

data/C45Rules.csv

May 11, 2011

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

1

Table 1: Average Rankings of the algorithms (Friedman)

Algorithm	Ranking
<i>continuous_GM_{tst}</i>	2.8571428571428568
<i>CADD_GM_{tst}</i>	6.523809523809527
<i>CAIM_GM_{tst}</i>	2.4761904761904763
<i>Chi2Merge_GM_{tst}</i>	4.309523809523808
<i>ChiMerge_GM_{tst}</i>	2.523809523809523
<i>Fayyad_GM_{tst}</i>	4.333333333333332
<i>ID3_GM_{tst}</i>	6.571428571428575
<i>USD_GM_{tst}</i>	6.404761904761908

Friedman statistic (distributed according to chi-square with 7 degrees of freedom: 159.4523809523817. P-value computed by Friedman

Test: 8.600764545008133E-11.

Iman and Davenport statistic (distributed according to F-distribution with 7 and 287 degrees of freedom: 48.5890992744652. P-value computed by Iman and Davenport Test: -2.220446049250313E-16.

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

Algorithm	Ranking
$\text{continuous}_G M_{tst}$	98.28571428571432
$CADD_G M_{tst}$	250.97619047619048
$CAIM_G M_{tst}$	89.95238095238096
$\text{Chi2Merge}_G M_{tst}$	152.1190476190476
$\text{ChiMerge}_G M_{tst}$	87.02380952380949
$\text{Fayyad}_G M_{tst}$	150.52380952380952
$ID3_G M_{tst}$	262.52380952380946
$USD_G M_{tst}$	256.5952380952381

Aligned Friedman statistic (distributed according to chi-square with 7 degrees of freedom: 37.182658531460575. P-value computed by Aligned Friedman Test: 4.3313821446178125E-6.

Table 3: Average Rankings of the algorithms (Quade)

Algorithm	Ranking
$\text{continuous}_G M_{tst}$	2.5847176079734218
$CADD_G M_{tst}$	6.344407530454045
$CAIM_G M_{tst}$	2.423034330011074
$\text{Chi2Merge}_G M_{tst}$	4.5382059800664445
$\text{ChiMerge}_G M_{tst}$	2.5968992248062026
$\text{Fayyad}_G M_{tst}$	4.118493909191583
$ID3_G M_{tst}$	6.951273532668882
$USD_G M_{tst}$	6.4429678848283505

Quade statistic (distributed according to F-distribution with 7 and 287 degrees of freedom: 38.87058907622526. P-value computed by Quade Test: 3.561968985752885E-38.

Table 4: Contrast Estimation

continuous G , M_t , st	continuous G , M_t , st	CADD G , M_t , st	CAIM G , M_t , st	Chi2Merge G , M_t , st	ChiMerge G , M_t , st	Fayyad G , M_t , st	ID3 G , M_t , st	USD G , M_t , st
continuous G , M_t , st	0,00000000	0,16146000	-0,01152687	0,03503937	-0,01060562	0,03163562	0,17498938	0,14089312
CADD G , M_t , st	-0,16146000	0,00000000	-0,17298687	-0,12642062	-0,17206562	-0,12980438	0,01352938	-0,02056687
CAIM G , M_t , st	0,01152687	0,17298687	0,00000000	0,04656625	0,00092125	0,04318250	0,18651625	0,15242000
Chi2Merge G , M_t , st	-0,03503937	0,12642062	-0,04656625	0,00000000	-0,04564500	-0,00338375	0,13995000	0,10585375
ChiMerge G , M_t , st	0,01060562	0,17206562	-0,00092125	0,04564500	0,00000000	0,04326125	0,18559500	0,15149875
Fayyad G , M_t , st	-0,03163562	0,12980438	-0,04318250	0,00338375	-0,04226125	0,00000000	0,14333375	0,10923750
ID3 G , M_t , st	-0,17498938	-0,01352938	-0,18651625	-0,13995000	-0,18559500	-0,14333375	0,00000000	-0,03409625
USD G , M_t , st	-0,14089312	0,02056687	-0,15242000	-0,10585375	-0,15149875	-0,10923750	0,03409625	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
7	ID _{3G} $M_t.st$	7.661488934822838	1.837897142799595E-14	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.003736173435
6	CADD _G $M_t.st$	7.5724018541853635	3.6638600450086756E-14	0.008512444610847103	0.008764162596519848	0.008764162596519848	0.01454836181044361	0.003736173435
5	USD _G $M_t.st$	7.349684152591676	1.986757839640883E-13	0.008333333333333333	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.003736173435
4	Fayyad _G $M_t.st$	3.4743961448615144	5.120045221898799E-4	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.003736173435
3	Chi2Merge _G $M_t.st$	3.429852604542777	6.039092073238618E-4	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.003736173435
2	continuous _G $M_t.st$	0.7126966450997975	0.47603349294243014	0.025	0.025320365519103666	0.025	0.0430132001682938	0.003736173435
1	ChiMerge _G $M_t.st$	0.08908708063747281	0.9290127047257121	0.05	0.0500000000000000044	0.05	0.0500000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.0071428571428571435$.

