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Reassess The Model

Number of metrics: 11 | Number of models: 20

Models Performance Matrix

	PR-AUC	Best F-1	VUS	MutualInformation	CDI	MAE	MSE	SMAPE	MAPE	LIKELIHOOD	CENTRALITY_4	SYNTHETIC_F1_spikes	SYNTHETIC_PR-AUC_spikes	SYNTHETIC_VUS_spikes
CBLOF_1	0.032901	0.256370	0.507529	0.160838	604.825737	0.173422	0.054823	0.560979	0.435517	0.293359	5715085.00	0.678999	0.695553	0.985349
CBLOF_2	0.031666	0.251101	0.500677	0.160838	546.958876	0.174153	0.054557	0.563396	0.438102	0.292627	4209520.50	0.681983	0.699726	0.985382
CBLOF_3	0.030545	0.246258	0.503017	0.160838	551.511310	0.174109	0.054540	0.563170	0.437870	0.292593	4189724.50	0.682188	0.699627	0.985384
CBLOF_4	0.028402	0.236229	0.517374	0.160838	749.534992	0.177204	0.056083	0.572169	0.437297	0.290511	8705879.25	0.689521	0.724535	0.986043
DGHL_1	0.033401	0.258436	0.549516	0.160603	248.473976	0.091366	0.015396	0.277586	0.295635	0.288931	9939708.00	0.817708	0.857665	0.992671
DGHL_2	0.000000	0.258853	0.571423	0.160603	167.518185	0.048781	0.004224	0.170173	0.192122	0.294759	10855197.00	0.865987	0.919028	0.994517
DGHL_3	0.000000	0.258853	0.557107	0.160838	179.833454	0.048095	0.004081	0.166891	0.179594	0.292343	10609229.75	0.851644	0.887268	0.993928
DGHL_4	0.033241	0.257780	0.572360	0.160838	148.365357	0.033586	0.001996	0.123299	0.216679	0.294031	11529765.00	0.864582	0.919852	0.994584
LOF_1	0.000000	0.258853	0.538604	0.160514	101.013631	0.021776	0.003311	0.046722	0.049868	0.362126	0.00	0.703579	0.865485	0.990948
LOF_2	0.000000	0.258853	0.538604	0.160514	101.013631	0.021776	0.003311	0.046722	0.049868	0.362126	0.00	0.703579	0.865485	0.990948
LOF_3	0.000000	0.258853	0.538604	0.160514	101.013631	0.021776	0.003311	0.046722	0.049868	0.362126	0.00	0.703579	0.865485	0.990948
LOF_4	0.000000	0.258853	0.538604	0.160514	101.013631	0.021776	0.003311	0.046722	0.049868	0.362126	0.00	0.703579	0.865485	0.990948
LSTMVAE_1	0.000000	0.258853	0.668864	0.160838	670.891850	0.209171	0.062226	0.549087	0.853549	0.279017	1189975.25	0.796303	0.902530	0.991007
LSTMVAE_2	0.000000	0.258853	0.659393	0.160603	592.452456	0.205910	0.062761	0.543085	0.793567	0.286425	1413050.00	0.798994	0.899332	0.991154
LSTMVAE_3	0.000000	0.258853	0.667020	0.160838	546.321309	0.208763	0.062748	0.549659	0.840306	0.278856	1085133.50	0.795260	0.901840	0.991055
LSTMVAE_4	0.000000	0.258853	0.669130	0.160603	677.176688	0.209059	0.063014	0.551468	0.839426	0.277374	1057214.50	0.792802	0.900769	0.991032
MD_1	0.000000	0.258853	0.465871	0.160838	904.311256	0.303423	0.152461	1.029397	0.665610	0.223855	6858298.25	0.736531	0.825047	0.988968
RM_1	0.000000	0.258853	0.537220	0.160838	313.188735	0.033413	0.002036	0.103319	0.110031	0.296060	10338463.75	0.822754	0.912434	0.993366
RM_2	0.000000	0.258853	0.484152	0.160838	637.165468	0.124061	0.027908	0.305418	0.327186	0.293503	8343566.00	0.822312	0.919057	0.992589
RM_3	0.000000	0.258853	0.517608	0.160838	601.045127	0.236849	0.079804	0.608318	0.913630	0.272819	4895826.75	0.773646	0.879735	0.989674

