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	2.749999999999999
parzen des	1.931818181818181
parzen desthr	1.3181818181818177

Friedman statistic considering reduction performance (distributed according to chi-square with 2 degrees of freedom: 22.704545454545233.
P-value computed by Friedman Test: 1.1742802837888533E-5.

Iman and Davenport statistic considering reduction performance (distributed according to F-distribution with 2 and 42 degrees of freedom: 22.389541088580124.
P-value computed by Iman and Daveport Test: 2.4072378103431786E-7.

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	4.748803677099776	2.0462345679635043E-6	0.025
1	parzen des	2.035201575899903	0.04183059456524486	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	4.748803677099776	2.0462345679635043E-6	0.05
1	parzen des	2.035201575899903	0.04183059456524486	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	2.0462345679635043E-6	4.092469135927009E-6	4.092469135927009E-6	4.092469135927009E-6	4.092469135927009E-6
2	parzen des	0.04183059456524486	0.08366118913048971	0.04183059456524486	0.04183059456524486	0.04183059456524486

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	4.748803677099776	2.0462345679635043E-6	0.016666666666666666	0.016666666666666666
2	parzen vs. parzen des	2.7136021011998723	0.006655605482949381	0.025	0.05
1	parzen des vs. parzen desthr	2.035201575899903	0.04183059456524486	0.05	0.05

Nemenyi's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
Shaffer's procedure rejects those hypotheses that have a p-value $\leq 0.016666666666666666$.
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	4.748803677099776	2.0462345679635043E-6	0.03333333333333333	0.03333333333333333
2	parzen vs. parzen des	2.7136021011998723	0.006655605482949381	0.05	0.1
1	parzen des vs. parzen desthr	2.035201575899903	0.04183059456524486	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	2.0462345679635043E-6	6.138703703890513E-6	6.138703703890513E-6	6.138703703890513E-6	6.138703703890513E-6
2	parzen vs .parzen des	0.006655605482949381	0.019966816448848144	0.013311210965898762	0.006655605482949381	0.006655605482949381
3	parzen des vs .parzen desthr	0.04183059456524486	0.12549178369573458	0.04183059456524486	0.04183059456524486	0.04183059456524486