Table 1: AUROC of the MLCAUSALITY and KANGCI on the Lorenz-96 dataset.

Models	AUROC		
	$p = 10, F = 10$ $T = 1000$	$p = 40, F = 40$ $T = 1000$	$p = 40, F = 40$ $T = 500$
MLCAUSALITY	0.812 ± 0.032	0.679 ± 0.051	0.523 ± 0.054
KANGCI	1.0 ± 0.000	0.991 ± 0.003	0.966 ± 0.015

Table 2: AUROC of the MLCAUSALITY and KANGCI on the Dream-3 dataset, T=966, p=100

Models	AUROC				
	Ecoli-1	Ecoli-2	Yeast-1	Yeast-2	Yeast-3
MLCAUSALITY	0.492	0.486	0.510	0.523	0.496
KANGCI	0.758	0.680	0.667	0.552	0.562

Table 3: AUROC of the MLCAUSALITY and KANGCI on the Dream-4 dataset, T=210, p=100

Models	AUROC				
	Gene-1	Gene-2	Gene-3	Gene-4	Gene-5
MLCAUSALITY	0.512	0.518	0.495	0.502	0.501
KANGCI	0.747	0.591	0.602	0.613	0.601

Table 4: AUROC of the MLCAUSALITY and KANGCI on the VAR dataset.

Models	AUROC		
	$p = 10, T = 1000$ $sparsity = 0.2$ $lag = 3$	$p = 10, T = 1000$ $sparsity = 0.3$ $lag = 3$	$p = 10, T = 1000$ $sparsity = 0.2$ $lag = 5$
MLCAUSALITY	0.852 ± 0.006	0.834 ± 0.009	0.817 ± 0.011
KANGCI	1.0 ± 0.000	0.993 ± 0.003	1.0 ± 0.000

Table 5: AUROC of the MLCAUSALITY and KANGCI on the fMRI Bold signal

Models	AUROC				
	Sim-1	Sim-2	Sim-3	Sim-4	Sim-5
MLCAUSALITY	$0.598_{\pm0.04}$	$0.601_{\pm0.03}$	$0.655_{\pm0.03}$	$0.599_{\pm0.01}$	$0.623_{\pm0.04}$
KANGCI	$0.809_{\pm0.08}$	$0.838_{\pm0.03}$	$0.875_{\pm0.02}$	$0.902_{\pm0.02}$	$0.856_{\pm0.05}$
	Sim-6	Sim-7	Sim-8	Sim-9	Sim-10
MLCAUSALITY	$0.604_{\pm0.03}$	$0.617_{\pm0.03}$	$0.622_{\pm0.04}$	$0.553_{\pm0.03}$	$0.641_{\pm0.04}$
KANGCI	$0.922_{\pm0.02}$	$0.895_{\pm0.04}$	$0.763_{\pm0.08}$	$0.824_{\pm0.08}$	$0.780_{\pm0.07}$
	Sim-11	Sim-12	Sim-13	Sim-14	Sim-15
MLCAUSALITY	$0.603_{\pm0.03}$	$0.596_{\pm0.02}$	$0.575_{\pm0.04}$	$0.599_{\pm0.03}$	$0.588_{\pm0.05}$
KANGCI	$0.823_{\pm0.03}$	$0.847_{\pm0.03}$	$0.749_{\pm0.08}$	$0.788_{\pm0.08}$	$0.736_{\pm0.08}$
	Sim-16	Sim-17	Sim-18	Sim-19	Sim-20
MLCAUSALITY	$0.581_{\pm0.02}$	$0.577_{\pm0.03}$	$0.497_{\pm0.04}$	$0.512_{\pm0.06}$	$0.511_{\pm0.05}$
KANGCI	$0.721_{\pm0.09}$	$0.853_{\pm0.03}$	$0.806_{\pm0.06}$	$0.872_{\pm0.03}$	$0.909_{\pm0.03}$
	Sim-21	Sim-22	Sim-23	Sim-24	Sim-25
MLCAUSALITY	$0.697_{\pm0.07}$	$0.606_{\pm0.05}$	$0.620_{\pm0.06}$	$0.552_{\pm0.05}$	$0.608_{\pm0.04}$
KANGCI	$0.805_{\pm0.07}$	$0.811_{\pm0.06}$	$0.664_{\pm0.08}$	$0.560_{\pm0.09}$	$0.742_{\pm0.08}$
	Sim-26	Sim-27	Sim-28		
MLCAUSALITY	$0.574_{\pm0.03}$	$0.573_{\pm0.02}$	$0.592_{\pm0.06}$		
KANGCI	$0.702_{\pm0.09}$	$0.736_{\pm0.08}$	$0.809_{\pm0.07}$		

Table 6: Sensitivity analysis of tuning the threshold in fusion algorithm on Dream-3 dataset.

Dataset	Threshold					
	0.01	0.05	0.10	0.15	0.20	0.25
Ecoli-1	0.756	0.757	0.758	0.760	0.761	0.761
Ecoli-2	0.677	0.680	0.681	0.683	0.677	0.677
Yeast-1	0.667	0.667	0.667	0.667	0.667	0.667
Yeast-2	0.549	0.552	0.552	0.552	0.552	0.546
Yeast-3	0.512	0.512	0.512	0.512	0.512	0.512
	0.30	0.35	0.40	0.45	0.50	
Ecoli-1	0.759	0.755	0.745	0.734	0.734	
Ecoli-2	0.676	0.675	0.663	0.652	0.641	
Yeast-1	0.667	0.667	0.667	0.667	0.667	
Yeast-2	0.543	0.542	0.535	0.533	0.521	
Yeast-3	0.562	0.562	0.562	0.562	0.562	