Holm's procedure rejects those hypotheses that have a p-value ≤ 0.025 .

Hochberg's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.

Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.025 .

Holland's procedure rejects those hypotheses that have a p-value $\leq 0.025320565519103666$.

Rom's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.

Finner's procedure rejects those hypotheses that have a p-value ≤ 0.0430132001682938 .

Li's procedure rejects those hypotheses that have a p-value $\leq 0.003736173435488839$.

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
7	ID _{3G} $M_{t,st}$	8.279284416246602	1.239176500221879E-16	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.005783332205
6	USD _G $M_{t,st}$	7.99960162969859	1.2482238745328507E-15	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.005783332205
5	CADD _G $M_{t,st}$	7.734520755701278	1.0379334524294935E-14	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.005783332205
4	Chi2Merge _G $M_{t,st}$	3.0708945318163363	0.002134185224377781	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.005783332205
3	Fayyad _G $M_{t,st}$	2.9956385209781167	0.0027387087884390153	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.005783332205
2	continues _G $M_{t,st}$	0.5312849720369919	0.5952213176826476	0.025	0.025320365519103666	0.025	0.0430132001682938	0.005783332205
1	CAIM _G $M_{t,st}$	0.13815655721046638	0.8901166880951006	0.05	0.050000000000000044	0.05	0.050000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.0071428571428571435$.

Holm's procedure rejects those hypotheses that have a p-value ≤ 0.025 .

Hochberg's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.

Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.025 .

Holland's procedure rejects those hypotheses that have a p-value $\leq 0.025320365519103666$.

Rom's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.

Finner's procedure rejects those hypotheses that have a p-value ≤ 0.0430132001682938 .

Li's procedure rejects those hypotheses that have a p-value $\leq 0.0057833322055210225$.

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
7	ID _{3G} $M_t.st$	3.9445707927753846	7.9943034868088E-5	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.00589505721664
6	USD _G $M_t.st$	3.501783315670004	4.621553156994322E-4	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.00589505721664
5	CADD _G $M_t.st$	3.4159269203271325	6.356530339742893E-4	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.00589505721664
4	Chi2Merge _G $M_t.st$	1.8425361247740233	0.0653967674455857	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.00589505721664
3	Fayyad _G $M_t.st$	1.4769229356172933	0.13969629609553064	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.00589505721664
2	ChiMerge _G $M_t.st$	0.15145454009922718	0.8796171688339642	0.025	0.025320565519103666	0.025	0.0430132001682938	0.00589505721664
1	continuous _G $M_t.st$	0.114084307550628672	0.8879939128837949	0.05	0.0500000000000000044	0.05	0.0500000000000000044	0.05

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value $\leq 0.0071428571428571435$.

Holm's procedure rejects those hypotheses that have a p-value ≤ 0.0125 .

Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.01 .

