Supplementary material

Table II
ABLATION METHOD FOR THE PROPOSED METHOD

Dataset	Measure	Bagging+None	MlFCM	DSEN-LGIE	Dataset	Measure	Bagging+None	MlFCM	DSEN-LGIE
Iris0	AUC	0.9880 ±0.0278	0.7815 ±0.0403	**1 ±0**	Glass0	AUC	0.7462 ±0.0670	0.6711 ±0.0392	**0.7635 ±0.0629**
	F-M	0.9870 ±0.0312	0.3569 ±0.0364	**1 ±0**		F-M	0.6552 ±0.1005	0.5979 ±0.0290	**0.6719 ±0.0905**
	G-M	0.9875 ±0.0295	0.7569 ±0.0434	**1 ±0**		G-M	0.7302 ±0.0798	0.5812 ±0.0676	**0.7424 ±0.0732**
	Mcc	0.9823 ±0.0409	0.3468 ±0.0510	**1 ±0**		Mcc	0.5164 ±0.1354	0.3810 ±0.0574	**0.5795 ±0.1264**
Vertebral	AUC	0.7696 ±0.0515	0.6833 ±0.1068	**0.8398 ±0.0729**	Haberman	AUC	0.5541 ±0.0727	0.5331 ±0.0687	**0.6181 ±0.0938**
	F-M	0.6864 ±0.0727	0.5833 ±0.1470	**0.7841 ±0.0708**		F-M	0.3786 ±0.0936	0.3889 ±0.0701	**0.4365 ±0.0857**
	G-M	0.7610 ±0.0589	0.6831 ±0.1018	**0.8298 ±0.0810**		G-M	0.5411 ±0.0889	0.5229 ±0.0658	**0.6019 ±0.0730**
	Mcc	0.5469 ±0.1000	0.3444 ±0.1448	**0.7145 ±0.0829**		Mcc	0.0976 ±0.1332	0.0598 ±0.1231	**0.2159 ±0.0867**
Vehicle1	AUC	0.6652 ±0.0354	0.6318 ±0.0431	**0.8270 ±0.0654**	Ecoli1	AUC	0.8589 ±0.0451	0.8185 ±0.0521	**0.9247 ±0.0439**
	F-M	0.5054 ±0.0409	0.4630 ±0.0532	**0.6723 ±0.0625**		F-M	0.6934 ±0.0691	0.6482 ±0.0697	**0.8042 ±0.0752**
	G-M	0.6640 ±0.0356	0.6265 ±0.0462	**0.8174 ±0.0715**		G-M	0.8494 ±0.0521	0.8119 ±0.0529	**0.9209 ±0.0484**
	Mcc	0.2933 ±0.0645	0.2397 ±0.0787	**0.5701 ±0.0987**		Mcc	0.6184 ±0.0875	0.5487 ±0.0968	**0.8048 ±0.0912**
New-thyroid1	AUC	0.9506 ±0.0483	0.7000 ±0.1174	**0.9980 ±0.0141**	Ecoli2	AUC	0.7131 ±0.0520	0.7433 ±0.0432	**0.9362 ±0.0725**
	F-M	0.8592 ±0.1021	0.5399 ±0.2364	**0.9978 ±0.0157**		F-M	0.3984 ±0.0518	0.4242 ±0.0379	**0.8279 ±0.0779**
	G-M	0.9485 ±0.0512	0.6096 ±0.1883	**0.9979 ±0.0149**		G-M	0.6616 ±0.0771	0.7086 ±0.0504	**0.9276 ±0.0751**
	Mcc	0.8410 ±0.1144	0.5801 ±0.1909	**1 ±0**		Mcc	0.3195 ±0.0689	0.3553 ±0.0589	**0.8201 ±0.0724**
Glass6	AUC	0.9202 ±0.0597	0.7297 ±0.0845	**0.9813 ±0.0507**	Yeast3	AUC	0.9146 ±0.0254	0.6795 ±0.0316	**0.9771 ±0.0199**
	F-M	0.7701 ±0.1244	0.3750 ±0.1504	**0.9591 ±0.0779**		F-M	0.6997 ±0.0452	0.2862 ±0.0178	**0.8333 ±0.0102**
	G-M	0.9183 ±0.0613	0.6778 ±0.0949	**0.9796 ±0.0568**		G-M	0.9140 ±0.0257	0.6406 ±0.0277	**0.9768 ±0.0209**
	Mcc	0.7446 ±0.1374	0.3256 ±0.1791	**0.9577 ±0.0792**		Mcc	0.6793 ±0.0481	0.2281 ±0.0397	**0.8256 ±0.0112**
Ecoli3	AUC	0.8628 ±0.0368	0.7815 ±0.0403	**0.9570 ±0.0469**	Page-blocks0	AUC	0.9268 ±0.0105	0.6923 ±0.0292	**0.9814 ±0.0039**
	F-M	0.5022 ±0.0568	0.3569 ±0.0364	**0.7337 ±0.0677**		F-M	0.6461 ±0.0300	0.3559 ±0.0362	**0.9043 ±0.0306**
	G-M	0.8579 ±0.0359	0.7569 ±0.0434	**0.9550 ±0.0498**		G-M	0.9256 ±0.0105	0.6798 ±0.0415	**0.9812 ±0.0040**
	Mcc	0.4937 ±0.0615	0.3468 ±0.0510	**0.7430 ±0.0693**		Mcc	0.6406 ±0.0290	0.2796 ±0.0428	**0.8980 ±0.0321**
Yeast2vs4	AUC	0.9240 ±0.0401	0.8437 ±0.0490	**0.9944 ±0.0137**	Yeast05679vs4	AUC	0.7505 ±0.0513	0.6702 ±0.0683	**0.9677 ±0.0111**
	F-M	0.6558 ±0.0891	0.5182 ±0.0779	**0.7608 ±0.1167**		F-M	0.3167 ±0.0373	0.2619 ±0.0451	**0.7273 ±0.0289**
	G-M	0.9223 ±0.0406	0.8426 ±0.0493	**0.9944 ±0.0139**		G-M	0.7278 ±0.0493	0.6500 ±0.0646	**0.9672 ±0.0115**
	Mcc	0.6496 ±0.0915	0.4943 ±0.0870	**0.7648 ±0.1175**		Mcc	0.2987 ±0.0611	0.2026 ±0.0816	**0.7311 ±0.0292**
Vowel0	AUC	0.9534 ±0.0166	0.8394 ±0.0531	**1 ±0**	Glass016vs2	AUC	0.7045 ±0.1253	0.5871 ±0.0273	**0.8939 ±0.1162**
	F-M	0.7267 ±0.0509	0.4288 ±0.0540	**1 ±0**		F-M	**0.2999 ±0.1116**	0.1907 ±0.0287	0.2222 ±0.1098
	G-M	0.9528 ±0.0166	0.8305 ±0.0595	**1 ±0**		G-M	0.6878 ±0.1333	0.4115 ±0.0741	**0.8876 ±0.1253**
	Mcc	0.7234 ±0.0486	0.4298 ±0.0650	**1 ±0**		Mcc	0.2527 ±0.1581	0.1345 ±0.0314	**0.3138 ±0.1290**
Ecoli0147vs2356	AUC	0.7539 ±0.0508	0.7425 ±0.0769	**0.9781 ±0.0315**	climate	AUC	0.8560 ±0.0443	0.5000 ±0.0000	**0.7993 ±0.0480**
	F-M	0.2994 ±0.0356	0.3170 ±0.0755	**0.8197 ±0.1055**		F-M	0.4750 ±0.0638	0.0000 ±0.0000	**0.7060 ±0.0456**
	G-M	0.7350 ±0.0468	0.7062 ±0.1061	**0.9773 ±0.0337**		G-M	0.8535 ±0.0444	0.0000 ±0.0000	**0.7474 ±0.0430**
	Mcc	0.2904 ±0.0571	0.3185 ±0.0979	**0.7734 ±0.1082**		Mcc	0.4725 ±0.0691	0.0000 ±0.0000	**0.7387 ±0.0409**
Glass2	AUC	0.7187 ±0.1041	0.6198 ±0.0276	**0.8769 ±0.0445**	german	AUC	0.5417 ±0.0829	0.5400 ±0.1464	**0.8448 ±0.0924**
	F-M	**0.2612 ±0.0701**	0.1852 ±0.0256	0.2472 ±0.0954		F-M	0.1475 ±0.0444	0.1416 ±0.0596	**0.2308 ±0.0505**
	G-M	0.7007 ±0.1013	0.4862 ±0.0579	**0.8670 ±0.0505**		G-M	0.5272 ±0.0771	0.5206 ±0.1455	**0.8305 ±0.1064**
	Mcc	0.2409 ±0.1155	0.1557 ±0.0265	**0.3247 ±0.0900**		Mcc	0.0450 ±0.0890	0.0376 ±0.1470	**0.2923 ±0.1044**
Shuttle-c0-vs-c4	AUC	0.9907 ±0.0033	0.9057 ±0.0919	**1 ±0**	Yeast1vs7	AUC	0.7174 ±0.0688	0.6030 ±0.0795	**0.8372 ±0.0606**
	F-M	0.8876 ±0.0357	0.8448 ±0.1302	**1 ±0**		F-M	0.2283 ±0.0401	0.1692 ±0.0473	**0.3000 ±0.0823**
	G-M	0.9907 ±0.0033	0.8971 ±0.1022	**1 ±0**		G-M	0.7050 ±0.0730	0.5868 ±0.0912	**0.8212 ±0.0646**
	Mcc	0.8855 ±0.0351	0.8383 ±0.1370	**1 ±0**		Mcc	0.2217 ±0.0703	0.1074 ±0.0829	**0.3450 ±0.0812**
Ecoli4	AUC	0.8030 ±0.0524	0.7492 ±0.0266	**0.9854 ±0.0488**	Page-blocks13vs4	AUC	0.9447 ±0.0245	0.7219 ±0.1580	**0.9850 ±0.0138**
	F-M	0.2651 ±0.0503	0.2029 ±0.0170	**0.8787 ±0.0894**		F-M	0.5513 ±0.1117	0.4572 ±0.2226	**0.7711 ±0.0946**
	G-M	0.7851 ±0.0600	0.7050 ±0.0381	**0.9837 ±0.0572**		G-M	0.9427 ±0.0264	0.6529 ±0.2133	**0.9849 ±0.0141**
	Mcc	0.3037 ±0.0555	0.2373 ±0.0237	**0.8861 ±0.0851**		Mcc	0.5841 ±0.0970	0.4434 ±0.2553	**0.7888 ±0.0720**
Dermatology-6	AUC	0.9124 ±0.0572	0.9778 ±0.0130	**1 ±0**	svmguide3	AUC	0.7872 ±0.1003	0.5198 ±0.0720	**0.8070 ±0.0898**
	F-M	0.5879 ±0.1100	0.7447 ±0.1232	**1 ±0**		F-M	**0.2449 ±0.0603**	0.0952 ±0.0270	0.1538 ±0.0327
	G-M	0.9094 ±0.0593	0.9775 ±0.0133	**1 ±0**		G-M	0.7736 ±0.1080	0.4986 ±0.1037	**0.7836 ±0.0787**
	Mcc	0.6014 ±0.1043	0.7574 ±0.1132	**1 ±0**		Mcc	**0.2762 ±0.0951**	0.0176 ±0.1046	0.1737 ±0.0521
Yeast1458vs7	AUC	0.5838 ±0.0888	0.5185 ±0.0752	**0.7214 ±0.0929**	Yeast4	AUC	0.8470 ±0.0380	0.7462 ±0.0599	**0.8771 ±0.0470**
	F-M	0.1020 ±0.0241	0.0858 ±0.0160	**0.1508 ±0.0370**		F-M	0.2068 ±0.0211	0.1456 ±0.0238	**0.4334 ±0.0642**
	G-M	0.5514 ±0.0750	0.4388 ±0.0627	**0.6813 ±0.1089**		G-M	0.8390 ±0.0354	0.7378 ±0.0568	**0.8519 ±0.0489**
	Mcc	0.0702 ±0.0741	0.0170 ±0.0715	**0.1843 ±0.0742**		Mcc	0.2811 ±0.0325	0.1871 ±0.0468	**0.4768 ±0.0685**
Winequality-red-4	AUC	0.6293 ±0.0427	0.4153 ±0.0949	**0.7133 ±0.0939**	Yeast1289vs7	AUC	0.6499 ±0.0572	0.6178 ±0.0839	**0.8123 ±0.0850**
	F-M	0.0879 ±0.0083	0.0475 ±0.0394	**0.1753 ±0.0574**		F-M	0.0951 ±0.0131	0.0906 ±0.0242	**0.2930 ±0.0167**
	G-M	0.5722 ±0.0380	0.3621 ±0.0860	**0.6922 ±0.0992**		G-M	0.6311 ±0.0476	0.6078 ±0.0814	**0.7124 ±0.0826**
	Mcc	0.0968 ±0.0317	0.0565 ±0.0811	**0.1925 ±0.0839**		Mcc	0.1060 ±0.0403	0.0841 ±0.0605	**0.3432 ±0.0250**
Abalone 3vs11	AUC	0.9667 ±0.0673	0.9999 ±0.0007	**1 ±0**	Yeast5	AUC	0.9490 ±0.0131	0.8639 ±0.0155	**0.9755 ±0.0515**
	F-M	0.9600 ±0.0808	0.9971 ±0.0202	**1 ±0**		F-M	0.3817 ±0.0616	0.1849 ±0.0185	**0.6343 ±0.0952**
	G-M	0.9633 ±0.0741	0.9999 ±0.0007	**1 ±0**		G-M	0.9475 ±0.0139	0.8529 ±0.0182	**0.9752 ±0.0595**
	Mcc	0.9625 ±0.0758	0.9972 ±0.0196	**1 ±0**		Mcc	0.4602 ±0.0524	0.2722 ±0.0204	**0.6692 ±0.0883**
Ozone-onehr	AUC	0.6832 ±0.0251	0.6079 ±0.0225	**0.8495 ±0.0195**	krvsk3vs11	AUC	0.9854 ±0.0032	0.6421 ±0.0165	**1 ±0**
	F-M	0.0876 ±0.0062	0.0708 ±0.0041	**0.5820 ±0.0442**		F-M	0.6639 ±0.0517	0.0736 ±0.0036	**1 ±0**
	G-M	0.6231 ±0.0303	0.4859 ±0.0224	**0.7724 ±0.0323**		G-M	0.9853 ±0.0032	0.5323 ±0.0308	**1 ±0**
	Mcc	0.1257 ±0.0160	0.0848 ±0.0168	**0.4499 ±0.0456**		Mcc	0.6951 ±0.0430	0.1042 ±0.0085	**1 ±0**

