data/OCEC.csv

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1 Tables of Friedman, Aligned Friedman, Bonferroni-Dunn, Holm, Hochberg and Hommel Tests

Table 1: Average Rankings of the algorithms (Friedman)

Algorithm	Ranking
CADD$_G M_t st$	6.309523809523812
CAIM$_G M_t st$	2.4999999999999996
Chi2Merge$_G M_t st$	3.0952380952380953
ChiMerge$_G M_t st$	2.7857142857142847
Fayyad$_G M_t st$	3.285714285714287
ID3$_G M_t st$	5.61904761904762
USD$_G M_t st$	4.404761904761905

Friedman statistic (distributed according to chi-square with 6 degrees of freedom: 118.55102040816368. P-value computed by Friedman Test: 9.513545506933951E-11.

Iman and Davenport statistic (distributed according to F-distribution with 6 and 246 degrees of freedom: 36.42284753020364. P-value computed by Iman and Daveport Test: 1.921787552928526E-31.

Table 2: Average Rankings of the algorithms (Aligned Friedman)

Algorithm	Ranking
CADD$_G M_t st$	251.00000000000003
CAIM$_G M_t st$	84.92857142857142
Chi2Merge$_G M_t st$	101.83333333333336
ChiMerge$_G M_t st$	91.66666666666669
Fayyad$_G M_t st$	112.04761904761907
ID3$_G M_t st$	217.80952380952382
USD$_G M_t st$	173.21428571428572

Aligned Friedman statistic (distributed according to chi-square with 6 degrees of freedom: 36.185771550825386. P-value computed by Aligned Friedman Test: 2.53668255745243E-6.

Table 3: Average Rankings of the algorithms (Quade)

Algorithm	Ranking
CADD$_G M_t st$	6.473975636766334
CAIM$_G M_t st$	2.0952380952380945
Chi2Merge$_G M_t st$	3.0797342192691035
ChiMerge$_G M_t st$	2.4562569213731997
Fayyad$_G M_t st$	3.2314507198228126
ID3$_G M_t st$	5.964562569213733
USD$_G M_t st$	4.698781838316721

Quade statistic (distributed according to F-distribution with 6 and 246 degrees of freedom: 38.69994057423201. P-value computed by Quade Test: 5.785050932658531E-33.

Table 4: Contrast Estimation

	CADD$_{GMtst}$	CAIM$_{GMtst}$	Chi2Merge$_{GMtst}$	ChiMerge$_{GMtst}$	Fayyad$_{GMtst}$	ID3$_{GMtst}$	USD$_{GMtst}$
CADD$_{GMtst}$	0,00000000	-0,18028143	-0,16616357	-0,17588143	-0,16613714	-0,08280000	-0,13101643
CAIM$_{GMtst}$	0,18028143	0,00000000	0,01411786	0,00440000	0,01414429	0,09748143	0,04926500
Chi2Merge$_{GMtst}$	0,16616357	-0,01411786	0,00000000	-0,00971786	0,00002643	0,08336357	0,03514714
ChiMerge$_{GMtst}$	0,17588143	-0,00440000	0,00971786	0,00000000	0,00974429	0,09308143	0,04486500
Fayyad$_{GMtst}$	0,16613714	-0,01414429	-0,00002643	-0,00974429	0,00000000	0,08333714	0,03512071
ID3$_{GMtst}$	0,08280000	-0,09748143	-0,08336357	-0,09308143	-0,08333714	0,00000000	-0,04821643
USD$_{GMtst}$	0,13101643	-0,04926500	-0,03514714	-0,04486500	-0,03512071	0,04821643	0,00000000

Table 5: Holm / Hochberg / Holland / Rom / Finner / Li Table for $\alpha = 0.05$ (FRIEDMAN)

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel	Holland	Rom	Finner	Li
6	CADD$_G M_t st$	8.081220356417692	6.412182336046495E-16	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.023976106459226
5	ID3$_G M_t st$	6.616499166816984	3.678049471238862E-11	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.023976106459226
4	USD$_G M_t st$	4.040610178208845	5.331231138832094E-5	0.0125	0.012741455098566168	0.013109375000000001	0.025320565519103666	0.023976106459226
3	Fayyad$_G M_t st$	1.6667516985111512	0.09556378829517019	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.023976106459226
2	Chi2Merge$_G M_t st$	1.2626906806902647	0.20670036450499085	0.025	0.025320565519103666	0.025	0.04184374797610979	0.023976106459226
1	ChiMerge$_G M_t st$	0.6060915267313253	0.5444539772747036	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holm's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.0125.
Hommel's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.016952427508441503$.
Rom's procedure rejects those hypotheses that have a p-value $\leq 0.013109375000000001$.
Finner's procedure rejects those hypotheses that have a p-value ≤ 0.03361747021845407.
Li's procedure rejects those hypotheses that have a p-value ≤ 0.02397610645922613.

