

A.1 第 5.2.1 节 MSPE、MDC 和 DSICM 的有效性验证完整实验结果

表 A.1-表 A.4 分别对应本文算法各阶段的样本的质量在 ACC、F1、AUC、AP 的比较。

表 A.1 本文算法各阶段的样本的质量 (ACC)

数据集	OF (%)	MSPE (%)	MDC (%)	DSICM (%)	DSJPE (%)
AD	54.00±9.55	64.67±4.47	66.67±7.84	72.67±10.38	75.58±9.59
LSVT	80.48±6.39	94.29±3.98	95.24±4.45	95.80±3.33	96.54±4.48
PD	62.70±1.86	70.75±1.74	66.84±1.52	71.03±1.40	74.14±4.18
Pendigits	98.13±0.05	98.62±0.07	99.09±0.35	98.78±0.12	99.27±0.26
Statlog	86.13±0.53	88.65±0.75	85.86±0.69	86.02±0.75	88.36±0.45
Vehicle	80.35±1.31	83.90±0.19	83.40±0.77	87.30±0.81	87.16±0.81
heart	80.89±4.26	85.56±2.83	90.91±4.08	91.20±4.25	92.44±3.37
Maxlittle	85.54±4.01	86.77±2.57	88.27±3.86	89.23±5.65	91.25±8.39
Urban	79.91±3.87	90.67±2.65	88.27±2.36	93.51±3.35	94.46±1.47
WDBC	95.66±1.52	97.57±1.38	98.59±0.38	98.99±1.09	99.18±0.72
Wisconsin	96.30±1.72	97.18±1.48	97.89±0.79	98.06±0.50	98.41±0.74
PID	70.39±2.74	74.14±4.27	80.08±2.16	82.95±2.25	83.63±2.99
LR	85.84±0.16	89.65±0.21	87.92±0.30	89.06±0.11	89.79±0.34
GSAD	99.20±0.15	99.45±0.09	96.67±1.04	97.45±0.30	96.05±0.60
HAR	98.25±0.32	98.72±0.07	98.36±0.27	98.35±0.15	99.10±0.26

表 A.2 本文算法各阶段的样本的质量 (F1)

数据集	OF (%)	MSPE (%)	MDC (%)	DSICM (%)	DSJPE (%)
AD	50.24±8.44	64.78±8.32	72.09±7.55	73.85±9.76	74.12±10.90
LSVT	76.57±4.38	93.61±4.60	94.75±4.86	95.24±6.52	95.77±5.62
PD	60.12±1.65	70.62±1.73	66.89±1.52	70.94±2.46	71.54±3.18
Pendigits	97.74±0.13	99.04±0.09	97.95±0.05	98.03±0.09	99.04±0.09
Statlog	80.98±1.85	85.60±1.07	75.24±0.84	77.26±0.91	85.59±1.05
Vehicle	80.57±0.56	84.55±0.96	90.53±0.83	90.83±1.47	87.40±0.70
heart	79.95±4.23	86.14±2.63	90.43±2.92	90.86±3.72	91.09±3.67
Maxlittle	80.30±4.78	79.36±4.24	79.35±3.67	84.54±8.68	87.15±5.87
Urban	76.06±2.12	90.77±2.76	87.32±1.81	94..37±2.37	92.13±3.67
WDBC	95.23±1.33	97.63±1.52	97.31±0.46	98.80±0.69	98.85±1.47
Wisconsin	95.16±1.59	95.95±1.69	97.69±0.84	97.87±0.56	98.11±1.28
PID	71.23±3.96	74.82±2.20	77.43±2.66	74.66±3.16	75.98±1.90
LR	85.83±0.19	89.61±0.23	87.87±0.32	89.01±0.05	90.18±1.26
GSAD	99.16±0.15	99.43±0.10	96.55±0.99	97.37±0.33	96.17±0.47
HAR	98.35±0.29	98.79±0.08	98.46±0.25	98.42±0.14	99.20±0.22

表 A.3 本文算法各阶段的样本的质量 (AUC)