Abalone21vs8	AUC	0.5444±0.0364	0.7404±0.1184	**0.9195±0.0157**
	F-M	0.0514±0.0089	0.1047±0.0370	**0.5185±0.0322**
	G-M	0.2977±0.0894	0.7244±0.1156	**0.9117±0.0168**
	Mcc	0.0462±0.0249	0.1547±0.0785	**0.5687±0.0291**
Winequality-white3vs7	AUC	0.7732±0.0575	0.6799±0.1245	**0.9263±0.0679**
	F-M	0.1048±0.0168	0.1088±0.0487	**0.3539±0.2274**
	G-M	0.7589±0.0490	0.6482±0.1555	**0.9199±0.0805**
	Mcc	0.1691±0.0349	0.1314±0.0899	**0.4685±0.2033**
krvsk0vs8	AUC	0.9716±0.0073	0.6036±0.1335	**0.9817±0.0202**
	F-M	0.4080±0.0694	0.0475±0.0143	**0.5830±0.0389**
	G-M	0.9712±0.0075	0.5530±0.1101	**0.9814±0.0206**
	Mcc	0.4916±0.0563	0.0572±0.0722	**0.6455±0.0331**
kddbuferoverflowvsback	AUC	0.9817±0.0387	0.7500±0.0534	**1±0**
	F-M	0.9796±0.0437	0.6667±0.0873	**1±0**
	G-M	0.9806±0.0412	0.7071±0.0369	**1±0**
	Mcc	0.9804±0.0417	0.7047±0.1030	**1±0**
Kddroot kitback	AUC	0.9670±0.0717	0.7000±0.0812	**0.9876±0.0504**
	F-M	**0.9593±0.0909**	0.5714±0.1031	0.8719±0.0295
	G-M	0.9631±0.0815	0.6325±0.0836	**0.9858±0.0593**
	Mcc	**0.9628±0.0820**	0.6303±0.1056	0.8453±0.0264
Yeast6	AUC	0.8239±0.0441	0.7901±0.0510	**0.9601±0.0203**
	F-M	0.1499±0.0165	0.1170±0.0155	**0.3030±0.0405**
	G-M	0.8189±0.0409	0.7789±0.0467	**0.9592±0.0347**
	Mcc	0.2254±0.0294	0.1857±0.0338	**0.4054±0.0330**
Winequality-red8vs67	AUC	0.7133±0.0876	0.6428±0.0625	**0.7650±0.0875**
	F-M	0.0774±0.0168	0.0617±0.0117	**0.1018±0.0275**
	G-M	0.6896±0.0787	0.6180±0.0464	**0.7524±0.0872**
	Mcc	0.1230±0.0500	0.0820±0.0348	**0.1619±0.0553**
Shuttle-2vs5	AUC	0.9930±0.0023	0.5796±0.1158	**1±0**
	F-M	0.6877±0.0745	0.1176±0.1305	**1±0**
	G-M	0.9929±0.0024	0.5437±0.1072	**1±0**
	Mcc	0.7199±0.0618	0.1563±0.1473	**1±0**
krvsk0vs15	AUC	0.9825±0.0051	0.7807±0.1330	**1±0**
	F-M	0.4281±0.0748	0.0990±0.0629	**1±0**
	G-M	0.9824±0.0052	0.7006±0.1821	**1±0**
	Mcc	0.5126±0.0598	0.1852±0.0489	**1±0**
cod	AUC	0.9670±0.0564	0.5334±0.0043	**0.9862±0.0019**
	F-M	0.2302±0.1524	0.0028±0.0004	**0.5467±0.0164**
	G-M	0.9662±0.0584	0.2578±0.0166	**0.9861±0.0019**
	Mcc	0.3340±0.1597	0.0096±0.0002	**0.6148±0.0197**

Table III
DIVERSITY ANALYSIS OF BASE CLASSIFIER

Dataset	Indicators	DSEN-LGIE	BBAG	SBAG	UBAG
Ecoli3	dis	**0.1190**	0.1134	0.0452	0.1029
	ς	**0.0039**	0.5024	0.7619	0.5176
	Q-statistic	**0.2252**	0.8128	0.9753	0.8091
	κ	**0.0026**	0.4882	0.7590	0.5032
Yeast1458vs7	dis	**0.5002**	0.3814	0.1326	0.4231
	ς	**0.0053**	0.3041	0.5790	0.2108
	Q-statistic	**0.0185**	0.4746	0.7727	0.3458
	κ	**0.0055**	0.3072	0.5597	0.2484

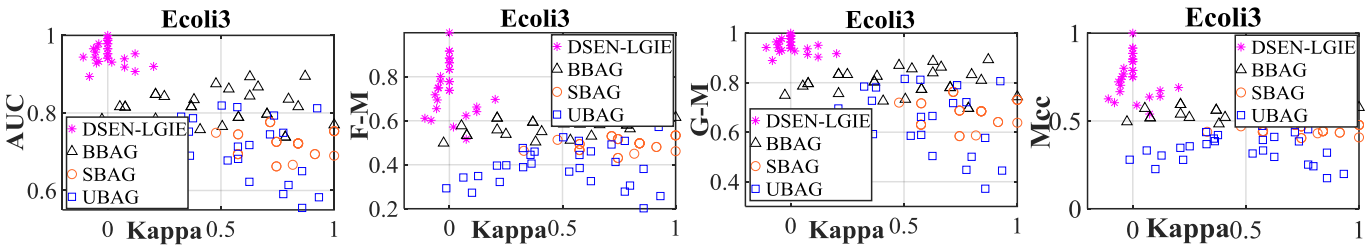

Fig.5. Diversity and performance analysis of base classifiers performance for Ecoli3.