Hommel's procedure rejects those hypotheses that have a p-value ≤ 0.0125 .

Holland's procedure rejects those hypotheses that have a p-value $\leq 0.012741455098566168$.

Rom's procedure rejects those hypotheses that have a p-value $\leq 0.010515350115740741$.

Finner's procedure rejects those hypotheses that have a p-value $\leq 0.028885068789519686$.

Li's procedure rejects those hypotheses that have a p-value $\leq 0.005895057216642373$.

Table 8: Adjusted p -values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Hommel}
1	ID _{3G} $M_t st$	1.837897142799595E-14	1.2865279999597165E-13	1.2865279999597165E-13	1.2865279999597165E-13	1.2823510157530365E-13
2	CADD _G $M_t st$	3.6638600450086756E-14	2.564702031506073E-13	2.1983160270052054E-13	2.1983160270052054E-13	2.1983160270052054E-13
3	USD _G $M_t st$	1.9867575839640883E-13	1.3907303087748618E-12	9.93378791982044E-13	9.93378791982044E-13	9.93378791982044E-13
4	Fayyad _G $M_t st$	5.120045221898799E-4	0.0035840316553291595	0.0020480180887595197	0.0018117276219715853	0.0015360135665696399
5	Chi2Merge _G $M_t st$	6.039092073238618E-4	0.004227364451267032	0.0020480180887595197	0.0018117276219715853	0.0018117276219715853
6	continuous _G $M_t st$	0.47603349294243014	3.332234450597011	0.9520669858848603	0.9290127047257121	0.9290127047257121
7	ChiMerge _G $M_t st$	0.9290127047257121	6.503088933079985	0.9520669858848603	0.9290127047257121	0.9290127047257121

Table 9: Adjusted p -values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Hol}	p_{Rom}	p_{Finn}	p_{Li}
1	ID _{3G} $M_t st$	1.837897142799595E-14	1.290079154614432E-13	1.2231724322351398E-13	1.290079154614432E-13	2.5890508092999797E-13
2	CADD _G $M_t st$	3.6638600450086756E-14	2.19824158875781E-13	2.0902510677195525E-13	1.290079154614432E-13	5.161289820734809E-13
3	USD _G $M_t st$	1.9867575839640883E-13	9.936496070395151E-13	9.446939769461653E-13	4.637401573859279E-13	2.7987509261789595E-12
4	Fayyad _G $M_t st$	5.120045221898799E-4	0.0020464457337916464	0.0018117276219715853	8.958358714520331E-4	0.007160972536056958
5	Chi2Merge _G $M_t st$	6.039092073238618E-4	0.0020464457337916464	0.0018117276219715853	8.958358714520331E-4	0.008435522375922263
6	continuous _G $M_t st$	0.47603349294243014	0.7254590994818896	0.9290127047257121	0.5295420829306487	0.8702292548959506
7	ChiMerge _G $M_t st$	0.9290127047257121	0.9290127047257121	0.9290127047257121	0.9290127047257121	0.9290127047257121

Table 10: Adjusted p -values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{occh}	p_{Hommel}
1	ID $_G M_{t,st}$	1.239176500221879E-16	8.674235501553153E-16	8.674235501553153E-16	8.674235501553153E-16	8.674235501553153E-16
2	USD $_G M_{t,st}$	1.2482238745328507E-15	8.737567121729955E-15	7.489343247197104E-15	7.489343247197104E-15	7.489343247197104E-15
3	CADD $_G M_{t,st}$	1.0379334524294935E-14	7.2655341670006454E-14	5.189667262147467E-14	5.189667262147467E-14	5.189667262147467E-14
4	Chi2Merge $_G M_{t,st}$	0.002134185224377781	0.014939296570644467	0.008536740897511124	0.008216126365317046	0.006402555673133343
5	Fayyad $_G M_{t,st}$	0.0027387087884390153	0.019170961519073108	0.008536740897511124	0.008216126365317046	0.008216126365317046
6	continuous $_G M_{t,st}$	0.5952213176826476	4.166549223778533	1.19044263353652953	0.8901166880951006	0.8901166880951006
7	CALM $_G M_{t,st}$	0.8901166880951006	6.230816816665704	1.19044263353652953	0.8901166880951006	0.8901166880951006