数据集	OF (%)	MSPE (%)	MDC (%)	DSICM (%)	DSJPE (%)
AD	58.04±3.75	73.90±7.25	70.00±9.39	78.73±9.24	81.83±8.51
LSVT	79.02±7.72	94.83±3.15	96.75±1.90	93.30±9.26	96.59±3.92
PD	60.14±3.58	71.79±2.96	68.05±1.38	72.12±3.06	72.16±5.66
Pendigits	99.10±0.18	99.52±0.06	98.96±0.07	98.99±0.10	99.47±0.05
Statlog	90.36±0.75	91.98±0.59	87.61±0.65	88.77±0.71	91.29±0.60
Vehicle	87.29±0.68	89.62±1.24	90.53±2.20	92.52±0.42	92.12±1.19
heart	81.64±5.54	86.92±3.04	91.81±3.49	91.95±4.44	92.08±2.67
Maxlittle	93.34±0.94	92.89±0.89	92.66±1.14	83.34±2.46	93.78±1.32
Urban	89.48±1.00	94.63±1.89	92.94±0.56	95.45±0.85	96.25±2.11
WDBC	96.00±1.80	98.77±1.16	98.08±0.36	98.30±0.83	98.61±1.13
Wisconsin	95.81±1.61	96.08±1.12	97.62±1.05	97.29±1.00	98.01±0.57
PID	73.51±4.11	74.43±3.73	80.00±2.35	81.97±2.58	82.21±2.49
LR	92.59±0.09	94.57±0.11	93.66±0.16	94.25±0.05	95.88±0.57
GSAD	99.48±0.09	99.65±0.07	97.78±0.69	98.40±0.21	97.66±0.33
HAR	98.99±0.18	99.27±0.05	99.06±0.15	99.04±0.09	99.51±0.14

表 A.4 本文算法各阶段的样本的质量 (AP)

数据集	OF (%)	MSPE (%)	MDC (%)	DSICM (%)	DSJPE (%)
AD	71.46±9.75	78.21±8.08	77.78±10.81	82.42±5.54	84.38±8.77
LSVT	78.08±5.49	93.60±5.58	97.56±2.71	96.78±4.42	97.84±3.33
PD	60.18±3.32	71.60±2.62	66.39±1.93	73.00±3.48	73.76±3.35
Pendigits	99.56±0.03	98.89±0.09	99.58±0.02	99.59±0.04	99.80±0.04
Statlog	95.28±0.24	96.26±0.27	93.96±0.35	94.43±0.44	96.47±0.37
Vehicle	89.93±1.01	92.52±1.30	91.42±0.77	94.12±1.17	93.96±0.72
heart	77.70±7.72	83.15±5.18	89.84±5.37	90.28±5.39	92.02±5.51
Maxlittle	77.01±5.23	76.90±4.37	71.45±8.12	80.63±10.35	81.57±4.15
Urban	94.01±0.84	97.80±0.80	96.61±0.31	98.48±1.04	98.02±1.06
WDBC	94.15±2.05	96.54±2.46	95.94±0.66	97.43±0.64	97.81±1.33
Wisconsin	92.41±2.71	92.56±3.35	95.89±1.47	96.72±0.72	98.10±2.49
PID	74.08±5.54	75.31±5.34	78.05±3.05	75.40±3.60	80.85±2.74
LR	98.96±0.02	99.24±0.04	99.10±0.01	99.15±0.01	99.38±0.09
GSAD	99.59±0.05	99.66±0.09	99.03±0.34	99.09±0.07	96.17±0.65
HAR	99.31±0.16	99.53±0.09	99.34±0.19	99.36±0.09	99.54±0.07