Table IV
COMPARISON RESULTS OF THE ENSEMBLE METHODS ON 44 EXPERIMENTAL DATASETS

Data set	Measure	RBO	SBO	UBAG	SBAG	BBAG	EYEE	BACE	DSEN-LGIE
Iris0	AUC	0.9990±0.0070	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
	F-M	0.9989±0.0074	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
	G-M	0.9990±0.0072	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
	Mcc	0.9985±0.0104	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
Glass0	AUC	0.7840±0.0684	0.7203±0.0265	0.7919±0.0250	0.7784±0.0631	**0.8097±0.0519**	0.7954±0.0701	0.7714±0.0700	0.7635±0.0629
	F-M	0.7027±0.0872	0.6209±0.0389	0.7181±0.0420	0.6988±0.0830	**0.7346±0.0627**	0.7162±0.0873	0.6837±0.0854	0.6719±0.0905
	G-M	0.7756±0.0742	0.7092±0.0341	0.7893±0.0216	0.7725±0.0668	**0.8087±0.0520**	0.7933±0.0727	0.7650±0.0767	0.7424±0.0732
	Mcc	0.5687±0.1173	0.4451±0.0429	0.5717±0.0805	0.5541±0.1220	**0.5949±0.0973**	0.5690±0.1297	0.5234±0.1222	0.5795±0.1264
Vertebral	AUC	0.7400±0.0448	0.7457±0.0536	0.8240±0.0388	0.8036±0.0397	0.8264±0.0236	0.7962±0.0463	0.7843±0.0603	**0.8398±0.0729**
	F-M	0.6432±0.0609	0.6533±0.0793	0.7535±0.0493	0.7318±0.0546	0.7578±0.0307	0.7121±0.0541	0.7015±0.0739	**0.7841±0.0708**
	G-M	0.7304±0.0527	0.7319±0.0635	0.8219±0.0396	0.8004±0.0412	0.8245±0.0254	0.7939±0.0453	0.7806±0.0628	**0.8298±0.0810**
	Mcc	0.4769±0.0766	0.5096±0.1029	0.6311±0.0742	0.6026±0.0811	0.6376±0.0474	0.5599±0.0884	0.5559±0.1077	**0.7145±0.0829**
Haberman	AUC	0.5329±0.0433	0.5741±0.0698	0.5947±0.0651	0.5200±0.0836	0.5889±0.0156	0.5606±0.0280	0.5195±0.0499	**0.6181±0.0938**
	F-M	0.3050±0.0785	0.4062±0.0801	0.4301±0.0745	0.3040±0.0985	0.4216±0.0211	0.4010±0.0200	0.3404±0.0635	**0.4365±0.0857**
	G-M	0.4755±0.0764	0.5681±0.0709	0.5882±0.0665	0.4675±0.0888	0.5788±0.0170	0.5552±0.0238	0.5065±0.0546	**0.6019±0.0730**
	Mcc	0.0624±0.0840	0.1367±0.1309	0.1731±0.1197	0.0497±0.1693	0.1699±0.0299	0.1104±0.0538	0.0362±0.0907	**0.2159±0.0867**
Vehicle1	AUC	0.6651±0.0523	0.7029±0.0456	0.7803±0.0379	0.7262±0.0332	0.7510±0.0423	0.7912±0.0330	0.7612±0.0377	**0.8270±0.0654**
	F-M	0.4955±0.0893	0.5556±0.0630	0.6467±0.0467	0.5901±0.0472	0.6153±0.0543	0.6587±0.0405	0.6255±0.0455	**0.6723±0.0625**
	G-M	0.6322±0.0782	0.6906±0.0512	0.7791±0.0381	0.7153±0.0381	0.7472±0.0460	0.7903±0.0328	0.7588±0.0396	**0.8174±0.0715**
	Mcc	0.3403±0.0972	0.3960±0.0856	0.5120±0.0683	0.4454±0.0631	0.4700±0.0745	0.5293±0.0597	0.4829±0.0645	**0.5701±0.0987**
Ecoli1	AUC	0.8431±0.0521	0.8615±0.0544	0.8770±0.0401	0.8800±0.0428	0.8717±0.0489	0.8839±0.0533	0.8817±0.0395	**0.9247±0.0439**
	F-M	0.7580±0.0799	0.7733±0.0731	0.7714±0.0542	0.8038±0.0632	0.7744±0.0694	0.7807±0.0729	0.7796±0.0523	**0.8042±0.0752**
	G-M	0.8368±0.0571	0.8571±0.0590	0.8752±0.0419	0.8770±0.0453	0.8693±0.0513	0.8818±0.0560	0.8803±0.0406	**0.9209±0.0484**

