Results

April 6, 2021

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

Table 1: Average Rankings of the algorithms

Algorithm	Ranking
parzen	2.9772727272727257
parzen des	1.9545454545454
parzen desthr	1.0681818181818

Friedman statistic considering reduction performance (distributed according to chi-square with 2 degrees of freedom: 40.15909090909063. P-value computed by Friedman Test: 1.9405669293703391E-9.

Iman and Davenport statistic considering reduction performance (distributed according to F-distribution with 2 and 42 degrees of freedom: 219.56804733372606. P-value computed by Iman and Daveport Test: 5.7624661129908107E-23.

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

Table 2: Holm / Hochberg Table for $\alpha = 0.05$

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel
2	parzen	6.33173823613032	2.42414504235012576E-10	0.025
1	parzen des	2.93973560963319	0.00328492416162375554	0.05

Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.05.
Hommel's procedure rejects all hypotheses.

Table 3: Holm / Hochberg Table for $\alpha = 0.10$

i	algorithm	$z = (R_0 - R_i)/SE$	p	Holm/Hochberg/Hommel
2	parzen	6.33173823613032	2.42414504235012576E-10	0.05
1	parzen des	2.93973560963319	0.00328492416162375554	0.1

Bonferroni-Dunn's procedure rejects those hypotheses that have a p-value ≤ 0.05.
Hochberg's procedure rejects those hypotheses that have a p-value ≤ 0.1.
Hommel's procedure rejects all hypotheses.

Table 4: Adjusted p-values

i	algorithm	unadjusted p	p_{Bonf}	p_{Holm}	p_{Hoch}	p_{Homm}
1	parzen	2.42414504235012576E-10	4.84829008470025E-10	4.84829008470025E-10	4.84829008470025E-10	4.84829008470025E-10
2	parzen des	0.00328492416162375554	0.00656984832324751	0.00328492416162375554	0.00328492416162375554	0.00328492416162375554

Table 5: Holm / Shaffer Table for $\alpha = 0.05$

i	algorithms	$z = (R_0 - R_i)/SE$	p	Holm	Shaffer
3	parzen vs. parzen desthr	6.33173823613032	2.42414504235012576E-10	0.0166666666666666	0.0166666666666666
2	parzen vs. parzen des	3.39200262649998375	6.938377508993372E-4	0.025	0.05
1	parzen des vs. parzen desthr	2.93973560963319	0.00328492416162375554	0.05	0.05

Nemenyi's procedure rejects those hypotheses that have a p-value ≤ 0.0166666666666666.
Shaffer's procedure rejects those hypotheses that have a p-value ≤ 0.0166666666666666.
Bergmann's procedure rejects these hypotheses:

- parzen *vs.* parzen des
- parzen *vs.* parzen desthr
- parzen des vs. parzen desthr

Table 6: Holm / Shaffer Table for $\alpha = 0.10$

i	algorithms	$z = (R_0 - R_i)/SE$	p	Holm	Shaffer
3	parzen vs. parzen desthr	6.331738236133032	2.4241450423501257E-10	0.033333333333333	0.033333333333333
2	parzen vs. parzen des	3.3920026264998375	6.9383775089933372E-4	0.05	0.1
1	parzen des vs. parzen desthr	2.9397356096331194	0.0032849241616237554	0.1	0.1

Nemenyi's procedure rejects those hypotheses that have a p-value ≤ 0.03333333333333333.
Shaffer's procedure rejects those hypotheses that have a p-value ≤ 0.03333333333333333.
Bergmann's procedure rejects these hypotheses:

- parzen *vs.* parzen des
- parzen *vs.* parzen desthr
- parzen des vs. parzen desthr

Table 7: Adjusted p-values

i	hypothesis	unadjusted p	p_{Neme}	p_{Holm}	p_{Shaf}	p_{Berg}
1	parzen vs .parzen desthr	2.4241450423501257E-10	7.272435127050378E-10	7.272435127050378E-10	7.272435127050378E-10	7.272435127050378E-10
2	parzen vs .parzen des	6.9383775089933372E-4	0.0020815132526980115	0.0013876755017986743	6.9383775089933372E-4	6.9383775089933372E-4
3	parzen des vs .parzen desthr	0.0032849241616237554	0.009854772484871266	0.0032849241616237554	0.0032849241616237554	0.0032849241616237554