Supplementary Material

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Due to space constraint, the parameter settings for the benchmark algorithms are not listed in our main article, which is shown in the following Table I.

TABLE I
PARAMETER SETTINGS FOR THE BENCHMARK ALGORITHMS. A REPRESENTS RANDOM NOISE ATTENUATION, R DENOTES RECONSTRUCTION, AND A & R INDICATES SIMULTANEOUS DENOISING AND RECONSTRUCTION

Benchmark algorithm	Parameter	Task1	Task2	Task3	Task4	Task5			Task6		
						A	R	A & R	A	R	A & R
DDTF	training parameter	1.30	2.10	3.50	5.00	3.00	2.00	-	6.70	8.30	-
	threshold parameter	0.65	0.98	0.33	0.05	0.54	0.35	-	0.36	0.39	-
	iteration for interpolation	-	-	450	70	-	130	-	-	40	-
	coefficient of scaling factor for threshold parameter	-	-	0.98	1.00	-	0.93	-	-	0.97	-
DMSSA	number of singular value to be preserved	12	37	40	20	-	-	10	-	-	25
	damping factor	3	11	2	1	-	-	2	-	-	2
	numbe of maximum iteration	-	-	45	45	-	-	20	-	-	150
Self-attention DIP network	patch size	$15 \times 15 \times 15$	$15 \times 15 \times 15$	-	-	$15 \times 15 \times 15$	-	-	$15 \times 15 \times 15$	-	-
	shift samples	$1 \times 1 \times 1$	$2 \times 2 \times 2$	-	-	$1 \times 1 \times 1$	-	-	$2 \times 2 \times 2$	-	-
	epoch	200	500	-	-	200	-	-	500	-	-
	batch size	512	1024	-	-	512	-	-	1024	-	-
	learning rate	1e-4	1e-4	-	-	1e-4	-	-	1e-4	-	-
	patience for early stopping	10	10	-	-	10	-	-	10	-	-
DIP-based MultiResUNet	iteration	-	-	4000	3000	-	3000	-	-	4000	-
	learning rate	-	-	1e-3	1e-3	-	1e-3	-	-	1e-3	-
	gain	-	-	40	40	-	40	-	-	40	-
	patch shape [inline × xline × time]	-	-	$80 \times 30 \times 174$	$25 \times 66 \times 260$	-	$32 \times 16 \times 126$	-	-	$72 \times 38 \times 128$	-
	patch stride [inline × xline × time]	-	-	$40 \times 0 \times 0$	$0 \times 22 \times 0$	-	$0 \times 8 \times 0$	-	-	$36 \times 0 \times 0$	-
	initialization	-	-	from scratch	from scratch	-	from scratch	-	-	from scratch	-

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