New-thyroid1	Mcc	0.6904 ±0.1033	0.7084 ±0.0935	0.7045 ±0.0701	0.7478 ±0.0827	0.7082 ±0.0906	0.7179 ±0.0959	0.7148 ±0.0694	**0.8048 ±0.0912**
	AUC	0.9884 ±0.0227	0.9810 ±0.0293	0.9847 ±0.0174	0.9796 ±0.0298	0.9823 ±0.0233	0.9842 ±0.0162	0.9822 ±0.0267	**0.9980 ±0.0141**
	F-M	0.9710 ±0.0397	0.9623 ±0.0463	0.9330 ±0.0709	0.9561 ±0.0514	0.9406 ±0.0643	0.9299 ±0.0677	0.9581 ±0.0494	**0.9978 ±0.0157**
	G-M	0.9881 ±0.0234	0.9805 ±0.0302	0.9844 ±0.0179	0.9791 ±0.0307	0.9820 ±0.0239	0.9839 ±0.0166	0.9817 ±0.0276	**0.9979 ±0.0149**
Ecoli2	Mcc	0.9662 ±0.0465	0.9564 ±0.0540	0.9236 ±0.0796	0.9492 ±0.0599	0.9319 ±0.0732	0.9200 ±0.0762	0.9516 ±0.0571	**1 ±0**
	AUC	0.9014 ±0.0505	0.8402 ±0.0630	0.8929 ±0.0792	0.8775 ±0.0721	0.8901 ±0.0740	0.8702 ±0.0684	0.8716 ±0.0798	**0.9362 ±0.0725**
	F-M	**0.8343 ±0.0396**	0.7021 ±0.0879	0.7719 ±0.1279	0.8255 ±0.0752	0.7728 ±0.1132	0.7432 ±0.1002	0.7722 ±0.0939	0.8279 ±0.0779
	G-M	0.8955 ±0.0573	0.8325 ±0.0712	0.8885 ±0.0837	0.8657 ±0.0819	0.8862 ±0.0772	0.8650 ±0.0731	0.8607 ±0.0936	**0.9276 ±0.0751**
Glass6	Mcc	0.8138 ±0.0388	0.6479 ±0.1069	0.7338 ±0.1529	0.8137 ±0.0762	0.7333 ±0.1358	0.7000 ±0.1223	0.7426 ±0.1043	**0.8201 ±0.0724**
	AUC	0.9198 ±0.0605	0.8992 ±0.0778	0.9284 ±0.0364	0.8998 ±0.0716	0.9117 ±0.0687	0.9305 ±0.0418	0.9257 ±0.0230	**0.9813 ±0.0507**
	F-M	0.8539 ±0.0935	0.8373 ±0.1027	0.8402 ±0.1238	0.8247 ±0.0823	0.8187 ±0.1209	0.8517 ±0.0598	0.8180 ±0.0630	**0.9591 ±0.0779**
	G-M	0.9155 ±0.0654	0.8903 ±0.0870	0.9258 ±0.0376	0.8928 ±0.0780	0.9080 ±0.0726	0.9284 ±0.0432	0.9234 ±0.0239	**0.9796 ±0.0568**
Yeast3	Mcc	0.8362 ±0.1056	0.8259 ±0.1104	0.8261 ±0.1267	0.8042 ±0.0948	0.7957 ±0.1389	0.8321 ±0.0708	0.8000 ±0.0629	**0.9577 ±0.0792**
	AUC	0.8485 ±0.0452	0.8788 ±0.0309	0.9394 ±0.0208	0.8845 ±0.0214	0.9110 ±0.0241	0.8939 ±0.0254	0.8674 ±0.0254	**0.9771 ±0.0199**
	F-M	0.6265 ±0.0475	0.6588 ±0.0513	0.7750 ±0.0420	0.8125 ±0.0594	0.6977 ±0.0341	0.7273 ±0.0361	0.7123 ±0.0232	**0.8333 ±0.0102**
	G-M	0.8463 ±0.0565	0.8783 ±0.0341	0.9394 ±0.0212	0.8792 ±0.0228	0.9110 ±0.0251	0.8928 ±0.0257	0.8638 ±0.0276	**0.9768 ±0.0209**
Ecoli3	Mcc	0.5854 ±0.0478	0.6265 ±0.0341	0.7567 ±0.0459	0.7904 ±0.0687	0.6747 ±0.0400	0.6970 ±0.0414	0.6765 ±0.0272	**0.8256 ±0.0112**
	AUC	0.7870 ±0.0884	0.7700 ±0.0862	0.8693 ±0.0710	0.7672 ±0.0826	0.8594 ±0.0735	0.8704 ±0.0571	0.8567 ±0.0693	**0.9570 ±0.0469**
	F-M	0.5914 ±0.1283	0.5554 ±0.1306	0.6206 ±0.1009	0.5874 ±0.1369	0.6222 ±0.1067	0.6246 ±0.0816	0.6454 ±0.0951	**0.7337 ±0.0677**
	G-M	0.7591 ±0.1216	0.7405 ±0.1208	0.8648 ±0.0768	0.7334 ±0.1166	0.8535 ±0.0812	0.8669 ±0.0607	0.8497 ±0.0778	**0.9550 ±0.0498**
Page-blocks0	Mcc	0.5588 ±0.1306	0.5121 ±0.1402	0.5941 ±0.1151	0.5502 ±0.1465	0.5928 ±0.1206	0.5980 ±0.0909	0.6151 ±0.1086	**0.7430 ±0.0693**
	AUC	0.8748 ±0.0340	0.9379 ±0.0172	0.9567 ±0.0109	0.9389 ±0.0139	0.9515 ±0.0112	0.9570 ±0.0107	0.9532 ±0.0088	**0.9814 ±0.0039**
	F-M	0.7810 ±0.0443	0.8413 ±0.0375	0.8120 ±0.0229	0.8629 ±0.0207	0.8149 ±0.0255	0.8125 ±0.0220	0.8573 ±0.0209	**0.9043 ±0.0306**
	G-M	0.8678 ±0.0398	0.9371 ±0.0178	0.9566 ±0.0109	0.9379 ±0.0146	0.9514 ±0.0113	0.9569 ±0.0107	0.9529 ±0.0089	**0.9812 ±0.0040**
Yeast2vs4	Mcc	0.7584 ±0.0467	0.8251 ±0.0399	0.7993 ±0.0243	0.8477 ±0.0230	0.8007 ±0.0266	0.7998 ±0.0235	0.8434 ±0.0224	**0.8980 ±0.0321**
	AUC	0.9392 ±0.0661	0.9892 ±0.0914	0.9570 ±0.0344	0.9437 ±0.0544	0.9839 ±0.0501	0.9516 ±0.0231	0.9839 ±0.0762	**0.9944 ±0.0137**
	F-M	0.6714 ±0.1286	0.6974 ±0.1182	0.6561 ±0.0749	0.7347 ±0.1013	0.6613 ±0.0834	0.6613 ±0.0915	0.7155 ±0.0784	**0.7608 ±0.1167**
	G-M	0.9384 ±0.0799	0.9892 ±0.1049	0.9560 ±0.0348	0.9430 ±0.0616	0.9837 ±0.0523	0.9504 ±0.0228	0.9837 ±0.0824	**0.9944 ±0.0139**
Yeast05679vs4	Mcc	0.6420 ±0.1412	0.6720 ±0.1092	0.6352 ±0.0813	0.7122 ±0.1073	0.6411 ±0.0923	0.6408 ±0.0992	0.6960 ±0.0843	**0.7648 ±0.1175**
	AUC	0.8921 ±0.0502	0.8974 ±0.0398	0.9342 ±0.0499	0.8844 ±0.0472	0.9316 ±0.0399	0.9188 ±0.0343	0.8921 ±0.0644	**0.9677 ±0.0111**
	F-M	0.6000 ±0.0818	0.6207 ±0.0555	**0.8182 ±0.0286**	0.7619 ±0.0759	0.6286 ±0.0580	0.6400 ±0.0551	0.6000 ±0.0833	0.7273 ±0.0289
	G-M	0.8921 ±0.0749	0.8974 ±0.0585	0.9334 ±0.0529	0.8803 ±0.0579	0.9291 ±0.0471	0.8612 ±0.0384	0.8921 ±0.0815	**0.9672 ±0.0115**
Vowel0	Mcc	0.5862 ±0.0879	0.6060 ±0.0594	**0.8012 ±0.0373**	0.7368 ±0.0920	0.6290 ±0.0671	0.6098 ±0.0625	0.5862 ±0.0968	0.7311 ±0.0292
	AUC	0.9455 ±0.0445	0.9520 ±0.0348	0.9685 ±0.0194	0.9627 ±0.0271	0.9641 ±0.0233	0.9719 ±0.0172	0.9715 ±0.0202	**1 ±0**
	F-M	0.8872 ±0.0638	0.8943 ±0.0555	0.8301 ±0.0573	0.9231 ±0.0434	0.8290 ±0.0601	0.8398 ±0.0509	0.9037 ±0.0472	**1 ±0**
	G-M	0.9435 ±0.0474	0.9507 ±0.0366	0.9682 ±0.0196	0.9618 ±0.0285	0.9638 ±0.0236	0.9717 ±0.0173	0.9712 ±0.0206	**1 ±0**
Glass016vs2	Mcc	0.8776 ±0.0699	0.8855 ±0.0600	0.8230 ±0.0574	0.9166 ±0.0471	0.8205 ±0.0621	0.8325 ±0.0520	0.8964 ±0.0503	**1 ±0**
	AUC	0.8048 ±0.1199	0.8464 ±0.1186	0.8179 ±0.1445	0.7214 ±0.0786	0.7905 ±0.1212	0.8857 ±0.1249	0.8000 ±0.1382	**0.8939 ±0.1162**
	F-M	0.5714 ±0.1931	**0.6667 ±0.1887**	0.5455 ±0.1404	0.5000 ±0.1826	0.5000 ±0.1268	0.4286 ±0.1215	0.3000 ±0.0944	0.2222 ±0.1098
	G-M	0.7928 ±0.2926	0.8409 ±0.3002	0.8150 ±0.2369	0.6866 ±0.2598	0.7807 ±0.2156	0.8783 ±0.2276	0.7746 ±0.2145	**0.8876 ±0.1253**
Ecoli0147vs2356	Mcc	0.5356 ±0.2256	**0.6288 ±0.2042**	0.5026 ±0.1900	0.4429 ±0.2033	0.4634 ±0.1656	0.4587 ±0.1593	0.3254 ±0.1630	0.3138 ±0.1290
	AUC	0.8178 ±0.0888	0.8211 ±0.0993	0.8616 ±0.0791	0.8353 ±0.1135	0.8490 ±0.0810	0.8540 ±0.0896	0.8901 ±0.0829	**0.9781 ±0.0315**
	F-M	0.6754 ±0.1424	0.6142 ±0.1446	0.6372 ±0.1165	0.7342 ±0.1799	0.6396 ±0.1226	0.6106 ±0.1247	0.7394 ±0.1307	**0.8197 ±0.1055**
	G-M	0.7942 ±0.1144	0.8008 ±0.1250	0.8517 ±0.0974	0.8076 ±0.1494	0.8386 ±0.0919	0.8438 ±0.1049	0.8817 ±0.0949	**0.9773 ±0.0337**
climate	Mcc	0.6605 ±0.1529	0.5907 ±0.1574	0.6181 ±0.1246	0.7296 ±0.1792	0.6143 ±0.1334	0.5896 ±0.1375	0.7257 ±0.1407	**0.7734 ±0.1082**
	AUC	0.7039 ±0.0893	0.7273 ±0.0692	**0.8562 ±0.0638**	0.8081 ±0.0866	0.8182 ±0.0745	0.8535 ±0.0539	0.8131 ±0.0674	0.7993 ±0.0480
	F-M	0.4573 ±0.1543	0.4583 ±0.1094	0.5429 ±0.0892	0.6000 ±0.1401	0.5149 ±0.0840	0.6087 ±0.0679	0.6316 ±0.0885	**0.7060 ±0.0456**
	G-M	0.6469 ±0.1322	0.6929 ±0.0946	**0.8525 ±0.0724**	0.7956 ±0.1226	0.8095 ±0.0831	0.8502 ±0.0576	0.7998 ±0.0787	0.7474 ±0.0430
Glass2	Mcc	0.4141 ±0.1692	0.4088 ±0.1220	0.5264 ±0.1006	0.5631 ±0.1451	0.4864 ±0.1006	0.5818 ±0.0768	0.5971 ±0.1002	**0.7387 ±0.0409**
	AUC	0.6983 ±0.0481	0.6010 ±0.0863	0.7007 ±0.1387	0.5713 ±0.0750	0.6655 ±0.0952	0.6946 ±0.0624	0.6710 ±0.1114	**0.8769 ±0.0445**
	F-M	**0.3359 ±0.0285**	0.2146 ±0.1193	0.2850 ±0.1198	0.2038 ±0.1703	0.2768 ±0.1080	0.2883 ±0.0606	0.2391 ±0.0697	0.2472 ±0.0954
	G-M	0.6720 ±0.0717	0.4422 ±0.2284	0.6630 ±0.2105	0.3237 ±0.2655	0.6351 ±0.1265	0.6811 ±0.0818	0.6510 ±0.1304	**0.8670 ±0.0505**
german	Mcc	0.2844 ±0.0393	0.1320 ±0.1403	0.2426 ±0.1679	0.1595 ±0.1813	0.2178 ±0.1322	0.2412 ±0.0788	0.1905 ±0.1207	**0.3247 ±0.0900**
	AUC	0.6735 ±0.1121	0.8252 ±0.1094	0.8273 ±0.0916	0.8115 ±0.1085	0.8368 ±0.0856	0.8285 ±0.1068	**0.8467 ±0.0861**	0.8448 ±0.0924
	F-M	0.3900 ±0.2102	0.6444 ±0.1710	0.5941 ±0.1374	**0.7343 ±0.0906**	0.6206 ±0.1432	0.5968 ±0.1675	0.6925 ±0.1313	0.2308 ±0.0505
	G-M	0.5582 ±0.2453	0.7995 ±0.1443	0.8088 ±0.1170	0.7711 ±0.1708	0.8204 ±0.1116	0.8068 ±0.1386	0.8298 ±0.1075	**0.8305 ±0.1064**
Shuttle-c0-vs-c4	Mcc	0.3642 ±0.2262	0.6310 ±0.1735	0.5836 ±0.1441	**0.7471 ±0.0798**	0.6065 ±0.1465	0.5858 ±0.1753	0.6814 ±0.1377	0.2923 ±0.1044
	AUC	0.9890 ±0.0699	0.9995 ±0.0008	0.9991 ±0.0008	0.9995 ±0.0009	0.9991 ±0.0011	0.9990 ±0.0012	0.9991 ±0.0004	**1 ±0**
	F-M	0.9670 ±0.1388	0.9937 ±0.0114	0.9873 ±0.0117	0.9929 ±0.0123	0.9874 ±0.0146	0.9871 ±0.0152	0.9882 ±0.0118	**1 ±0**
	G-M	0.9790 ±0.1399	0.9995 ±0.0008	0.9991 ±0.0008	0.9995 ±0.0009	0.9991 ±0.0011	0.9990 ±0.0012	0.9991 ±0.0008	**1 ±0**
	Mcc	0.9661 ±0.1388	0.9933 ±0.0121	0.9865 ±0.0123	0.9925 ±0.0130	0.9866 ±0.0154	0.9863 ±0.0160	0.9874 ±0.0125	**1 ±0**
Yeast1vs7	AUC	0.6135 ±0.0344	0.6374 ±0.0835	0.7196 ±0.0888	0.6612 ±0.1022	0.7055 ±0.1154	0.7541 ±0.1168	0.7326 ±0.0797	**0.8372 ±0.0606**
	F-M	0.2849 ±0.0522	0.2559 ±0.1033	0.3113 ±0.0980	**0.3657 ±0.0871**	0.2848 ±0.1081	0.3351 ±0.0957	0.2718 ±0.0593	0.3000 ±0.0823
	G-M	0.4989 ±0.0780	0.5675 ±0.1467	0.7016 ±0.1084	0.5292 ±0.1088	0.6717 ±0.1676	0.7362 ±0.1350	0.7242 ±0.0794	**0.8212 ±0.0646**
Ecoli4	Mcc	0.2503 ±0.0471	0.2015 ±0.1206	0.2804 ±0.1204	0.3245 ±0.08007	0.2536 ±0.1411	0.3172 ±0.1345	0.2591 ±0.0863	**0.3450 ±0.0812**
	AUC	0.8967 ±0.0928	0.8671 ±0.0742	0.9061 ±0.0546	0.8984 ±0.0940	0.9199 ±0.0599	0.9215 ±0.0592	0.9171 ±0.0646	**0.9854 ±0.0488**
	F-M	0.7606 ±0.1537	0.7481 ±0.0746	0.6988 ±0.0580	0.8548 ±0.1331	0.6343 ±0.0779	0.6855 ±0.1651	0.8111 ±0.1184	**0.8787 ±0.0894**
	G-M	0.8861 ±0.1098	0.8537 ±0.0879	0.9015 ±0.0579	0.8865 ±0.1087	0.9173 ±0.0623	0.9182 ±0.0618	0.9125 ±0.0683	**0.9837 ±0.0572**
Page-blocks13vs4	Mcc	0.7561 ±0.1596	0.7482 ±0.0753	0.6947 ±0.0593	0.8579 ±0.1280	0.6384 ±0.0842	0.6940 ±0.1584	0.8007 ±0.1261	**0.8861 ±0.0851**
	AUC	0.9805 ±0.0429	0.9621 ±0.0654	0.9874 ±0.0097	0.9734 ±0.0394	0.9890 ±0.0100	0.9880 ±0.0076	**0.9976 ±0.0037**	0.9850 ±0.0138
	F-M	0.8957 ±0.1056	0.9261 ±0.0992	0.8463 ±0.0925	0.9428 ±0.0633	0.8662 ±0.1068	0.8471 ±0.0836	**0.9677 ±0.0497**	0.7711 ±0.0946
	G-M	0.9795 ±0.0464	0.9586 ±0.0752	0.9873 ±0.0099	0.9723 ±0.0412	0.9889 ±0.0102	0.9878 ±0.0078	**0.9976 ±0.0038**	0.9849 ±0.0141
Derm	Mcc	0.8952 ±0.1066	0.9252 ±0.0994	0.8488 ±0.0868	0.9411 ±0.0660	0.8689 ±0.1020	0.8494 ±0.0788	**0.9671 ±0.0501**	0.7888 ±0.0720
	AUC	0.9999 ±0.0010	**1 ±0**	**1 ±0**	**1 ±0**	0.9772 ±0.0479	**1 ±0**	0.9993 ±0.0022	**1 ±0**