A.2 第 5.2.2 节 MDC 和 DSICM 的有效性验证完整结果

表 A.5-表 A.8 分别对应 MDC 与 KM 在 ACC、F1、AUC、AP 上的比较。

表 A.5 MDC 与 KM 在 ACC 上的比较结果

数据集	KM (%)	MDC (%)	KM&DSIM (%)	DSICM (%)	DSICM (ESAE) (%)	DSICM (ESAE) (%)
AD	75.33±7.30	66.67±7.84	66.00±5.96	72.67±10.38	67.33±10.11	76.00±4.35
LSVT	92.86±1.67	95.24±4.45	94.76±2.61	95.80±3.33	96.07±9.85	97.41±5.86
PD	66.21±1.70	66.84±1.52	70.75±3.40	71.03±1.40	69.89±2.74	74.60±4.56
Pendigits	98.64±0.28	99.09±0.35	98.83±1.46	98.78±0.12	98.84±0.57	99.50±0.82
Statlog	85.59±0.76	85.86±0.69	85.13±0.30	86.02±0.75	85.92±1.26	88.57±2.39
Vehicle	79.93±2.93	83.40±0.77	85.67±1.98	87.30±0.81	80.61±4.93	87.30±3.79
heart	90.89±0.50	90.91±4.08	88.44±2.30	91.20±4.25	90.96±5.28	92.67±3.20
Maxlittle	87.69±3.61	88.27±3.86	88.31±3.19	89.23±5.65	88.08±5.57	94.07±2.67
Urban	72.62±2.99	88.27±2.36	76.49±1.90	93.51±3.35	82.31±1.78	94.02±0.46
WDBC	97.99±0.24	98.59±0.38	98.73±0.29	98.99±1.09	98.10±3.70	99.15±2.91
Wisconsin	97.53±1.01	97.89±0.79	97.89±0.85	98.06±0.50	97.86±1.37	99.12±0.44
PID	78.52±2.52	80.08±2.16	81.72±3.13	82.95±2.25	78.95±1.72	82.53±3.79
LR	87.73±0.33	87.92±0.30	89.83±0.15	89.06±0.11	88.09±2.62	90.07±4.46
GSAD	96.60±2.34	96.67±1.04	97.58±0.12	97.45±0.30	97.94±1.57	97.72±0.40
HAR	98.35±0.27	98.36±0.27	98.58±0.16	98.35±0.15	98.81±1.24	99.39±0.15

表 A.6 MDC 与 KM 在 F1 上的比较结果

数据集	KM (%)	MDC (%)	KM&DSIM (%)	DSICM (%)	DSICM (ESAE) (%)	DSICM (ESAE) (%)
AD	53.70±8.28	72.09±7.55	70.01±6.01	73.85±9.76	75.00±11.64	74.59±7.40
LSVT	92.50±5.34	94.75±4.86	94.19±2.92	95.24±6.52	92.18±5.96	94.73±4.27
PD	62.62±1.62	66.89±1.52	70.79±3.44	70.94±2.46	70.81±3.64	75.96±3.31
Pendigits	98.62±0.28	97.95±0.05	96.21±0.41	98.03±0.09	98.99±1.47	99.46±0.73
Statlog	81.49±0.99	75.24±0.84	79.46±1.22	77.26±0.91	85.95±5.78	86.81±1.58
Vehicle	81.51±0.73	90.53±0.83	85.88±2.02	90.83±1.47	86.04±4.18	91.54±2.59
heart	79.77±2.99	90.43±2.92	88.54±2.43	90.86±3.72	91.80±2.70	93.29±2.95
Maxlittle	71.98±3.81	79.35±3.67	83.54±4.60	84.54±8.68	87.54±3.67	91.58±2.33
Urban	72.58±5.98	87.32±1.81	77.31±4.93	94.37±2.37	74.98±3.13	75.58±4.98
WDBC	95.94±1.68	97.31±0.46	98.65±0.31	98.80±0.69	99.32±0.47	96.69±1.73

表 A.6 MDC 与 KM 在 F1 上的比较结果（续）

数据集	KM (%)	MDC (%)	KM&DSIM (%)	DSICM (%)	DSICM (ESAE) (%)	DSICM (ESAE) (%)
Wisconsin	93.10±3.17	97.69±0.84	97.72±0.84	97.87±0.56	98.56±0.49	98.57±0.47
PID	72.66±2.95	77.43±2.66	74.54±2.08	74.66±3.16	83.17±3.02	77.03±3.33
LR	87.67±0.35	87.87±0.32	89.91±0.20	89.01±0.05	84.32±6.69	89.77±1.33
GSAD	96.42±2.49	96.55±0.99	97.49±0.10	97.37±0.33	98.42±1.57	95.24±2.58
HAR	98.46±0.25	98.46±0.25	98.65±0.17	98.42±0.14	94.25±1.70	98.98±0.57