Table 6: Holm / Hochberg / Holland / Rom / Finner / Li Table for $\alpha = 0.05$ (ALIGNED FRIEDMAN)

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel	Holland	Rom	Finner	Li
6	CADD$_G M_t st$	8.951803052016794	3.497224970875496E-19	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.014923622328066
5	ID3$_G M_t st$	7.1627258542373795	7.908841372266749E-13	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.014923622328066
4	USD$_G M_t st$	4.758894009588283	1.946566115125924E-6	0.0125	0.012741455098566168	0.013109375000000001	0.025320565519103666	0.014923622328066
3	Fayyad$_G M_t st$	1.4618069786734247	0.1437941111994868	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.014923622328066
2	Chi2Merge$_G M_t st$	0.9112229630009944	0.3621779072601236	0.025	0.025320565519103666	0.025	0.04184374797610979	0.014923622328066
1	ChiMerge$_G M_t st$	0.3632057725764536	0.7164511757667437	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holm's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.0125.
Hommel's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.016952427508441503$.
Rom's procedure rejects those hypotheses that have a p-value $\leq 0.013109375000000001$.
Finner's procedure rejects those hypotheses that have a p-value ≤ 0.03361747021845407.
Li's procedure rejects those hypotheses that have a p-value $\leq 0.014923622328066126$.

Table 7: Holm / Hochberg / Holland / Rom / Finner / Li Table for $\alpha = 0.05$ (QUADE)

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel	Holland	Rom	Finner	Li
6	CADD$_G M_t st$	4.671592350733519	2.9887366766200683E-6	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.008512444610847103	0.015783379387061
5	ID3$_G M_t st$	4.128109173865179	3.657584593842269E-5	0.01	0.010206218313011495	0.010515350115740741	0.016952427508441503	0.015783379387061
4	USD$_G M_t st$	2.7776716278640623	0.005474991726417978	0.0125	0.012741455098566168	0.013109375000000001	0.025320565519103666	0.015783379387061
3	Fayyad$_G M_t st$	1.212203781449821	0.22543438434548835	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.03361747021845407	0.015783379387061
2	Chi2Merge$_G M_t st$	1.0503403135564247	0.29356167668835614	0.025	0.025320565519103666	0.025	0.04184374797610979	0.015783379387061
1	ChiMerge$_G M_t st$	0.3851641644762588	0.7001157916458315	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.008333333333333333$.
Holm's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.0125.
Hommel's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Holland's procedure rejects those hypotheses that have a p-value $\leq 0.016952427508441503$.
Rom's procedure rejects those hypotheses that have a p-value $\leq 0.013109375000000001$.
Finner's procedure rejects those hypotheses that have a p-value ≤ 0.03361747021845407.
Li's procedure rejects those hypotheses that have a p-value $\leq 0.015783379387061505$.

Table 8: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	6.412182336046495E-16	3.847309401627897E-15	3.847309401627897E-15	3.847309401627897E-15	3.847309401627897E-15
2	ID3$_G M_t st$	3.678049471238862E-11	2.2068296827433172E-10	1.8390247356194309E-10	1.8390247356194309E-10	1.8390247356194309E-10
3	USD$_G M_t st$	5.331231138832094E-5	3.1987386832992563E-4	2.1324924555328375E-4	2.1324924555328375E-4	2.1324924555328375E-4
4	Fayyad$_G M_t st$	0.09556378829517019	0.5733827297710211	0.28669136488551056	0.28669136488551056	0.28669136488551056
5	Chi2Merge$_G M_t st$	0.20670036450499085	1.2402021870299451	0.4134007290099817	0.4134007290099817	0.4134007290099817
6	ChiMerge$_G M_t st$	0.5444539772747036	3.266723863648221	0.5444539772747036	0.5444539772747036	0.5444539772747036