atolo	F-M	0.9978 ±0.0156	**1 ±0**	**1 ±0**	**1 ±0**	0.9698 ±0.0571	**1 ±0**	0.9889 ±0.0333	**1 ±0**
gy-6	G-M	0.9999 ±0.0010	**1 ±0**	**1 ±0**	**1 ±0**	0.9756 ±0.0514	**1 ±0**	0.9993 ±0.0022	**1 ±0**
	Mcc	0.9978 ±0.0157	**1 ±0**	**1 ±0**	**1 ±0**	0.9703 ±0.0562	**1 ±0**	0.9888 ±0.0337	**1 ±0**
	AUC	0.5708 ±0.1183	0.6267 ±0.1180	0.6789 ±0.1287	0.5548 ±0.0756	0.6710 ±0.1613	0.6656 ±0.1604	0.7236 ±0.0846	**0.8070 ±0.0898**
svmg	F-M	0.1626 ±0.1251	**0.2501 ±0.1837**	0.2124 ±0.1032	0.1537 ±0.1013	0.2078 ±0.1256	0.2012 ±0.1219	0.2052 ±0.0521	0.1538 ±0.0327
uide3	G-M	0.3034 ±0.2135	0.4828 ±0.2667	0.6241 ±0.2233	0.2116 ±0.2709	0.5933 ±0.2778	0.5787 ±0.2871	0.7132 ±0.0823	**0.7836 ±0.0787**
	Mcc	0.1213 ±0.1017	0.2118 ±0.2008	0.1928 ±0.1414	0.1523 ±0.1229	0.1850 ±0.1761	0.1782 ±0.1722	**0.2130 ±0.0800**	0.1737 ±0.0521
Yeast	AUC	0.5601 ±0.1009	0.5718 ±0.1002	0.6265 ±0.0840	0.5106 ±0.0330	0.6331 ±0.1303	0.6066 ±0.1299	0.6330 ±0.0791	**0.7214 ±0.0929**
1458	F-M	0.1393 ±0.1045	0.1386 ±0.1062	0.1449 ±0.0443	0.0444 ±0.0389	0.1454 ±0.0669	0.1374 ±0.0782	0.1178 ±0.0229	**0.1508 ±0.0370**
vs7	G-M	0.4001 ±0.2283	0.4372 ±0.2515	0.5889 ±0.1020	0.0810 ±0.1621	0.5906 ±0.1682	0.5562 ±0.1759	0.6054 ±0.0659	**0.6813 ±0.1089**
	Mcc	0.0867 ±0.1300	0.0923 ±0.1283	0.1194 ±0.0761	0.0297 ±0.0922	0.1235 ±0.1171	0.1031 ±0.1252	0.1095 ±0.0652	**0.1843 ±0.0742**
	AUC	0.7442 ±0.0823	0.7598 ±0.0178	0.8224 ±0.0618	0.6848 ±0.0435	0.8161 ±0.0949	0.7925 ±0.0425	0.8104 ±0.0307	**0.8771 ±0.0470**
Yeast	F-M	0.3882 ±0.0991	0.3881 ±0.0385	0.2976 ±0.0497	0.4014 ±0.0727	0.3087 ±0.0782	0.2843 ±0.0416	0.2898 ±0.0405	**0.4334 ±0.0642**
4	G-M	0.7040 ±0.1116	0.7349 ±0.0245	0.8181 ±0.0661	0.6136 ±0.0688	0.8063 ±0.1042	0.7853 ±0.0484	0.8072 ±0.0324	**0.8519 ±0.0489**
	Mcc	0.3777 ±0.1097	0.3814 ±0.0340	0.3362 ±0.0660	0.3873 ±0.0726	0.3419 ±0.1029	0.3123 ±0.0468	0.3247 ±0.0444	**0.4768 ±0.0685**
Wine	AUC	0.5475 ±0.0508	0.5589 ±0.0523	0.6773 ±0.0674	0.5161 ±0.0287	0.6218 ±0.0680	0.6751 ±0.0666	0.5546 ±0.0747	**0.7133 ±0.0939**
qualit	F-M	0.0995 ±0.0588	0.1129 ±0.0604	0.1659 ±0.0402	0.0601 ±0.0774	0.1329 ±0.0448	0.1666 ±0.0436	0.0758 ±0.0182	**0.1753 ±0.0574**
y-red	G-M	0.3612 ±0.1568	0.3970 ±0.1396	0.6502 ±0.0921	0.1304 ±0.1621	0.5695 ±0.1112	0.6474 ±0.0908	0.5465 ±0.0723	**0.6922 ±0.0992**
-4	Mcc	0.0637 ±0.0667	0.0780 ±0.0688	0.1680 ±0.0617	0.0486 ±0.0884	0.1170 ±0.0648	0.1675 ±0.0631	0.0391 ±0.0536	**0.1925 ±0.0839**
Yeast	AUC	0.5405 ±0.0828	0.6520 ±0.0398	0.7433 ±0.0892	0.5429 ±0.0440	0.6669 ±0.1160	0.7417 ±0.1154	0.6198 ±0.0857	**0.8123 ±0.0850**
1289	F-M	0.1170 ±0.0750	0.1922 ±0.0555	0.1785 ±0.0474	0.1389 ±0.1139	0.1472 ±0.0627	0.1898 ±0.0623	0.0897 ±0.0233	**0.2930 ±0.0167**
vs7	G-M	0.2737 ±0.2121	0.5979 ±0.0585	0.7166 ±0.1115	0.2438 ±0.1991	0.6216 ±0.1717	**0.7245 ±0.1303**	0.5967 ±0.0925	0.7124 ±0.0826
	Mcc	0.0806 ±0.0927	0.1795 ±0.0594	0.2099 ±0.0769	0.1321 ±0.1311	0.1499 ±0.1012	0.2174 ±0.0980	0.0859 ±0.0612	**0.3432 ±0.0250**
Abal	AUC	0.9951 ±0.0048	0.9998 ±0.0009	0.9963 ±0.0045	0.9998 ±0.0010	0.9963 ±0.0045	0.9960 ±0.0043	0.9990 ±0.0021	**1 ±0**
one	F-M	0.8765 ±0.1087	0.9943 ±0.0280	0.9064 ±0.1054	0.9943 ±0.0280	0.9064 ±0.1054	0.8971 ±0.1003	0.9714 ±0.0571	**1 ±0**
3vs11	G-M	0.9950 ±0.0049	0.9998 ±0.0010	0.9963 ±0.0045	0.9998 ±0.0010	0.9963 ±0.0045	0.9960 ±0.0043	0.9990 ±0.0021	**1 ±0**
	Mcc	0.8833 ±0.1006	0.9945 ±0.0271	0.9114 ±0.0982	0.9945 ±0.0271	0.9114 ±0.0982	0.9022 ±0.0936	0.9723 ±0.0554	**1 ±0**
	AUC	0.8995 ±0.0784	0.8701 ±0.0812	0.9540 ±0.0360	0.8657 ±0.0690	0.9536 ±0.0354	0.9507 ±0.0392	0.9341 ±0.0676	**0.9755 ±0.0515**
Yeast	F-M	0.6105 ±0.1037	0.6705 ±01225	0.5702 ±0.0787	**0.6970 ±0.0917**	0.5763 ±0.0760	0.5529 ±0.0657	0.6723 ±0.0945	0.6343 ±0.0952
5	G-M	0.8910 ±0.0951	0.8567 ±0.0992	0.9532 ±0.0370	0.8526 ±0.0838	0.9528 ±0.0364	0.9497 ±0.0405	0.9297 ±0.0785	**0.9752 ±0.0595**
	Mcc	0.6230 ±0.1054	0.6680 ±0.1268	0.6077 ±0.0709	**0.6950 ±0.0931**	0.6126 ±0.0671	0.5925 ±0.0621	0.6847 ±0.0954	0.6692 ±0.0883
	AUC	0.6475 ±0.0727	0.6427 ±0.0617	0.8079 ±0.0534	0.6765 ±0.0451	0.7830 ±0.0552	0.8040 ±0.0503	0.8015 ±0.0554	**0.8495 ±0.0195**
Ozon	F-M	0.3636 ±0.0763	0.3333 ±0.0723	0.3011 ±0.0358	0.4762 ±0.0514	0.3014 ±0.0369	0.2481 ±0.0363	0.2058 ±0.0313	**0.5820 ±0.0442**
e-one	G-M	0.5595 ±0.1345	0.5525 ±0.1114	**0.8026 ±0.0594**	0.5964 ±0.0441	0.7736 ±0.0642	0.7989 ±0.0557	0.7984 ±0.0582	0.7724 ±0.0323
hr	Mcc	0.3752 ±0.0868	0.3428 ±0.0813	0.3772 ±0.0499	**0.4958 ±0.0511**	0.3395 ±0.0503	0.2922 ±0.0490	0.2583 ±0.0470	0.4499 ±0.0456
	AUC	0.9871 ±0.0184	0.9649 ±0.0357	0.9782 ±0.0242	0.9673 ±0.0340	0.9741 ±0.0263	0.9735 ±0.0252	0.9818 ±0.0252	**1 ±0**
Krvs	F-M	0.9303 ±0.0514	0.9465 ±0.0467	0.8364 ±0.0594	0.9637 ±0.0398	0.8394 ±0.0724	0.8339 ±0.0666	0.9528 ±0.0505	**1 ±0**
k	G-M	0.9868 ±0.0188	0.9635 ±0.0383	0.9778 ±0.0250	0.9661 ±0.0359	0.9736 ±0.0271	0.9730 ±0.0259	0.9813 ±0.0260	**1 ±0**
3vs11	Mcc	0.9304 ±0.0506	0.9466 ±0.0457	0.8412 ±0.0551	0.9639 ±0.0391	0.8427 ±0.0697	0.8378 ±0.0633	0.9522 ±0.0509	**1 ±0**
	AUC	0.8483 ±0.0286	0.8356 ±0.0431	0.8587 ±0.0992	0.7903 ±0.0503	0.8735 ±0.0263	0.8651 ±0.0143	0.8842 ±0.0122	**0.9195 ±0.0157**
Abal	F-M	0.5008 ±0.0352	0.5634 ±0.0361	0.3527 ±0.0323	**0.5940 ±0.0303**	0.3588 ±0.0299	0.3560 ±0.0133	0.4506 ±0.0308	0.5185 ±0.0322
one	G-M	0.8193 ±0.0840	0.7858 ±0.0423	0.8475 ±0.0925	0.7106 ±0.0778	0.8517 ±0.0805	0.8438 ±0.0685	0.8697 ±0.0350	**0.9117 ±0.0168**
21vs8	Mcc	0.5194 ±0.0381	0.5756 ±0.0316	0.3996 ±0.0397	**0.6102 ±0.0314**	0.4106 ±0.0453	0.4052 ±0.0179	0.4928 ±0.0343	0.5687 ±0.0291
	AUC	0.9431 ±0.0934	0.9079 ±0.0135	0.9534 ±0.0656	0.9251 ±0.0861	0.9637 ±0.0684	**0.9810 ±0.0743**	0.9360 ±0.0632	0.9601 ±0.0203
Yeast	F-M	0.2979 ±0.1107	0.4800 ±0.0951	0.3415 ±0.0543	**0.8000 ±0.0149**	0.4000 ±0.0604	0.5600 ±0.0666	0.2745 ±0.0600	0.3030 ±0.0405
6	G-M	0.9414 ±0.1216	0.9065 ±0.1164	0.9523 ±0.0713	0.9226 ±0.0125	0.9630 ±0.0764	**0.9809 ±0.0829**	0.9338 ±0.0734	0.9592 ±0.0347
	Mcc	0.3938 ±0.1157	0.5186 ±0.0815	0.4321 ±0.0652	**0.7967 ±0.0152**	0.4815 ±0.0696	0.6117 ±0.0796	0.3725 ±0.0644	0.4054 ±0.0330
Wine	AUC	0.7131 ±0.1106	0.7273 ±0.1061	0.8153 ±0.1267	0.8409 ±0.1040	0.8438 ±0.1273	0.8210 ±0.1261	0.8125 ±0.1155	**0.9263 ±0.0679**
qualit	F-M	0.2105 ±0.1576	0.2857 ±0.1103	0.2143 ±0.0881	0.3158 ±0.2507	0.3333 ±0.0906	0.2308 ±0.0787	0.2069 ±0.0816	**0.3539 ±0.2274**
y-whi	G-M	0.6805 ±0.2961	0.6908 ±0.2351	0.8127 ±0.2019	0.8360 ±0.2926	0.8385 ±0.1841	0.8179 ±0.2016	0.8101 ±0.1947	**0.9199 ±0.0805**
te	Mcc	0.1876 ±0.1701	0.2925 ±0.1280	0.2735 ±0.1204	0.3636 ±0.2712	0.3784 ±0.1212	0.2889 ±0.1135	0.2664 ±0.1028	**0.4685 ±0.2033**
3vs7									
Wine	AUC	0.5737 ±0.0113	0.5709 ±0.0751	0.6109 ±0.0244	0.5445 ±0.0664	0.6090 ±0.0241	0.6057 ±0.0237	0.5800 ±0.0888	**0.7650 ±0.0875**
qualit	F-M	0.1023 ±0.0112	0.0984 ±0.0898	0.0719 ±0.0381	0.1327 ±0.0380	0.0738 ±0.0440	0.0705 ±0.0408	0.0512 ±0.0144	**0.1018 ±0.0275**
y-red	G-M	0.3068 ±0.0308	0.3370 ±0.0775	0.5500 ±0.0187	0.1775 ±0.0481	0.5270 ±0.0418	0.5335 ±0.0306	0.5237 ±0.0759	**0.7524 ±0.0872**
8vs67	Mcc	0.0907 ±0.0138	0.0830 ±0.0868	0.0727 ±0.0316	0.1433 ±0.0216	0.0743 ±0.0849	0.0701 ±0.0823	0.0501 ±0.0721	**0.1619 ±0.0553**
	AUC	0.8632 ±0.0868	0.8942 ±0.0719	0.9172 ±0.0844	0.8567 ±0.0422	0.9072 ±0.0728	0.9410 ±0.0558	0.9460 ±0.0721	**0.9817 ±0.0202**
krvsk	F-M	0.5345 ±0.0877	0.7417 ±0.0889	0.3187 ±0.0768	**0.7707 ±0.0694**	0.3243 ±0.0899	0.3368 ±0.0615	0.5907 ±0.0841	0.5830 ±0.0389
0vs8	G-M	0.8472 ±0.0812	0.8848 ±0.0826	0.9120 ±0.0949	0.8325 ±0.0445	0.9037 ±0.0780	0.9389 ±0.0599	0.9420 ±0.0715	**0.9814 ±0.0206**
	Mcc	0.5536 ±0.0847	0.7458 ±0.0889	0.3995 ±0.0890	**0.7868 ±0.0507**	0.3993 ±0.0918	0.4235 ±0.0650	0.6246 ±0.0848	0.6455 ±0.0331
	AUC	0.9997 ±0.0009	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**
Shuttl	F-M	0.9824 ±0.0538	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**
e-2vs	G-M	0.9997 ±0.0009	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**
5	Mcc	0.9835 ±0.0501	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**	**1 ±0**
kddb	AUC	0.9949 ±0.0259	0.9933 ±0.0327	0.9916 ±0.0251	0.9900 ±0.0396	0.9982 ±0.0117	0.9833 ±0.0441	0.9967 ±0.0233	**1 ±0**
uffer	F-M	0.9881 ±0.0396	0.9920 ±0.0392	0.9863 ±0.0392	0.9880 ±0.0475	0.9876 ±0.0318	0.9777 ±0.0554	0.9960 ±0.0280	**1 ±0**
overfl	G-M	0.9945 ±0.0283	0.9927 ±0.0360	0.9912 ±0.0263	0.9890 ±0.0436	0.9981 ±0.0122	0.9820 ±0.0480	0.9963 ±0.0257	**1 ±0**
owvs	Mcc	0.9884 ±0.0382	0.9926 ±0.0363	0.9864 ±0.0392	0.9889 ±0.0440	0.9880 ±0.0308	0.9787 ±0.0525	0.9963 ±0.0259	**1 ±0**
back									
	AUC	0.9890 ±0.0337	0.9425 ±0.0690	0.9699 ±0.0626	0.9163 ±0.0654	0.9551 ±0.0829	0.9951 ±0.0050	0.9991 ±0.0015	**1 ±0**
krvsk	F-M	0.9641 ±0.0816	0.9194 ±0.0881	0.8472 ±0.0646	0.8936 ±0.0796	0.7938 ±0.0841	0.8456 ±0.0336	0.9416 ±0.0839	**1 ±0**
0vs15	G-M	0.9883 ±0.0361	0.9377 ±0.0762	0.9672 ±0.0695	0.9046 ±0.0725	0.9488 ±0.0431	0.9827 ±0.0574	0.9991 ±0.0015	**1 ±0**
	Mcc	0.9657 ±0.0783	0.9229 ±0.0844	0.8545 ±0.0577	0.9038 ±0.0732	0.8044 ±0.0784	0.8541 ±0.0267	0.9450 ±0.0765	**1 ±0**
kddr	AUC	0.9675 ±0.0550	0.9545 ±0.0563	0.9399 ±0.0707	0.9435 ±0.0771	0.9379 ±0.0736	0.9334 ±0.0769	0.9569 ±0.0554	**0.9876 ±0.0504**