表 A.7 MDC 与 KM 在 AUC 上的比较结果

数据集	KM (%)	MDC (%)	KM&DSIM (%)	DSICM (%)	DSICM (ESAE) (%)	DSICM (ESAE) (%)
AD	66.16±7.98	70.00±9.39	69.48±4.42	78.73±9.24	80.50±8.73	80.00±5.86
LSVT	92.14±6.00	96.75±1.90	93.70±4.70	93.30±9.26	91.43±4.96	93.30±5.90
PD	63.78±1.57	68.05±1.38	71.61±4.71	72.12±3.06	69.48±3.77	75.50±3.69
Pendigits	99.70±0.18	98.96±0.07	99.40±2.64	98.99±0.10	99.14±1.49	99.48±0.69
Statlog	90.12±0.67	87.61±0.65	87.20±1.12	88.77±0.71	88.62±7.78	89.72±1.56
Vehicle	88.04±1.32	90.53±2.20	90.98±1.31	92.52±0.42	91.14±3.89	92.99±1.29
heart	80.01±3.36	91.81±3.49	90.92±5.63	91.95±4.44	91.70±2.58	92.94±2.81
Maxlittle	81.09±17.95	92.66±1.14	93.56±0.72	83.34±2.46	93.72±2.11	90.31±4.22
Urban	73.31±2.97	92.94±0.56	84.21±1.77	95.45±0.85	85.14±1.83	98.53±1.37
WDBC	97.67±1.40	98.08±0.36	98.27±0.01	98.30±0.83	99.14±0.60	96.74±1.54
Wisconsin	96.92±1.87	97.62±1.05	97.88±1.37	97.29±1.00	98.57±0.78	98.69±0.72
PID	67.35±10.02	80.00±2.35	81.75±4.77	81.97±2.58	83.23±2.70	76.92±3.33
LR	93.57±0.17	93.66±0.16	94.66±0.08	94.25±0.05	91.72±6.77	94.33±3.07
GSAD	97.48±1.85	97.78±0.69	98.48±0.21	98.40±0.21	93.05±0.92	98.48±0.89
HAR	99.06±0.15	99.06±0.15	99.18±0.10	99.04±0.09	96.48±1.17	99.46±0.24

表 A.8 MDC 与 KM 在 AP 上的比较结果

数据集	KM (%)	MDC (%)	KM&DSIM (%)	DSICM (%)	DSICM (ESAE) (%)	DSICM (ESAE) (%)
AD	70.18±10.17	77.78±10.81	75.52±1.48	82.42±5.54	81.39±11.74	79.75±2.74
LSVT	91.72±7.58	97.56±2.71	96.24±2.65	96.78±4.42	93.14±5.26	96.33±2.47
PD	61.82±2.17	66.39±1.93	71.63±4.95	73.00±3.48	69.27±6.33	76.40±3.14
Pendigits	99.70±0.05	99.58±0.02	92.57±0.98	99.59±0.04	93.23±1.17	99.65±0.17
Statlog	95.55±0.32	93.96±0.35	95.27±0.55	94.43±0.44	95.98±2.56	95.72±0.21
Vehicle	91.25±0.96	91.42±0.77	92.90±0.66	94.12±1.17	94.17±2.06	95.11±1.56
heart	81.00±4.36	89.84±5.37	87.66±4.77	90.28±5.39	93.24±4.14	93.93±1.76
Maxlittle	57.00±14.15	71.45±8.12	78.74±9.12	80.63±9.35	88.46±4.82	91.61±4.61
Urban	90.12±0.96	96.61±0.31	92.09±0.73	98.48±1.04	94.28±0.64	95.17±1.33
WDBC	95.65±2.46	95.94±0.66	96.92±1.31	97.43±0.64	99.20±0.56	96.96±1.81
Wisconsin	90.11±3.65	95.89±1.47	95.99±1.76	96.72±0.72	97.52±0.73	97.38±0.93
PID	70.31±6.04	78.05±3.05	80.11±4.06	75.40±3.60	82.72±4.60	78.18±0.77
LR	99.09±0.03	99.10±0.01	99.22±0.03	99.15±0.01	94.52±2.83	99.41±0.16
GSAD	98.90±0.51	99.03±0.34	99.14±0.05	99.09±0.07	96.14±0.26	96.34±0.46
HAR	99.34±0.19	99.34±0.19	99.47±0.06	99.36±0.09	97.95±0.96	99.47±0.37