Models Rank Matrix (f1)

	rank
CBLOF_1	0.258853
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.258853
DGHL_1	0.258853
DGHL_2	0.258853
DGHL_3	0.258853
DGHL_4	0.258853
LOF_1	0.258853
LOF_2	0.258853
LOF_3	0.258853
LOF_4	0.258853
LSTMVAE_1	0.258853
LSTMVAE_2	0.258853
LSTMVAE_3	0.258436
LSTMVAE_4	0.257780
MD_1	0.256370
RM_1	0.251101
RM_2	0.246258
RM_3	0.236229

average rank values

	rank
CBLOF_1	3
CBLOF_2	16
CBLOF_3	9
CBLOF_4	17
DGHL_1	20

DGHL_2	13
DGHL_3	12
DGHL_4	8
LOF_1	2
LOF_2	19
LOF_3	5
LOF_4	1
LSTMVAE_1	4
LSTMVAE_2	7
LSTMVAE_3	10
LSTMVAE_4	18
MD_1	11
RM_1	6
RM_2	14
RM_3	15

markov\_aggregated\_rank

	rank
CBLOF_1	0.258853
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.257780
DGHL_1	0.258853
DGHL_2	0.258436
DGHL_3	0.236229
DGHL_4	0.258853
LOF_1	0.258853
LOF_2	0.258853
LOF_3	0.258853
LOF_4	0.258853
LSTMVAE_1	0.258853
LSTMVAE_2	0.258853
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.258853
RM_1	0.246258
RM_2	0.251101
RM_3	0.256370

copeland\_rank

	rank
CBLOF_1	0.258853
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.256370
DGHL_1	0.258853
DGHL_2	0.258853
DGHL_3	0.258853
DGHL_4	0.258853
LOF_1	0.246258
LOF_2	0.257780
LOF_3	0.258853
LOF_4	0.258853
LSTMVAE_1	0.258853
LSTMVAE_2	0.258853
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.236229
RM_1	0.251101

RM_2	0.258436
RM_3	0.258853

spearman's\_footrule

	rank
CBLOF_1	0.258853
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.258853
DGHL_1	0.258853
DGHL_2	0.257780
DGHL_3	0.258853
DGHL_4	0.258853
LOF_1	0.258436
LOF_2	0.258853
LOF_3	0.256370
LOF_4	0.246258
LSTMVAE_1	0.258853
LSTMVAE_2	0.258853
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.236229
RM_1	0.251101
RM_2	0.258853
RM_3	0.258853

Models Borda Rank from F1 Matrix

	rank
CBLOF_1	0.236229
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.258853
DGHL_1	0.258853
DGHL_2	0.257780
DGHL_3	0.258853
DGHL_4	0.258853
LOF_1	0.258436
LOF_2	0.258853
LOF_3	0.256370
LOF_4	0.251101
LSTMVAE_1	0.246258
LSTMVAE_2	0.258853
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.258853
RM_1	0.258853
RM_2	0.258853
RM_3	0.258853

Models Trimmed Borda Rank Matrix

	rank
CBLOF_1	0.256370
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.258853
DGHL_1	0.258853
DGHL_2	0.258853
DGHL_3	0.258853
DGHL_4	0.258853

LOF_1	0.258853
LOF_2	0.258853
LOF_3	0.236229
LOF_4	0.258436
LSTMVAE_1	0.257780
LSTMVAE_2	0.258853
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.251101
RM_1	0.246258
RM_2	0.258853
RM_3	0.258853

