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**
Abalone3vs11	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**
Wineq uality-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**
kddbuf ferover flowvs back	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**
Kdd root 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-red 8vs67	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**
krvsk 0vs15	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

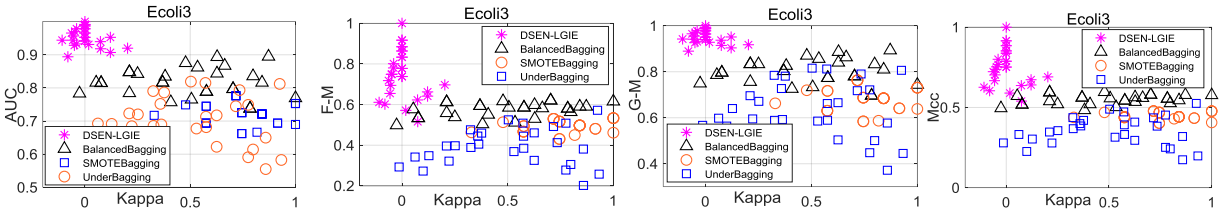

Fig.5. Diversity and performance analysis of base classifiers performance for Ecoli3

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

Dataset	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**
	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**
New-thyroid1	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**

	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**
Ecoli2	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**
	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**
Glass6	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**
	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**
Yeast3	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**
	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**
Ecoli3	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**
	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**
Page-bloc	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**
ks0	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**
	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**
Yeast	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**
2vs4	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**
	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**
Yeast	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
05679vs4	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**
	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**
Vowel0	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**
	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**
Glass	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
016vs2	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**
	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**
Ecoli0147	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**
vs2356	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**
	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
climate	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
	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**
Glass2	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**
	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
german	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**
	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**
Shuttle-c0	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**
-vs-c4	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**
	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**
Yeast	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
1vs7	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**
	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**
Ecoli4	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**
	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
Page-bloc	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
ks13vs4	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
	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**
Dermatol	F-M	0.9978±0.0156	**1±0**	**1±0**	**1±0**	0.9698±0.0571	**1±0**	0.9889±0.0333	**1±0**
ogy-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**
svmguide	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
3	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**
1458vs7	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**

	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**
Yeast4	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**
	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**
	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**
Winequali	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**
ty-red-4	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**
	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**
	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**
Yeast	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**
1289vs7	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±0.00612	**0.3432±0.0250**
	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**
Abalone	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**
	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
Yeast5	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**
Ozone-on	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**
ehr	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
	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**
Krvsk	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**
3vs11	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**
	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**
Abalone	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
21vs8	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**
	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
Yeast6	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
	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
	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**
Winequali	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**
ty-white 3vs7	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**
	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**
	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**
Winequali	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**
ty-red 8vs67	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**
	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**
Shuttle-2v	F-M	0.9824±0.0538	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
s5	G-M	0.9997±0.0009	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
	Mcc	0.9835±0.0501	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**	**1±0**
	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**
kddbuffe	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**
roverflo wvsback	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**
	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**
	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**
	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**
kddrootki	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**

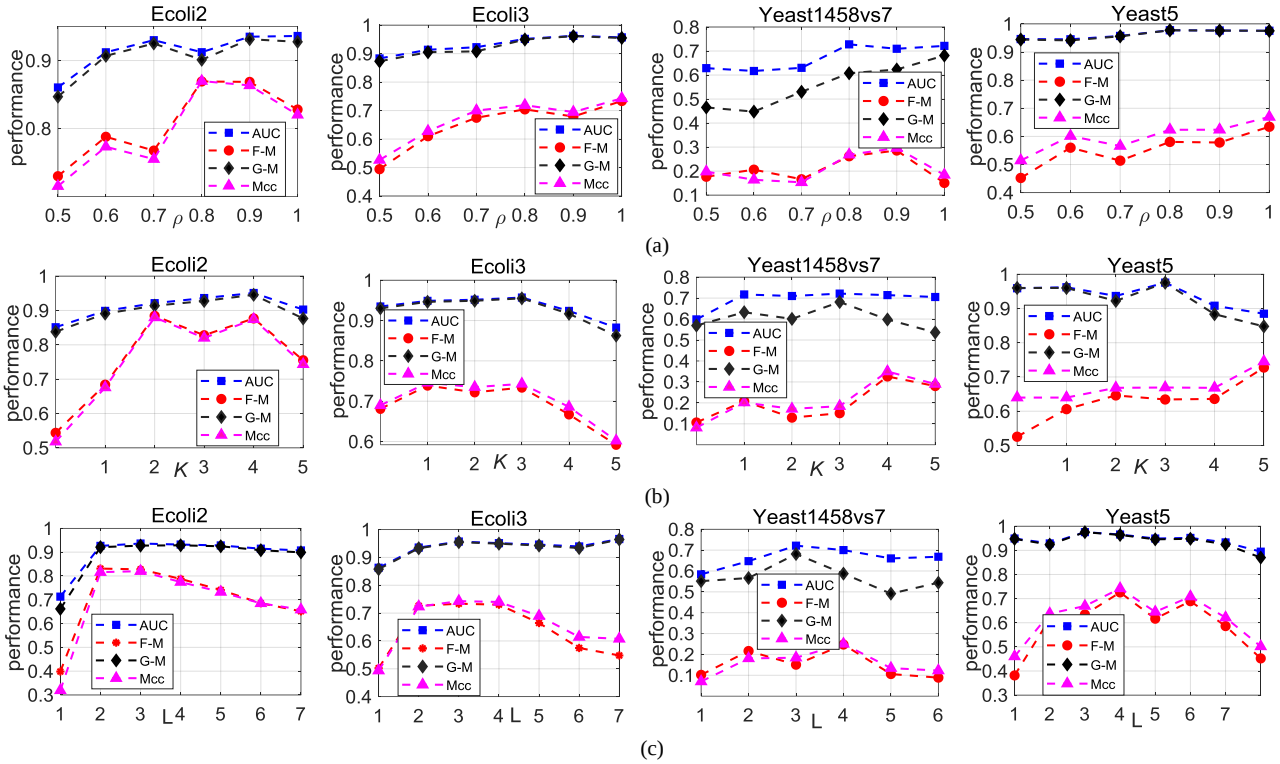

Fig.6.Performance with different parameters on the DSEN-LGIE: (a) is for different ρ , (b) is for different K ,(c) is for different L