Table 9: Adjusted p-values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	6.412182336046495E-16	3.9968028886505635E-15	3.6581831209936145E-15	3.9968028886505635E-15	1.407581674774749E-15
2	ID3$_G M_t st$	3.678049471238862E-11	1.8390233780252174E-10	1.7488953913826797E-10	1.1034140268151305E-10	8.07393608430171E-11
3	USD$_G M_t st$	5.331231138832094E-5	2.1323219294389073E-4	2.0333658693996064E-4	1.0662178057396776E-4	1.1701577963020564E-4
4	Fayyad$_G M_t st$	0.09556378829517019	0.26016678232214807	0.28669136488551056	0.13986441901415803	0.1734024442755225
5	Chi2Merge$_G M_t st$	0.20670036450499085	0.37067568832348563	0.4134007290099817	0.24260103784175202	0.31212003340550293
6	ChiMerge$_G M_t st$	0.5444539772747036	0.5444539772747036	0.5444539772747036	0.5444539772747036	0.5444539772747036

Table 10: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	3.497224970875496E-19	2.098334982525297 8E-18	2.098334982525297 8E-18	2.098334982525297 8E-18	2.098334982525297 8E-18
2	ID3$_G M_t st$	7.908841372266749E-13	4.745304823360049E-12	3.954420686133374 5E-12	3.954420686133374 5E-12	3.954420686133374 5E-12
3	USD$_G M_t st$	1.946566115125924E-6	1.167939669075554 2E-5	7.786264460503695E-6	7.786264460503695E-6	7.786264460503695E-6
4	Fayyad$_G M_t st$	0.1437941111994868	0.8627646671969207	0.43138233359846034	0.43138233359846034	0.43138233359846034
5	Chi2Merge$_G M_t st$	0.3621779072601236	2.1730674435607416	0.7243558145202472	0.7164511757667437	0.7164511757667437
6	ChiMerge$_G M_t st$	0.7164511757667437	4.298707054600462	0.7243558145202472	0.7164511757667437	0.7164511757667437

Table 11: Adjusted p-values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	3.497224970875496E-19	0.0	1.995184897792862 3E-18	0.0	1.233376643451911E-18
2	ID3$_G M_t st$	7.908841372266749E-13	3.954614413714808E-12	3.760617233480304E-12	2.372768648228884 6E-12	2.789234409146631 5E-12
3	USD$_G M_t st$	1.946566115125924E-6	7.786241725593612E-6	7.424328448632844E-6	3.893128441068 15E-6	6.864964992471247E-6
4	Fayyad$_G M_t st$	0.1437941111994868	0.37232528872484494	0.43138233359846034	0.20774075500808764	0.33648411913929416
5	Chi2Merge$_G M_t st$	0.3621779072601236	0.5931829780129245	0.7164511757667437	0.41703904255396074	0.5608841783930958
6	ChiMerge$_G M_t st$	0.7164511757667437	0.7164511757667437	0.7164511757667437	0.7164511757667437	0.7164511757667438

Table 12: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	CADD$_G M_t st$	2.9887366766200683E-6	1.793242005972041E-5	1.793242005972041E-5	1.793242005972041E-5	1.793242005972041E-5
2	ID3$_G M_t st$	3.657584593842269E-5	2.1945507563053614E-4	1.8287922969211347E-4	1.8287922969211347E-4	1.8287922969211347E-4
3	USD$_G M_t st$	0.005474991726417978	0.032849950358507865	0.021899966905671912	0.021899966905671912	0.021899966905671912
4	Fayyad$_G M_t st$	0.22543438434548835	1.35260630607293	0.676303153036465	0.5871233533767123	0.4508687686909767
5	Chi2Merge$_G M_t st$	0.29356167668835614	1.7613700601301367	0.676303153036465	0.5871233533767123	0.5871233533767123
6	ChiMerge$_G M_t st$	0.7001157916458315	4.200694749874989	0.7001157916458315	0.7001157916458315	0.7001157916458315

Table 13: Adjusted p-values (QUADE)

i	algorithm	unadjusted p	p_{Holl}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD$_G M_t st$	2.9887366766200683E-6	1.793228607183117E-5	1.7050897012150726E-5	1.793228607183117E-5	9.96620297769727E-6
2	ID3$_G M_t st$	3.657584593842269E-5	1.828658522563531E-4	1.7391644375050916E-4	1.0972352448668232E-4	1.2195168812982069E-4
3	USD$_G M_t st$	0.005474991726417978	0.021720769263924522	0.020881970827815885	0.010920007918431618	0.017929676672499426
4	Fayyad$_G M_t st$	0.22543438434548835	0.5352978926707996	0.5871233533767123	0.31830937564816075	0.4291384075841709
5	Chi2Merge$_G M_t st$	0.29356167668835614	0.5352978926707996	0.5871233533767123	0.34099440574416906	0.49467303436996674
6	ChiMerge$_G M_t st$	0.7001157916458315	0.7001157916458315	0.7001157916458315	0.7001157916458315	0.7001157916458316