ootki	F-M	0.8951±0.1906	**0.9468±0.0666**	0.9241±0.0918	0.9322±0.0970	0.9170±0.1007	0.9103±0.1032	0.9430±0.0659	0.8719±0.0295
tback	G-M	0.9653±0.0592	0.9515±0.0601	0.9346±0.0795	0.9377±0.0872	0.9322±0.0970	0.9269±0.0873	0.9541±0.0591	**0.9858±0.0593**
	Mcc	0.9051±0.1701	**0.9492±0.0637**	0.9288±0.0845	0.9373±0.0878	0.9210±0.0963	0.9156±0.0954	0.9455±0.0632	0.8453±0.0264
	AUC	0.9692±0.0443	0.9255±0.0787	0.9690±0.0411	0.9296±0.0745	0.9708±0.0371	0.9688±0.0435	0.9603±0.0538	**0.9862±0.0019**
cod	F-M	0.1642±0.0810	0.8276±0.0613	0.1099±0.0163	**0.8775±0.0906**	0.1116±0.0134	0.1111±0.0164	0.4701±0.0828	0.5467±0.0164
	G-M	0.9678±0.0477	0.9181±0.0901	0.9678±0.0436	0.9231±0.0849	0.9699±0.0388	0.9675±0.0467	0.9578±0.0579	**0.9861±0.0019**
	Mcc	0.2848±0.0684	0.8348±0.6089	0.2328±0.0175	**0.8824±0.0963**	0.2355±0.0164	0.2345±0.0215	0.5389±0.0737	0.6148±0.0197

Table V
AVERAGE RANKS OF ALL COMPARED ENSEMBLE METHODS

Algorithm	AUC	F-M	G-M	Mcc
DSEN-LGIE	**1.409**	**2.477**	**1.545**	**2.250**
RBO	6.227	5.364	6.182	5.659
SBO	5.932	4.091	5.909	4.227
UBAG	3.386	4.841	3.273	4.659
SBAG	6.091	3.432	6.136	3.568
BBAG	3.886	4.841	3.932	4.932
EYEE	3.705	5.114	3.750	5.159
BACE	4.136	4.591	4.045	4.477

Table VI
P-VALUES FROM HOLM'S TEST FOR ALL COMPARED METHODS

Algorithm	AUC	F-M	G-M	Mcc	Hypothesis (0.05)
RBO	1.71E-29	2.91E-09	3.80E-27	2.18E-12	**Rejected**
SBO	1.12E-26	7.31E-04	1.23E-24	2.84E-06	**Rejected**
UBAG	5.78E-07	9.50E-07	1.51E-05	4.40E-07	**Rejected**
SBAG	3.49E-28	4.45E-02	1.01E-26	5.10E-02	**Rejected**
BBAG	5.62E-10	9.50E-07	3.49E-09	2.16E-08	**Rejected**
EYEE	8.04E-09	5.19E-08	4.34E-08	1.45E-09	**Rejected**
BACE	1.14E-11	1.09E-05	6.69E-10	3.04E-05	**Rejected**

Table VII
THE COMPARISON RESULTS BETWEEN CBIS, HD-ENSEMBLE, EASE, HOEC, SPE AND DSEN-LGIE

Dataset	Iris0				Glass0			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.9900	--	--	--	0.8850	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--
EASE	1±0	1±0	1±0	1±0	0.7473±0.0666	0.6585±0.0834	0.7445±0.0685	0.4740±0.1287
HOEC	--	--	--	--	--	--	--	--
SPE	1±0	1±0	1±0	1±0	**0.7895±0.0688**	**0.7131±0.0855**	**0.7867±0.0697**	0.5655±0.1352
DSEN-LGIE	**1±0**	**1±0**	**1±0**	**1±0**	0.7635±0.0629	0.6719±0.0905	0.7424±0.0732	**0.5795±0.1264**
Dataset	Vertebral				Haberman			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	**0.6480**	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--
EASE	0.7755±0.0501	0.6894±0.0612	0.7725±0.0512	0.5269±0.0954	0.5773±0.0878	0.4178±0.0968	0.5624±0.0828	0.1395±0.1574
HOEC	--	--	--	--	0.6242±0.0193	--	--	--
SPE	0.7893±0.0612	0.7089±0.0788	0.7853±0.0654	0.5670±0.1141	0.6002±0.0632	**0.4382±0.0777**	0.5931±0.0702	0.1792±0.1134
DSEN-LGIE	**0.8398±0.0729**	**0.7841±0.0708**	**0.8298±0.0810**	**0.7145±0.0829**	0.6181±0.0938	0.4365±0.0857	**0.6019±0.0730**	**0.2159±0.0867**
Dataset	Vehicle1				Ecoli1			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.8250	--	--	--	**0.9570**	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--
EASE	0.7221±0.0397	0.5713±0.0482	0.7205±0.0404	0.3996±0.0713	0.8643±0.0294	0.7661±0.0416	0.8617±0.0311	0.6979±0.0547
HOEC	0.7596±0.0135	--	--	--	0.8816±0.0087	--	--	--
SPE	0.7744±0.0350	0.6392±0.0439	0.7731±0.0368	0.5011±0.0622	0.8633±0.0422	0.7846±0.0592	0.8588±0.0466	0.7240±0.0757
DSEN-LGIE	**0.8270±0.0654**	**0.6723±0.0625**	**0.8174±0.0715**	**0.5701±0.0987**	0.9247±0.0439	**0.8042±0.0752**	**0.9209±0.0484**	**0.8048±0.0912**
Dataset	New-thyroid1				Ecoli2			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.9970	--	--	--	0.9340	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--
EASE	0.9884±0.0222	0.9713±0.0408	0.9881±0.0229	0.9668±0.0472	0.8645±0.0562	0.7288±0.1045	0.8614±0.0579	0.6801±0.1249
HOEC	--	--	--	--	0.9128±0.0153	--	--	--
SPE	0.9821±0.0289	0.9682±0.0474	0.9815±0.0299	0.9637±0.0541	0.8992±0.0636	0.8067±0.0785	0.8938±0.0710	0.7787±0.0893
DSEN-LGIE	**0.9980±0.0141**	**0.9978±0.0157**	**0.9979±0.0149**	**1±0**	**0.9362±0.0725**	**0.8279±0.0779**	**0.9276±0.0751**	**0.8201±0.0724**
Dataset	Glass6				Yeast3			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.9340	--	--	--	0.9690	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--

