

data/GAssist.csv

May 11, 2011

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

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Table 1: Average Rankings of the algorithms (Friedman)

Algorithm	Ranking
<i>continuos_GM_{tst}</i>	2.8333333333333326
<i>CADD_GM_{tst}</i>	7.0952380952381
<i>CAIM_GM_{tst}</i>	2.928571428571429
<i>Chi2Merge_GM_{tst}</i>	3.833333333333334
<i>ChiMerge_GM_{tst}</i>	3.1904761904761907
<i>Fayyad_GM_{tst}</i>	3.666666666666667
<i>ID3_GM_{tst}</i>	6.761904761904765
<i>USD_GM_{tst}</i>	5.6904761904761925

Friedman statistic (distributed according to chi-square with 7 degrees of freedom: 149.5873015873026. P-value computed by Friedman

Test: 1.012765427077511E-10.

Iman and Davenport statistic (distributed according to F-distribution with 7 and 287 degrees of freedom: 42.46911409100959. P-value computed by Iman and Davenport Test: 1.1102230246251565E-16.

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

Algorithm	Ranking
<i>continuos_GM_{tst}</i>	102.73809523809524
<i>CADD_GM_{tst}</i>	279.7857142857143
<i>CAIM_GM_{tst}</i>	97.40476190476191
<i>Chi2Merge_GM_{tst}</i>	131.66666666666669
<i>ChiMerge_GM_{tst}</i>	109.02380952380952
<i>Fayyad_GM_{tst}</i>	130.09523809523807
<i>ID3_GM_{tst}</i>	260.8571428571429
<i>USD_GM_{tst}</i>	236.4285714285715

Aligned Friedman statistic (distributed according to chi-square with 7 degrees of freedom: 37.062253478591714. P-value computed by Aligned Friedman Test: 4.5650281524922676E-6.

Table 3: Average Rankings of the algorithms (Quade)

Algorithm	Ranking
$\text{continuous}_G M_{tst}$	2.563676633444076
$\text{CADD}_G M_{tst}$	7.131782945736435
$\text{CAIM}_G M_{tst}$	2.7087486157253604
$\text{Chi2Merge}_G M_{tst}$	3.8504983388704317
$\text{ChiMerge}_G M_{tst}$	3.0620155038759695
$\text{Fayyad}_G M_{tst}$	3.8261351052048727
$\text{ID3}_G M_{tst}$	6.881506090808417
$\text{USD}_G M_{tst}$	5.975636766334442

Quade statistic (distributed according to F-distribution with 7 and 287 degrees of freedom: 38.14752176802265. P-value computed by Quade Test: 1.2825979251926445E-37.

Table 4: Contrast Estimation

continuous $M_{f, st}$	continuous $M_{f, st}$	CADD $M_{f, st}$	CAIM $M_{f, st}$	Chi2Merge $M_{f, st}$	ChiMerge $M_{f, st}$	Fayyad $M_{f, st}$	ID3 $M_{f, st}$	USD $M_{f, st}$
0.00000000	0.00000000	0.17250875	0.00156563	0.01832562	0.00963625	0.01535562	0.12599562	0.09453750
-0.17250875	-0.17250875	0.00000000	-0.17094312	-0.15418312	-0.16287260	-0.15715312	-0.04651313	-0.07797125
-0.00156563	-0.00156563	0.17094312	0.00000000	0.01676000	0.00807063	0.01379000	0.12443000	0.09297187
-0.01832562	-0.01832562	0.15418312	-0.01676000	0.00000000	-0.00868937	-0.00297000	0.10767000	0.07621187
-0.00963625	-0.00963625	0.16287260	-0.00807063	0.00868937	0.00000000	0.00571937	0.11635937	0.08490125
-0.01535562	-0.01535562	0.15715312	-0.01379000	0.00297000	-0.00571937	0.00000000	0.11064000	0.07918187
-0.12599562	-0.12599562	0.04651313	-0.12443000	-0.10767000	-0.11635937	-0.11064000	0.00000000	-0.03143812
-0.09453750	-0.09453750	0.07797125	-0.09297187	-0.07621187	-0.08490125	-0.07918187	0.03143812	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	CADD $_G M_t st$	7.9732937170540055	1.5450039510483651E-15	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.007442831508
6	ID3 $_G M_t st$	7.349684152591678	1.9867575839640597E-13	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.007442831508
5	USD $_G M_t st$	5.345224838248493	9.03048868148745E-8	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.007442831508
4	Chi2Merge $_G M_t st$	1.870828693386973	0.061368829139401865	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.007442831508
3	Fayyad $_G M_t st$	1.5590239111558108	0.11899072089312307	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.007442831508
2	ChiMerge $_G M_t st$	0.6681531047810627	0.5040358664525036	0.025	0.025320365519103666	0.025	0.0430132001682938	0.007442831508
1	CAIM $_G M_t st$	0.17817416127495145	0.8585862013366375	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 $\leq 0.007442831508598025$.