A.3 第 5.3 节算法比较的完整结果

表 A.9-表 A.12 分别对应不同 SAE 算法在 ACC、F1、AUC、AP 上的比较。

表 A.9 不同 SAE 算法的比较 (ACC)

数据集	SDSAE (%)	SPSAE (%)	ESGSAE -FF (%)	GSTAE (%)	WGLAE (%)	DSAE (%)	SGAE (%)	DSJPE-ESAE (%)
AD	55.58 ±4.36	57.78 ±4.27	67.33 ±2.49	71.11 ±8.16	52.67 ±5.48	56.67 ±5.27	56.11 ±1.07	76.67 ±8.16
LSVT	76.62 ±5.29	84.33 ±5.36	92.76 ±0.62	84.66 ±4.32	75.71 ±5.43	72.38 ±5.48	71.59 ±5.77	97.62 ±1.68
PD	64.88 ±1.84	64.22 ±2.34	66.72 ±0.87	73.89 ±4.27	64.00 ±6.81	59.63 ±3.14	63.88 ±1.71	75.98 ±4.29
Pendigits	75.17 ±1.88	91.60 ±0.57	98.00 ±0.12	93.53 ±0.77	98.85 ±1.24	92.53 ±1.22	90.33 ±0.30	99.54 ±0.11
Statlog	98.60 ±0.34	85.87 ±0.86	87.28 ±0.12	85.42 ±0.38	99.83 ±0.12	85.31 ±0.50	74.13 ±0.24	89.42 ±0.81
Vehicle	72.00 ±2.25	74.76 ±2.93	81.91 ±0.42	79.71 ±2.93	83.48 ±12.53	55.25 ±2.22	65.86 ±0.23	87.36 ±1.15
heart	94.58 ±0.53	88.90 ±2.53	84.67 ±1.99	82.56 ±3.55	80.22 ±9.21	82.67 ±1.27	69.67 ±3.60	94.67 ±2.98
Maxlittle	83.65 ±0.71	91.93 ±4.22	92.00 ±3.34	92.15 ±4.94	89.54 ±6.10	81.23 ±1.29	88.97 ±2.86	98.75 ±1.71
Urban	93.20 ±1.17	77.81 ±1.17	83.20 ±1.01	76.98 ±0.73	72.53 ±8.63	70.49 ±2.75	82.90 ±0.15	98.75 ±1.71
WDBC	95.77 ±0.17	93.03 ±2.49	99.81 ±0.45	99.34 ±1.27	95.05 ±5.99	94.29 ±1.96	90.65 ±0.26	98.08 ±0.89
Wisconsin	97.65 ±0.25	96.62 ±2.40	97.09 ±1.31	96.92 ±1.56	97.19 ±2.49	96.32 ±0.80	88.97 ±0.52	99.82 ±0.40
PID	76.17 ±1.03	78.76 ±3.62	72.27 ±3.46	77.81 ±2.84	95.19 ±4.60	69.30 ±1.60	73.29 ±1.83	84.06 ±3.34
LR	93.20 ±1.17	94.88 ±0.12	95.55 ±0.78	92.10 ±0.99	96.18 ±1.55	89.50 ±2.08	84.30 ±0.05	94.38 ±0.37
GSAD	95.77 ±0.17	98.89 ±0.59	99.07 ±0.36	97.42 ±0.43	98.78 ±0.17	91.17 ±4.31	87.86 ±1.22	96.71 ±0.33
HAR	97.36 ±0.72	98.13 ±0.45	97.81 ±0.18	98.22 ±1.10	99.0 2±0.11	97.88 ±0.90	97.03 ±4.18	99.51 ±0.43

表 A.10 不同 SAE 算法的比较 (F1)