EASE	0.9151±0.0612	0.8126±0.0885	0.9114±0.0655	0.7899±0.1012	0.8849±0.0432	0.7300±0.0618	0.8814±0.0471	0.6999±0.0696
HOEC	--	--	--	--	--	--	--	--
SPE	0.9164±0.0568	0.8300±0.0867	0.9130±0.0607	0.8074±0.0997	0.8877±0.0379	0.7568±0.0565	0.8839±0.0416	0.7283±0.0634
DSEN-LGIE	**0.9813±0.0507**	**0.9591±0.0779**	**0.9796±0.0568**	**0.9577±0.0792**	**0.9771±0.0199**	**0.8333±0.0102**	**0.9768±0.0209**	**0.8256±0.0112**
Dataset	Ecoli3				Page-blocks0			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.9330	--	--	--	**0.9870**	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--
EASE	0.8143±0.0636	0.5859±0.0897	0.8038±0.0735	0.5440±0.1036	0.9324±0.0136	0.8368±0.0174	0.9314±0.0142	0.8193±0.0194
HOEC	0.8734±0.0196	--	--	--	0.9294±0.0030	--	--	--
SPE	0.8368±0.0773	0.6137±0.0898	0.8259±0.0919	0.5791±0.1052	0.9324±0.0173	0.8624±0.0203	0.9309±0.0183	0.8472±0.0226
DSEN-LGIE	**0.9570±0.0469**	**0.7337±0.0677**	**0.9550±0.0498**	**0.7430±0.0693**	0.9814±0.0039	**0.9043±0.0306**	**0.9812±0.0040**	**0.8980±0.0321**
Dataset	Yeast2vs4				Yeast05679vs4			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.9800	--	--	--	--	--	--	--
HD-Ensemble	0.9833±0.0110	--	0.9420±0.0370	--	0.9084±0.0410	--	0.8227±0.0740	--
EASE	0.9891±0.0564	0.7543±0.0874	0.9891±0.0618	0.7309±0.0985	0.8927±0.0838	0.6000±0.1368	0.8927±0.1043	0.5868±0.1543
HOEC	--	--	--	--	--	--	--	--
SPE	**0.9946±0.0653**	0.7531±0.0987	**0.9946±0.0740**	0.7304±0.1076	0.9083±0.0567	0.6667±0.0716	0.9083±0.0632	0.6505±0.0848
DSEN-LGIE	0.9944±0.0137	**0.7608±0.1167**	0.9944±0.0137	**0.7648±0.1175**	**0.9677±0.0111**	**0.7273±0.0289**	**0.9672±0.0115**	**0.7311±0.0292**
Dataset	Vowel0				Glass016vs2			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.9810	--	--	--	0.7130	--	--	--
HD-Ensemble	0.9999±0.0020	--	0.9753±0.0140	--	0.8606±0.0870	--	0.7711±0.1330	--
EASE	0.9748±0.0214	0.9329±0.0499	0.9744±0.0219	0.9282±0.0522	0.6014±0.1301	0.2284±0.1620	0.4803±0.2792	0.1440±0.1935
HOEC	--	--	--	--	--	--	--	--
SPE	0.9639±0.0345	0.9380±0.0452	0.9627±0.0368	0.9333±0.0478	0.6418±0.1453	**0.2465±0.1069**	0.6018±0.2049	0.1715±0.1713
DSEN-LGIE	**1±0**	**1±0**	**1±0**	**1±0**	**0.8939±0.1162**	0.2222±0.1098	**0.8876±0.1253**	**0.3138±0.1290**
Dataset	Ecoli0147vs2356				climate			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	--	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--
EASE	0.8717±0.0764	0.7312±0.1276	0.8616±0.0875	0.7193±0.1344	0.7786±0.0501	0.4980±0.0575	0.7638±0.0607	0.4574±0.0672
HOEC	0.8471±0.0133	--	--	--	**0.8561±0.0165**	--	--	--
SPE	0.8476±0.0888	0.6331±0.1196	0.8343±0.1062	0.6122±0.1323	0.8086±0.0640	0.4564±0.0802	**0.8034±0.0762**	0.4323±0.0928
DSEN-LGIE	**0.9781±0.0315**	**0.8197±0.1055**	**0.9773±0.0337**	**0.7734±0.1082**	0.7993±0.0480	**0.7060±0.0456**	0.7474±0.0430	**0.7387±0.0409**
Dataset	Glass2				german			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.7660	--	--	--	--	--	--	--
HD-Ensemble	0.8665±0.074	--	0.7644±0.1410	--	0.8001±0.0990	--	0.6961±0.1600	--
EASE	0.6335±0.1239	**0.2513±0.1361**	0.5423±0.1375	0.1853±0.1677	**0.8567±0.1027**	**0.7484±0.1684**	0.8364±0.1350	**0.7376±0.1741**
HOEC	0.7796±0.0212	--	--	--	--	--	--	--
SPE	0.7252±0.1226	0.2407±0.0993	0.7119±0.1307	0.1821±0.1439	0.8530±0.0869	0.6628±0.1160	**0.8385±0.1044**	0.6503±0.1219
DSEN-LGIE	**0.8769±0.0445**	0.2472±0.0954	**0.8670±0.0505**	0.3247±0.0900	0.8448±0.0924	0.2308±0.0505	0.8305±0.1064	0.2923±0.1044
Dataset	Shuttle-c0-vs-c4				Yeast1vs7			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	1	--	--	--	0.7750	--	--	--
HD-Ensemble	1±0	--	1±0	--	**0.8441±0.0870**	--	0.7767±0.0770	--
EASE	0.9953±0.0121	0.9915±0.0137	0.9952±0.0124	0.9910±0.0144	0.7422±0.0844	**0.3693±0.1075**	0.7204±0.1114	0.3410±0.1237
HOEC	--	--	--	--	0.7707±0.0194	--	--	--
SPE	0.9950±0.0101	0.9891±0.0135	0.9950±0.0103	0.9884±0.0143	0.7246±0.0707	0.2667±0.0530	0.7178±0.0772	0.2496±0.0780
DSEN-LGIE	**1±0**	**1±0**	**1±0**	**1±0**	0.8372±0.0606	0.3000±0.0823	**0.8212±0.0646**	**0.3450±0.0812**
Dataset	Ecoli4				Page-blocks13vs4			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.9640	--	--	--	--	--	--	--
HD-Ensemble	**0.9883±0.0190**	--	0.9405±0.0480	--	--	--	--	--
EASE	0.8980±0.0876	0.7961±0.1238	0.8878±0.1006	0.7940±0.1275	0.9957±0.0140	0.9644±0.0446	0.9956±0.0148	0.9637±0.0453
HOEC	--	--	--	--	--	--	--	--
SPE	0.9088±0.0887	0.7676±0.1209	0.8990±0.1063	0.7703±0.1167	**0.9978±0.0034**	**0.9683±0.0470**	**0.9977±0.0034**	**0.9677±0.0476**
DSEN-LGIE	0.9854±0.0488	**0.8787±0.0894**	**0.9837±0.0572**	**0.8861±0.0851**	0.9850±0.0138	0.7711±0.0946	0.9849±0.0141	0.7888±0.0720
Dataset	Dermatology-6				svmguide3			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	--	--	--	--
HD-Ensemble	--	--	--	--	0.7943±0.1080	--	0.6737±0.1870	--
EASE	0.9987±0.0028	0.9800±0.0427	0.9987±0.0028	0.9798±0.0431	0.7122±0.1274	**0.2980±0.1468**	0.6537±0.2138	**0.2797±0.1710**
HOEC	--	--	--	--	--	--	--	--
SPE	0.9994±0.0020	0.9911±0.0301	0.9994±0.0020	0.9910±0.0305	0.6350±0.1060	0.1442±0.0591	0.6022±0.1065	0.1217±0.1004
DSEN-LGIE	**1±0**	**1±0**	**1±0**	**1±0**	**0.8070±0.0898**	0.1538±0.0327	**0.7836±0.0787**	0.1737±0.0521
Dataset	Yeast1458vs7				Yeast4			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	0.6380	--	--	--	**0.9140**	--	--	--
HD-Ensemble	0.6916±0.1090	--	0.6308±0.1070	--	--	--	--	--
EASE	0.6292±0.0926	**0.1733±0.0788**	0.5563±0.1832	0.1444±0.1038	0.7584±0.0681	0.3911±0.0771	0.7267±0.0910	0.3848±0.0861