Models Partial Borda Rank Matrix

	<b>rank</b>
CBLOF_1	0.258853
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.258853
DGHL_1	0.258853
DGHL_2	0.258853
DGHL_3	0.258853
DGHL_4	0.258853
LOF_1	0.236229
LOF_2	0.258853
LOF_3	0.256370
LOF_4	0.246258
LSTMVAE_1	0.251101
LSTMVAE_2	0.258853
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.258853
RM_1	0.258853
RM_2	0.257780
RM_3	0.258436

Models Trimmed Partial Borda Rank Matrix

	<b>rank</b>
CBLOF_1	0.258853
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.258853
DGHL_1	0.258853
DGHL_2	0.258853
DGHL_3	0.258853
DGHL_4	0.258853
LOF_1	0.258436
LOF_2	0.258853
LOF_3	0.256370
LOF_4	0.236229
LSTMVAE_1	0.251101
LSTMVAE_2	0.246258
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.258853
RM_1	0.258853
RM_2	0.258853
RM_3	0.258853

Models Borda Trimmed Rank Matrix

	rank
CBLOF_1	0.258853
CBLOF_2	0.258853
CBLOF_3	0.258853
CBLOF_4	0.258853
DGHL_1	0.258853
DGHL_2	0.257780
DGHL_3	0.258853
DGHL_4	0.258853
LOF_1	0.258436
LOF_2	0.258853
LOF_3	0.256370
LOF_4	0.246258
LSTMVAE_1	0.251101
LSTMVAE_2	0.236229
LSTMVAE_3	0.258853
LSTMVAE_4	0.258853
MD_1	0.258853
RM_1	0.258853
RM_2	0.258853
RM_3	0.258853

EMPIRICAL INFLUENCE AND ROBUST RANK AGGREGATION

	cluster
0	0
1	0
2	1
3	1
4	0
5	1
6	1
7	0
8	0

Most reliable cluster idx: 1,Largest 0

Statistics

Rank by PR-AUC : [DGHL\_1', 'DGHL\_4', 'CBLOF\_1', 'CBLOF\_2', 'CBLOF\_3', 'CBLOF\_4', 'RM\_1', 'MD\_1', 'LSTMVAE\_4', 'LSTMVAE\_3', 'LSTMVAE\_2', 'LSTMVAE\_1', 'LOF\_2', 'LOF\_3', 'RM\_2', 'LOF\_1', 'DGHL\_3', 'DGHL\_2', 'LOF\_4', 'RM\_3']

Rank by F1 : ['LOF\_2', 'RM\_1', 'MD\_1', 'LSTMVAE\_4', 'LSTMVAE\_3', 'LSTMVAE\_2', 'LSTMVAE\_1', 'LOF\_4', 'LOF\_3', 'RM\_3', 'LOF\_1', 'DGHL\_3', 'DGHL\_2', 'RM\_2', 'DGHL\_1', 'DGHL\_4', 'CBLOF\_1', 'CBLOF\_2', 'CBLOF\_3', 'CBLOF\_4']

Kemeny Predicted rank : ['CBLOF\_2', 'LSTMVAE\_2', 'LSTMVAE\_1', 'LSTMVAE\_4', 'RM\_3', 'LOF\_4', 'LSTMVAE\_3', 'CBLOF\_3', 'DGHL\_4', 'DGHL\_2', 'RM\_2', 'CBLOF\_4', 'MD\_1', 'RM\_1', 'CBLOF\_1', 'LOF\_3', 'DGHL\_1', 'DGHL\_3', 'LOF\_2', 'LOF\_1']

Max PR-AUC: 0.03340082310024386 is achieved by DGHL\_1

Max F-1: 0.2588526641363315 is achieved by DGHL\_2

Our chosen model is : CBLOF\_2 which has PR-AUC (using Kemeny)= 0.03166567901500084 and best F-1= 0.25110073925192683

(Normalized Discounted Cumulative Gain) NDCG of predicted ranks with PR-AUC= 0.7520768240632504 and best F-1= 0.99685301048591