1 Data Description

For the task 'two-channel mixtures of speech and real-world BackGround Noise (BGN)', we reused the same dataset as in SiSEC 2013 (see [1]).

2 Results

Three algorithms were submitted to the BGN task as shown in Table 1. Duong's method [2] is based on Nonnegative Matrix Factorization (NMF) with pre-trained speech and noise spectral dictionaries. Liu's method performs TDOA clustering based on GCC-PHAT. Wood's method [3] first applies NMF to the magnitude spectrograms of the mixture signals with channels concatenated in time. Each dictionary atom is then attributed to either the speech or the noise according to its spatial origin.

References

[1] N. Ono, Z. Koldovsky, S. Miyabe, and N. Ito, "The 2013 signal separation evaluation campaign," in *Proc. MLSP*, Sept. 2013.

[2] H.-T.T. Duong, Q.-C. Nguyen, C.-P. Nguyen, T.-H. Tran, and N.Q.K. Duong, "Speech enhancement based on nonnegative matrix factorization with mixed group sparsity constraint," in *Proc. ACM International Symposium on Information and Communication Technology*, 2015, pp. 247–251.

[3] S. Wood and J. Rouat, "Blind speech separation with GCC-NMF," in *Proc. Interspeech*, 2016.

Table 1: Results for 'Two-channel mixtures of speech and real-world background noise'.

(a) Single-channel source estimation

systems	criteria	dev			test					
		Ca1	Sq1	Su1	Ca1	Ca2	Sq1	Sq2	Su1	Su2
Duong [2]	SDR	5.6	9.3	4.1	3.7	4.3	10.1	11.6	5.3	4.2
	SIR	14.9	15.4	12.1	13.2	15.0	17.9	18.2	19.3	9.3
	SAR	6.3	10.7	5.3	4.8	4.9	11.1	12.7	5.5	6.6
Liu	SDR	1.9	−3.0	−10.6	1.6	2.7	−4.4	1.9	−12.6	−1.2
	SIR	4.0	−2.9	−9.7	4.5	7.7	−4.3	2.4	−12.2	0.1
	SAR	7.5	16.4	6.9	6.5	5.5	18.8	16.9	10.3	8.0

(b) Multichannel source image estimation (target source)

systems	criteria	dev			test					
		Ca1	Sq1	Su1	Ca1	Ca2	Sq1	Sq2	Su1	Su2
Duong [2]	SDR	9.4	6.9	4.7	9.6	11.0	9.3	10.2	9.8	7.0
	ISR	23.1	18.0	17.5	23.4	22.6	15.1	18.7	18.5	19.7
	SIR	10.5	9.8	5.4	10.7	12.3	15.6	13.7	12.1	7.4
	SAR	16.9	10.3	11.7	17.6	18.3	11.6	13.5	14.2	19.0
	OPS	14.3	24.1	11.3	10.1	11.5	25.3	16.4	26.0	11.8
	TPS	71.8	65.9	72.4	56.2	58.3	49.2	51.9	73.1	45.3
	IPS	11.3	18.2	5.1	17.3	17.3	49.9	47.0	18.0	29.8
	APS	78.0	66.8	75.1	82.6	81.9	56.1	78.8	57.8	76.0
Liu	SDR	−1.0	−8.5	−12.8	−1.9	0.1	−11.0	−5.6	-16.7	−5.6
	ISR	4.1	1.9	3.8	2.1	2.4	0.6	0.3	2.1	1.4
	SIR	4.9	−2.9	−8.0	5.7	9.1	−4.4	2.2	−11.9	1.1
	SAR	19.7	15.1	7.6	19.3	20.7	17.6	15.9	11.0	13.9
	OPS	9.5	14.2	21.1	10.6	8.9	14.2	17.2	31.3	12.6
	TPS	42.3	38.8	49.5	45.0	43.2	48.3	56.1	62.5	51.0
	IPS	16.8	18.9	15.7	37.0	23.2	47.6	62.5	35.1	50.3
	APS	77.1	70.2	60.1	78.6	79.3	76.0	78.6	50.3	80.1
Wood [3]	SDR	3.0	1.9	0.2	2.9	3.1	−0.7	2.5	−2.6	2.7
	ISR	3.7	7.5	2.5	3.7	3.7	12.7	16.0	3.0	5.5
	SIR	9.4	2.4	−2.6	9.0	12.4	−0.5	3.3	−6.4	3.8
	SAR	5.0	4.0	1.3	5.3	5.2	6.3	8.3	0.3	4.5
	OPS	33.7	38.6	25.9	36.6	35.4	45.1	57.7	26.0	44.1
	TPS	40.5	57.6	24.4	45.4	42.8	60.2	64.6	20.6	57.2
	IPS	60.7	60.5	47.6	66.1	64.5	69.2	74.6	55.4	67.6
	APS	39.0	43.3	31.7	41.0	39.5	47.9	61.4	28.0	48.9