数据集	SDSAE (%)	SPSAE (%)	ESGSAE -FF (%)	GSTAE (%)	WGLAE (%)	DSAE (%)	SGAE (%)	DSJPE-ESAE (%)
AD	66.99 ±6.60	67.02 ±2.11	69.32 ±9.47	67.19 ±8.21	42.78 ±8.49	54.21 ±5.94	66.67 ±3.24	71.86 ±2.14
LSVT	72.60 ±2.22	81.87 ±8.52	88.92 ±5.56	63.25 ±4.89	73.32 ±6.30	66.70 ±9.12	78.53 ±2.20	95.79 ±3.97
PD	63.47 ±1.69	63.93 ±6.80	68.09 ±2.00	67.10 ±5.91	63.87 ±6.82	58.73 ±3.52	65.21 ±9.46	77.07 ±2.90
Pendigits	73.20 ±2.30	91.51 ±2.49	99.36 ±0.34	91.68 ±0.82	98.84 ±1.26	92.56 ±1.23	91.51 ±0.40	99.55 ±0.14
Statlog	72.62 ±6.69	75.75 ±3.28	82.76 ±0.80	81.71 ±1.16	99.80 ±0.13	81.78 ±0.43	75.55 ±4.69	87.81 ±1.04
Vehicle	74.75 ±5.12	70.19 ±4.23	73.56 ±8.64	70.41 ±3.33	82.58 ±13.96	53.42 ±1.33	68.27 ±6.24	91.61 ±3.79
heart	79.44 ±1.48	81.24 ±4.61	84.53 ±2.04	82.54 ±4.84	78.95 ±10.43	81.90 ±1.26	57.16 ±4.00	93.61 ±2.96

表 A.10 不同 SAE 算法的比较 (F1) (续)

数据集	SDSAE (%)	SPSAE (%)	ESGSAE -FF (%)	GSTAE (%)	WGLAE (%)	DSAE (%)	SGAE (%)	DSJPE- ESAE (%)
Maxlittle	85.13 ±1.64	87.02 ±5.10	89.09 ±4.87	95.95 ±5.04	83.06 ±8.45	70.88 ±2.88	84.29 ±2.52	92.43 ±3.25
Urban	72.30 ±0.51	78.29 ±2.92	76.09 ±5.72	72.51 ±1.37	61.58 ±9.33	61.28 ±4.77	81.22 ±4.89	81.31 ±1.99
WDBC	95.05 ±4.18	94.36 ±3.39	94.44 ±2.65	94.30 ±1.01	94.91 ±6.05	93.84 ±2.09	92.83 ±3.42	97.15 ±1.82
Wisconsin	97.46 ±0.21	96.81 ±1.16	96.91 ±1.30	95.51 ±1.98	96.97 ±2.62	95.91 ±0.93	84.29 ±4.81	99.13 ±0.80
PID	73.76 ±0.32	82.04 ±4.06	68.22 ±3.97	69.52 ±6.96	94.92 ±4.51	64.08 ±1.31	66.52 ±7.74	79.75 ±3.29
LR	95.59 ±3.49	96.28 ±1.76	96.34 ±3.05	83.27 ±2.27	92.29 ±2.79	89.74 ±4.32	87.41 ±0.01	90.18 ±1.26
GSAD	97.83 ±1.96	99.39 ±0.53	99.37 ±0.16	95.35 ±2.04	93.76 ±0.94	91.36 ±1.65	89.50 ±0.69	96.73 ±0.18
HAR	98.18 ±1.75	98.72 ±0.37	99.08 ±0.69	97.39 ±0.37	93.24 ±1.57	97.31 ±3.37	96.60 ±3.57	99.78 ±0.16

表 A.11 不同 SAE 算法的比较 (AUC)