Table 11: Adjusted p -values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Hol}	p_{Rom}	p_{Finn}	p_{Li}
1	ID $_G M_{t,st}$	1.239176500221879E-16	7.771561172376096E-16	8.2470694275969035E-16	7.771561172376096E-16	1.1277203778626049E-15
2	USD $_G M_{t,st}$	1.2482238745328507E-15	7.327471962526033E-15	7.121181634789082E-15	4.218847493575595E-15	1.1359539978310213E-14
3	CADD $_G M_{t,st}$	1.0379334524294935E-14	5.162537064506978E-14	4.935325219822115E-14	2.4091839634365897E-14	9.445778748712033E-14
4	Chi2Merge $_G M_{t,st}$	0.002134185224377781	0.008509451280025115	0.008139919806923598	0.003731834558269087	0.019052248792121834
5	Fayyad $_G M_{t,st}$	0.0027387087884390153	0.008509451280025115	0.008216126365317046	0.0038320910049826074	0.024317702449118024
6	continuous $_G M_{t,st}$	0.5952213176826476	0.8361542183414279	0.8901166880951006	0.6518600165389821	0.844160274526667
7	CALM $_G M_{t,st}$	0.8901166880951006	0.8901166880951006	0.8901166880951006	0.8901166880951006	0.8901166880951006

Table 12: Adjusted p -values (QUADE)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homn}
1	ID $_G M_t st$	7.9943034868088E-5	5.59601244076616E-4	5.59601244076616E-4	5.59601244076616E-4	5.59601244076616E-4
2	USD $_G M_t st$	4.621553156994322E-4	0.0032350872098960252	0.0027729318941965933	0.0027729318941965933	0.0023107765784971613
3	CADD $_G M_t st$	6.356530339742893E-4	0.004449571237820025	0.0031782651698714468	0.0031782651698714468	0.0031782651698714468
4	Chi2Merge $_G M_t st$	0.0653967674455857	0.4577773721190999	0.2615870697823428	0.2615870697823428	0.2615870697823428
5	Fayyad $_G M_t st$	0.13969629609553064	0.9778740726687145	0.4190888882865919	0.4190888882865919	0.4190888882865919
6	ChiMerge $_G M_t st$	0.8796171688339642	6.15732018183775	1.7592343376679285	0.8879939128837949	0.8879939128837949
7	continuos $_G M_t st$	0.8879939128837949	6.215957390186564	1.7592343376679285	0.8879939128837949	0.8879939128837949

Table 13: Adjusted p -values (QUADE)

i	algorithm	unadjusted p	p_{Hol}	p_{Rom}	p_{Finn}	p_{Li}
1	ID $_G M_t st$	7.9943034868088E-5	5.594670532919066E-4	5.320434649074384E-4	5.594670532919066E-4	7.132292468592041E-4
2	USD $_G M_t st$	4.621553156994322E-4	0.0027697300546876136	0.002636619931509195	0.0016166093753959832	0.004109207236693958
3	CADD $_G M_t st$	6.356530339742893E-4	0.003174227189645662	0.003022500568111191	0.0016166093753959832	0.005643139329406716
4	Chi2Merge $_G M_t st$	0.0653967674455857	0.23702709529770982	0.24942748012619098	0.11162211686583356	0.36863342455262324
5	Fayyad $_G M_t st$	0.13969629609553064	0.3632699037797119	0.4190888882865919	0.1899487252838442	0.5550058537904907
6	ChiMerge $_G M_t st$	0.8796171688339642	0.9855079739604498	0.8879939128837949	0.9154087754938246	0.887047740717939
7	continuos $_G M_t st$	0.8879939128837949	0.9855079739604498	0.8879939128837949	0.9154087754938246	0.8879939128837949