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	CADD $_G M_t, st$	8.603896164489074	7.705469551555627E-18	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.010455338464
6	ID3 $_G M_t, st$	7.710933050811685	1.2490117518693831E-14	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.010455338464
5	USD $_G M_t, st$	6.55850518334879	5.434981845288413E-11	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.010455338464
4	Chi2Merge $_G M_t, st$	1.616319396581964	0.10602527518147337	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.010455338464
3	Fayyad $_G M_t, st$	1.5421866101623356	0.12302825292093215	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.010455338464
2	ChiMerge $_G M_t, st$	0.5481333326724105	0.5836003544695968	0.025	0.025320365519103666	0.025	0.0430132001682938	0.010455338464
1	continuous $_G M_t, st$	0.25160218548897534	0.8013485691834842	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 ≤ 0.0125 .

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 ≤ 0.01045533846402715 .

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	CADD $_G M_t st$	3.9792992223522767	6.91187038030256E-5	0.0071428571428571435	0.007300831979014655	0.0075128293213784685	0.007300831979014655	0.00529280233816
6	ID $_G M_t st$	3.7612818588973393	1.690448103499351E-4	0.008333333333333333	0.008512444610847103	0.008764162596519848	0.01454836181044361	0.00529280233816
5	USD $_G M_t st$	2.9721747646223915	0.0029569831351459893	0.01	0.010206218313011495	0.010515350115740741	0.021742978644310407	0.00529280233816
4	Chi2Merge $_G M_t st$	1.1209565324541435	0.2623063653042485	0.0125	0.012741455098566168	0.013109375000000001	0.028885068789519686	0.00529280233816
3	Fayyad $_G M_t st$	1.099733603268265	0.2714482091153786	0.016666666666666666	0.016952427508441503	0.016666666666666666	0.035975015734599824	0.00529280233816
2	ChiMerge $_G M_t st$	0.4341053697111574	0.6642119263430312	0.025	0.025320565519103666	0.025	0.0430132001682938	0.00529280233816
1	CAIM $_G M_t st$	0.1263728965159146	0.8994367555748609	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 ≤ 0.0125 .

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 $\leq 0.0052928023381652155$.

Table 8: Adjusted p -values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Hommel}
1	CADD $_G M_t st$	1.5450039510483651E-15	1.0815027657338556E-14	1.0815027657338556E-14	1.0815027657338556E-14	1.0815027657338556E-14
2	ID3 $_G M_t st$	1.9867575839640597E-13	1.3907303087748418E-12	1.1920545503784359E-12	1.1920545503784359E-12	1.1920545503784359E-12
3	USD $_G M_t st$	9.03048868148745E-8	6.321342077041215E-7	4.515244340743725E-7	4.515244340743725E-7	4.515244340743725E-7
4	Chi2Merge $_G M_t st$	0.061368829139401865	0.429581803975813	0.24547531655760746	0.24547531655760746	0.23798144178624614
5	Fayyad $_G M_t st$	0.11899072089312307	0.8329350462518614	0.3569721626793692	0.3569721626793692	0.3569721626793692
6	ChiMerge $_G M_t st$	0.5040358664525036	3.5282510651675256	1.0080717329050073	0.8585862013366375	0.8585862013366375
7	CAIM $_G M_t st$	0.8585862013366375	6.0101034093564625	1.0080717329050073	0.8585862013366375	0.8585862013366375

Table 9: Adjusted p -values (FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Hommel}
1	CADD $_G M_t st$	1.5450039510483651E-15	1.0880185641326534E-14	1.0282437447713007E-14	1.0880185641326534E-14	1.0925411562744679E-14
2	ID3 $_G M_t st$	1.9867575839640597E-13	1.1923795284474181E-12	1.1334554568584678E-12	6.955547249276606E-13	1.4049248395418414E-12
3	USD $_G M_t st$	9.03048868148745E-8	4.515243523517398E-7	4.293955304431301E-7	2.107113897809043E-7	6.385856967355591E-7
4	Chi2Merge $_G M_t st$	0.061368829139401865	0.22378882639575548	0.23406466417888672	0.10491103721546402	0.302633356286665982
5	Fayyad $_G M_t st$	0.11899072089312307	0.31618055252981403	0.3569721626793692	0.16252341081261878	0.4569456824166688
6	ChiMerge $_G M_t st$	0.5040358664525036	0.7540195782344812	0.8585862013366375	0.5587426192574878	0.7809065426690137
7	CAIM $_G M_t st$	0.8585862013366375	0.8585862013366375	0.8585862013366375	0.8585862013366375	0.8585862013366377