数据集	SDSAE (%)	SPSAE (%)	ESGSAE -FF (%)	GSTAE (%)	WGLAE (%)	DSAE (%)	SGAE (%)	DSJPE- ESAE (%)
AD	52.00 ±4.47	58.19 ±2.27	79.00 ±12.94	75.27 ±4.69	37.67 ±0.96	48.49 ±2.37	62.81 ±3.00	82.11 ±3.74
LSVT	66.07 ±3.09	77.50 ±12.28	61.43 ±19.50	75.50 ±5.02	76.00 ±7.83	67.86 ±9.45	66.43 ±4.76	96.62 ±2.67
PD	60.73 ±2.72	63.93 ±6.80	67.87 ±2.00	71.72 ±3.83	64.13 ±7.09	60.06 ±2.86	63.35 ±2.61	79.30 ±4.94
Pendigits	68.64 ±1.21	93.29 ±1.73	99.09 ±0.19	81.42 ±0.72	89.41 ±0.64	86.08 ±0.68	94.35 ±0.37	99.75 ±0.08
Statlog	80.11 ±5.06	87.72 ±3.17	89.62 ±0.46	89.36 ±0.74	83.25 ±0.06	74.19 ±0.27	84.42 ±0.82	92.69 ±0.94
Vehicle	67.51 ±3.54	70.96 ±1.24	82.48 ±5.59	74.80 ±2.15	66.68 ±6.48	54.36 ±1.40	60.19 ±3.21	93.11 ±0.48
heart	84.90 ±1.62	87.16 ±1.98	84.25 ±1.90	85.25 ±4.24	80.24 ±0.86	81.46 ±1.21	60.19 ±5.32	95.68 ±1.99
Maxlittle	84.12 ±6.31	86.52 ±8.29	87.54 ±7.49	77.19 ±10.06	85.24 ±9.85	68.50 ±2.98	80.77 ±3.79	95.68 ±1.99
Urban	67.32 ±1.12	75.69 ±6.72	85.17 ±3.89	90.15 ±1.43	72.68 ±5.53	70.05 ±2.35	80.03 ±0.53	90.61 ±1.94
WDBC	95.25 ±3.17	96.13 ±1.39	96.94 ±2.85	95.07 ±0.62	95.32 ±5.52	94.23 ±1.79	95.57 ±3.24	98.54 ±1.38
Wisconsin	97.71 ±0.27	96.60 ±1.48	97.42 ±1.04	96.74 ±1.34	97.07 ±1.82	95.95 ±0.66	80.77 ±3.79	99.03 ±0.94
PID	73.24 ±1.21	78.30 ±4.39	66.41 ±4.47	71.92 ±4.06	95.40 ±3.77	63.72 ±1.27	60.78 ±3.80	82.94 ±2.16
LR	96.52 ±0.54	95.57 ±1.75	98.08 ±0.83	91.81 ±3.04	91.39 ±1.27	89.93 ±3.79	85.19 ±5.29	97.56 ±0.14
GSAD	98.48 ±0.34	99.26 ±0.01	99.10 ±0.28	95.75 ±2.59	87.19 ±3.09	92.82 ±1.11	94.46 ±0.14	98.52 ±0.16
HAR	98.23 ±1.38	98.42 ±0.34	98.97 ±0.94	97.17 ±1.88	87.11 ±4.40	94.63 ±1.24	95.15 ±0.58	99.67 ±0.08

表 A.12 不同 SAE 算法的比较 (AP)