HOEC	0.6608±0.0344	--	--	--	0.7929±0.0123	--	--	--
SPE	0.5898±0.0758	0.1071±0.0234	0.5755±0.0701	0.0738±0.0624	0.8180±0.0709	0.3025±0.0545	0.8096±0.0871	0.3382±0.0709
DSEN-LGIE	**0.7214±0.0929**	0.1508±0.0370	**0.6813±0.1089**	**0.1843±0.0742**	0.8771±0.0470	**0.4334±0.0642**	**0.8519±0.0489**	**0.4768±0.0685**
Dataset	Winequality-red-4				Yeast1289vs7			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	0.6050	--	--	--
HD-Ensemble	--	--	--	--	0.7814±0.0820	--	0.6873±0.1310	--
EASE	0.6214±0.0695	0.1580±0.0617	0.5365±0.1416	0.1381±0.0781	0.7070±0.0800	0.2396±0.0691	0.6680±0.1055	0.2411±0.0867
HOEC	0.6184±0.0214	--	--	--	--	--	--	--
SPE	0.6632±0.0691	0.1160±0.0222	0.6549±0.0780	0.1234±0.0506	0.6518±0.0830	0.1064±0.0266	0.6410±0.0879	0.1118±0.0603
DSEN-LGIE	**0.7133±0.0939**	**0.1753±0.0574**	**0.6922±0.0992**	**0.1925±0.0839**	**0.8123±0.0839**	**0.2930±0.0167**	**0.7124±0.0826**	**0.3432±0.0250**
Dataset	Abalone3vs11				Yeast5			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	0.9700	--	--	--
HD-Ensemble	--	--	--	--	**0.9912±0.0050**	--	0.9589±0.0090	--
EASE	0.9993±0.0018	0.9800±0.0496	0.9993±0.0018	0.9806±0.0480	0.8604±0.0759	**0.6827±0.1117**	0.8457±0.0931	**0.6805±0.1149**
HOEC	--	--	--	--	--	--	--	--
SPE	0.9997±0.0012	0.9914±0.0339	0.9997±0.0012	0.9917±0.0329	0.9364±0.0624	0.6038±0.0932	0.9331±0.0698	0.6281±0.0923
DSEN-LGIE	**1±0**	**1±0**	**1±0**	**1±0**	0.9755±0.0515	0.6343±0.0952	**0.9752±0.0595**	0.6692±0.0883
Dataset	Ozone-onehr				krvsk3vs11			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	--	--	--	--
HD-Ensemble	--	--	--	--	1±0	--	0.9987±0.0010	--
EASE	0.7222±0.0523	0.3202±0.0619	0.6803±0.0731	0.3144±0.0693	0.9659±0.0291	0.9375±0.0394	0.9648±0.0306	0.9377±0.0396
HOEC	0.7397±0.0188	--	--	--	--	--	--	--
SPE	0.8196±0.0476	0.2474±0.0309	0.8162±0.0519	0.2987±0.0425	0.9801±0.0300	0.9707±0.0369	0.9794±0.0315	0.9709±0.0363
DSEN-LGIE	**0.8495±0.0195**	**0.5820±0.0442**	**0.7724±0.0323**	**0.4499±0.0456**	**1±0**	**1±0**	**1±0**	**1±0**
Dataset	Abalone21vs8				Yeast6			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	0.8840	--	--	--
HD-Ensemble	--	--	--	--	0.9419±0.0380	--	0.8659±0.0610	--
EASE	0.8041±0.0150	**0.5706±0.0263**	0.7310±0.0279	**0.5749±0.0270**	0.9165±0.0797	**0.4211±0.0921**	0.9146±0.0829	**0.4190±0.0953**
HOEC	--	--	--	--	--	--	--	--
SPE	0.8842±0.0275	0.4672±0.0515	0.8525±0.0212	0.5088±0.0497	**0.9621±0.0568**	0.3889±0.0867	**0.9613±0.0607**	0.4723±0.0997
DSEN-LGIE	**0.9195±0.0157**	0.5185±0.0322	**0.9117±0.0168**	0.5687±0.0291	0.9601±0.0203	0.3030±0.0405	0.9592±0.0347	0.4054±0.0330
Dataset	Winequality-white3vs7				Winequality-red8vs67			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	--	--	--	--
HD-Ensemble	--	--	--	--	--	--	--	--
EASE	0.8608±0.0212	**0.5000±0.2027**	0.8536±0.0300	**0.5161±0.2104**	0.6196±0.0111	0.0956±0.0526	0.4952±0.0258	0.0977±0.0848
HOEC	--	--	--	--	0.6809±0.0380	--	--	--
SPE	0.8182±0.1294	0.2222±0.0592	0.8153±0.2043	0.2810±0.0984	0.5827±0.0109	0.0533±0.0187	0.5657±0.0102	0.0474±0.0623
DSEN-LGIE	**0.9263±0.0679**	0.3539±0.2274	**0.9199±0.0805**	0.4685±0.2033	**0.7650±0.0875**	**0.1018±0.0275**	**0.7524±0.0872**	**0.1619±0.0553**
Dataset	krvsk0vs8				Shuttle-2vs5			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	--	--	--	--
HD-Ensemble	**1±0**	--	**0.9957±0.0020**	--	1±0	--	0.9986±0.0010	--
EASE	0.9097±0.0109	**0.4444±0.0180**	0.9065±0.0139	**0.4640±0.0181**	1±0	1±0	1±0	1±0
HOEC	--	--	--	--	--	--	--	--
SPE	0.9397±0.0699	0.5339±0.0904	0.9357±0.0800	0.5771±0.0877	1±0	1±0	1±0	1±0
DSEN-LGIE	0.9817±0.0202	0.5830±0.0389	0.9814±0.0206	0.6455±0.0331	**1±0**	**1±0**	**1±0**	**1±0**
Dataset	kddbufferoverflowvsback				krvsk0vs15			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	--	--	--	--
HD-Ensemble	1±0	--	1±0	--	1±0	--	1±0	--
EASE	1±0	0.9969±0.0151	1±0	0.9970±0.0147	0.9842±0.0375	0.9707±0.0533	0.9832±0.0401	0.9714±0.0525
HOEC	--	--	--	--	--	--	--	--
SPE	1±0	0.9985±0.0108	1±0	0.9985±0.0105	0.9998±0.0004	0.9863±0.0315	0.9998±0.0004	0.9867±0.0307
DSEN-LGIE	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
Dataset	kddrootkitback				cod			
Measure	AUC	F-M	G-M	Mcc	AUC	F-M	G-M	Mcc
CBIS	--	--	--	--	--	--	--	--
HD-Ensemble	**1±0**	--	**1±0**	--	0.9623±0.0560	--	0.8306±0.1670	--
EASE	0.9775±0.0425	0.8571±0.0474	0.9762±0.0450	0.8650±0.0454	0.9029±0.0736	**0.6347±0.0991**	0.8938±0.0832	**0.6422±0.0950**
HOEC	--	--	--	--	--	--	--	--
SPE	0.9540±0.0749	**0.9464±0.1021**	0.9502±0.0859	**0.9498±0.0948**	0.9274±0.0783	0.7515±0.1131	0.9202±0.0892	0.7669±0.1062
DSEN-LGIE	0.9876±0.0504	0.8719±0.0295	0.9858±0.0593	0.8453±0.0264	**0.9862±0.0019**	0.5467±0.0164	**0.9861±0.0019**	0.6148±0.0197

Table VIII
RESULT OF WILCOXON PAIRWISE TEST

Comparison	Measure	R+	R-	P-value	Hypothesis (0.05)
DSEN-LGIE vs CBIS	AUC	189	64	4.24E-02	**Rejected**
	F-M	--	--	--	--
	G-M	--	--	--	--
	Mcc	--	--	--	--
DSEN-LGIE vs HD-Ensemble	AUC	109	29	4.37E-02	**Rejected**
	F-M	--	--	--	--
	G-M	164	7	6.29E-04	**Rejected**
	Mcc	--	--	--	--
DSEN-LGIE vs EASE	AUC	846	15	7.27E-08	**Rejected**
	F-M	613.5	289.5-	4.28E-02	**Rejected**
	G-M	833	28	1.83E-07	**Rejected**
	Mcc	750	153	1.90E-04	**Rejected**
DSEN-LGIE vs HOEC	AUC	114	6	8.54E-04	**Rejected**
	F-M	--	--	--	--
	G-M	--	--	--	--
	Mcc	--	--	--	--
DSEN-LGIE vs SPE	AUC	817.5	43.5	5.31E-07	**Rejected**
	F-M	741	162	2.95E-04	**Rejected**
	G-M	776	185	7.56E-06	**Rejected**
	Mcc	777	126	4.70E-05	**Rejected**

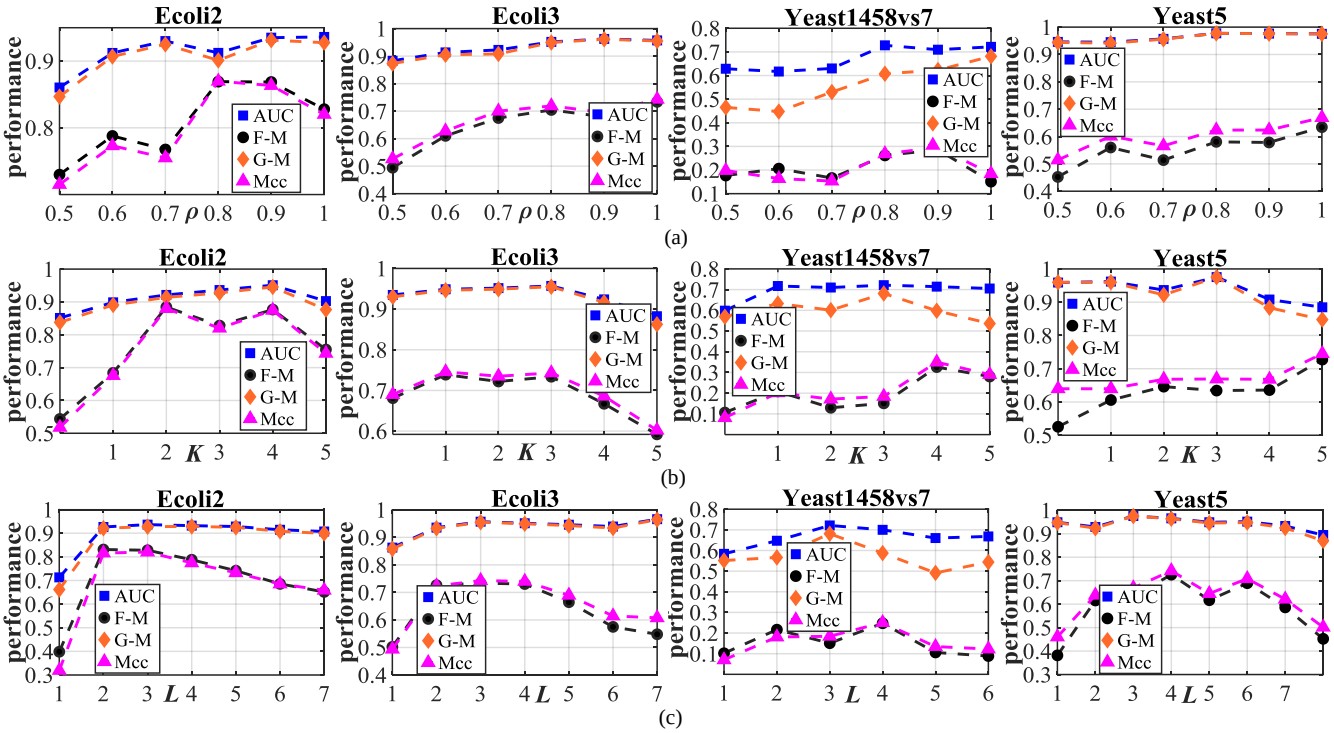

Fig.6. Performance with different parameters on the DSEN-LGIE: (a) is for different ρ , (b) is for different K ,(c) is for different L