017	2.480	2.480	2.540	2.500	2.470	2.470	Matlab + caffe		GTX1080	multi-scale VDSR	none
SDQ_SR	3.100			10.080			Matlab		Titan X?	motion prediction+VDSR	none
HCILab	0.852	0.851	0.858	0.897	0.867	0.856	caffe+cudnn		Titan X	VDSR-based	none
iPAL	0.092	0.091	0.093				TensorFlow+Python		Titan X	wavelet+10 layers CNN	none
WSDSR	1678.000	2578.000	2361.000				Matlab+mex	✓		iter. back proj+modif.BM3D	none
Resonance				6.730	3.830	7.020	Theano (Keras)		Titan X?	2 nets, Inception ResBlocks	none
zrfanz	16.150	13.440	11.640	11.370	12.790	13.560	TensorFlow+Python		Titan X?	modified SRResNet	none
assafsho	33.010	23.920	19.850								none
UESTC-kb545						11.390	TensorFlow		GTX 1080	2-way RefineNet / ResNet	none
spectrum				40.000							none
<i>bicubic interp.</i>	0.029	0.014	0.009	0.029	0.014	0.009	Matlab	✓		imresize function	none

Table 3. Reported runtimes per image on DIV2K test data and details from the factsheets.

Acknowledgements

We thank the NTIRE 2017 sponsors: NVIDIA Corp., SenseTime Group Ltd., Twitter Inc., Google Inc., and ETH Zurich.

References

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