数据集	SDSAE (%)	SPSAE (%)	ESGSAE -FF (%)	GSTAE (%)	WGLAE (%)	DSAE (%)	SGAE (%)	DSJPE- ESAE (%)
AD	60.49	67.05	72.07	69.36	39.20	45.81	58.02	71.86
LSVT	± 7.78	± 3.40	± 9.23	± 11.84	± 9.96	± 9.13	± 2.78	± 2.14
PD	75.09	84.53	76.71	93.68	82.31	76.45	76.66	97.24
Pendigits	± 7.65	± 10.63	± 16.15	± 16.47	± 5.64	± 5.85	± 4.45	± 2.88
Statlog	60.38	61.50	67.46	74.59	58.39	55.79	64.73	76.91
Vehicle	± 1.70	± 5.68	± 2.03	± 3.94	± 4.12	± 3.60	± 3.30	± 4.06
heart	88.53	94.35	99.57	90.31	88.99	82.64	87.31	99.92
Maxlittle	± 0.52	± 0.16	± 0.09	± 0.90	± 1.10	± 1.25	± 0.57	± 0.04
Urban	90.93	91.16	95.46	97.94	83.14	69.43	86.75	96.77
WDBC	± 2.29	± 1.95	± 0.24	± 0.65	± 0.17	± 0.61	± 6.04	± 0.17
Wisconsin	76.13	79.74	87.11	74.46	64.01	42.22	69.43	94.81
PID	± 2.76	± 2.96	± 4.52	± 3.68	± 11.43	± 1.97	± 3.49	± 2.42
LR	82.96	72.83	82.09	88.83	68.34	72.62	60.02	92.46
GSAD	± 2.94	± 2.01	± 4.75	± 6.58	± 15.66	± 2.09	± 5.27	± 5.83
HAR	87.19	88.55	88.11	93.88	93.19	80.61	80.73	91.41
	± 5.49	± 6.92	± 6.62	± 5.05	± 5.95	± 2.58	± 3.60	± 3.88
	89.13	92.67	94.62	96.18	63.70	60.09	82.57	95.96
	± 0.54	± 2.85	± 1.59	± 6.65	± 9.53	± 1.98	± 5.36	± 0.43
	96.51	96.38	97.50	96.75	90.59	87.39	98.04	97.91
	± 0.92	± 2.18	± 5.50	± 2.30	± 8.59	± 4.62	± 1.09	± 1.05
	96.45	92.35	94.97	94.66	93.98	91.46	80.73	98.62
	± 1.55	± 2.50	± 1.44	± 3.61	± 6.15	± 2.67	± 3.60	± 1.63
	72.31	76.70	71.04	75.64	89.83	66.60	61.21	81.11
	± 3.81	± 4.61	± 3.56	± 4.69	± 8.10	± 3.78	± 5.93	± 4.00
	98.08	98.16	99.33	93.99	93.45	92.72	84.17	99.73
	± 1.54	± 0.72	± 0.94	± 4.61	± 1.58	± 3.48	± 0.46	± 0.22
	99.22	99.62	99.30	95.85	90.39	96.68	90.35	97.10
	± 0.32	± 0.26	± 0.39	± 2.59	± 1.65	± 0.21	± 0.23	± 0.31
	98.70	98.55	99.35	99.34	85.90	96.36	94.22	99.78
	± 0.65	± 1.09	± 0.08	± 1.07	± 1.26	± 3.33	± 3.00	± 0.09

A.4 第 5.4 节参数分析的完整结果

表 A.13 对应不同 MSPE 拼接数 ν 对算法性能影响的完整结果。

表 A.14 不同 MSPE 拼接数 ν 对算法性能影响 (分类精度)

数据集	$\nu = 0$	$\nu = 1$	$\nu = 2$	$\nu = 3$
AD	54.00 \pm 9.55	64.67 \pm 4.47	73.33\pm6.24	71.33 \pm 3.80
LSVT	82.38 \pm 9.00	96.19\pm3.61	95.71 \pm 5.16	95.71 \pm 3.10
PD	62.70 \pm 1.86	70.75\pm1.74	68.10 \pm 1.08	69.48 \pm 1.93
Pendigits	98.13 \pm 0.05	98.62 \pm 0.07	99.20 \pm 0.24	99.39\pm0.13
Statlog	86.13 \pm 0.53	88.65 \pm 0.75	89.13 \pm 0.62	89.73\pm0.81
Vehicle	80.35 \pm 1.31	83.90 \pm 0.19	87.73 \pm 2.46	87.87\pm3.95
heart	80.89 \pm 4.26	85.56 \pm 2.83	84.67 \pm 3.46	89.11\pm2.53
Maxlittle	85.54 \pm 4.01	86.77\pm2.57	78.77 \pm 3.35	84.00 \pm 4.30
Urban	79.91 \pm 3.87	73.42 \pm 2.48	96.27 \pm 2.00	97.42\pm0.91
WDBC	95.66 \pm 1.52	97.57 \pm 1.38	99.58 \pm 0.24	100.0\pm0.00
Wisconsin	96.30 \pm 1.72	97.18 \pm 1.48	98.15\pm0.85	98.06 \pm 0.39
PID	70.39 \pm 2.74	74.14 \pm 4.27	81.56 \pm 1.60	84.38\pm1.20
LR	85.84 \pm 0.16	89.65 \pm 0.21	90.41 \pm 0.31	92.26\pm0.17
GSAD	99.20 \pm 0.15	99.45 \pm 0.09	99.56 \pm 0.11	99.59\pm0.08
HAR	98.25 \pm 0.32	98.72 \pm 0.07	99.38 \pm 0.15	99.68\pm0.03