Table 10: Adjusted p -values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Hommel}
1	CADD $_G M_{t,st}$	7.705469551555627E-18	5.393828686088939E-17	5.393828686088939E-17	5.393828686088939E-17	5.393828686088939E-17
2	ID3 $_G M_{t,st}$	1.2490117518693831E-14	8.743082263085681E-14	7.494070511216298E-14	7.494070511216298E-14	7.494070511216298E-14
3	USD $_G M_{t,st}$	5.434981845288413E-11	3.804487291701889E-10	2.717490922644206E-10	2.717490922644206E-10	2.717490922644206E-10
4	Chi2Merge $_G M_{t,st}$	0.10602527518147337	0.7421769262703135	0.42410110072589347	0.36908475876279645	0.3180758255444201
5	Fayyad $_G M_{t,st}$	0.12302825292093215	0.8611977704465251	0.42410110072589347	0.36908475876279645	0.36908475876279645
6	ChiMerge $_G M_{t,st}$	0.5836003544695968	4.085202481287178	1.1672007089391936	0.8013485691834842	0.8013485691834842
7	continuous $_G M_{t,st}$	0.8013485691834842	5.609439984284389	1.1672007089391936	0.8013485691834842	0.8013485691834842

Table 11: Adjusted p -values (ALIGNED FRIEDMAN)

i	algorithm	unadjusted p	p_{Hol}	p_{Rom}	p_{Finn}	p_{Li}
1	CADD $_G M_{t,st}$	7.705469551555627E-18	0.0	5.128207511402517E-17	0.0	3.878889530210721E-17
2	ID3 $_G M_{t,st}$	1.2490117518693831E-14	7.527312106958561E-14	7.1256765156625E-14	4.3853809472693683E-14	6.287454093511933E-14
3	USD $_G M_{t,st}$	5.434981845288413E-11	2.7174928973749957E-10	2.5843085515301227E-10	1.2681633521083313E-10	2.735938936589613E-10
4	Chi2Merge $_G M_{t,st}$	0.10602527518147337	0.36129405142632487	0.36908475876279645	0.17809964047060567	0.3479927184921485
5	Fayyad $_G M_{t,st}$	0.12302825292093215	0.36129405142632487	0.36908475876279645	0.17809964047060567	0.3824557755451746
6	ChiMerge $_G M_{t,st}$	0.5836003544695968	0.8266113352021546	0.8013485691834842	0.6401716232420842	0.7460518025614244
7	continuous $_G M_{t,st}$	0.8013485691834842	0.8266113352021546	0.8013485691834842	0.8013485691834842	0.8013485691834842

Table 12: Adjusted p -values (QUADE)

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homn}
1	CADD $_G M_t st$	6.91187038030256E-5	4.838309266211792E-4	4.838309266211792E-4	4.838309266211792E-4	4.838309266211792E-4
2	ID3 $_G M_t st$	1.690448103499351E-4	0.0011833136724495458	0.0010142688620996107	0.0010142688620996107	0.0010142688620996107
3	USD $_G M_t st$	0.0029569831351459893	0.020698881946021926	0.014784915675729947	0.014784915675729947	0.014784915675729947
4	Chi2Merge $_G M_t st$	0.2623063653042485	1.8361445571297395	1.049225461216994	0.8143446273461358	0.7869190959127454
5	Fayyad $_G M_t st$	0.2714482091153786	1.90013746380765	1.049225461216994	0.8143446273461358	0.8143446273461358
6	ChiMerge $_G M_t st$	0.6642119263430312	4.649483484401218	1.3284238526860623	0.8994367555748609	0.8994367555748609
7	CAIM $_G M_t st$	0.8994367555748609	6.296057289024026	1.3284238526860623	0.8994367555748609	0.8994367555748609

Table 13: Adjusted p -values (QUADE)

i	algorithm	unadjusted p	p_{Holm}	p_{Bonf}	p_{Finn}	p_{Li}
1	CADD $_G M_t st$	6.91187038030256E-5	4.837306128778751E-4	4.6000448596870004E-4	4.837306128778751E-4	6.868436917700369E-4
2	ID3 $_G M_t st$	1.690448103499351E-4	0.0010138403164818843	9.644093687687911E-4	5.915318261445757E-4	0.001678159124873525
3	USD $_G M_t st$	0.0029569831351459893	0.014697736352266122	0.014060317072655494	0.0068860303985911475	0.028564302888766258
4	Chi2Merge $_G M_t st$	0.2623063653042485	0.703855177421256	0.8143446273461358	0.4128040342327388	0.7228667220158369
5	Fayyad $_G M_t st$	0.2714482091153786	0.703855177421256	0.8143446273461358	0.4128040342327388	0.7228667220158369
6	ChiMerge $_G M_t st$	0.6642119263430312	0.8872463695897421	0.8994367555748609	0.720052789180516	0.8685061332154268
7	CAIM $_G M_t st$	0.8994367555748609	0.8994367555748609	0.8994367555748609	0.8994367555748609	0.8994367555748609