Output tables for the test of Multiple comparisons.

February 25, 2023

1 Average rankings of Friedman test

Average ranks obtained by applying the Friedman procedure

$\operatorname{Algorithm}$	Ranking	
BiLSTM	8.0588	
CNN	5.5294	
GRU	4.2941	
m Seq 2Seq	7	
Λ -LSTM	7.8824	
S-LSTM	3.2353	
CNN-BiLSTM	3.6471	
CNN-LSTM	2.9412	
GRU-BiLSTM	2.4118	

Table 1: Average Rankings of the algorithms

Friedman statistic considering reduction performance (distributed according to chi-square with 8 degrees of freedom: 86.870588.

2 Post hoc comparisons

Results achieved on post hoc comparisons for $\alpha=0.05,~\alpha=0.10$ and adjusted p-values.

2.1 P-values for $\alpha = 0.05$

i	algorithms	$z = (R_0 - R_i)/SE$	p
36	BiLSTM vs. GRU-BiLSTM	6.011753	0
35	V-LSTM vs. GRU-BiLSTM	5.823886	0
34	BiLSTM vs. CNN-LSTM	5.448151	0
33	V-LSTM vs. CNN-LSTM	5.260284	0
32	BiLSTM vs. S-LSTM	5.135039	0
31	V-LSTM vs. S-LSTM	4.947172	0.000001
30	Seq2Seq vs. GRU-BiLSTM	4.884549	0.000001
29	Bilstm vs. CNN-Bilstm	4.696682	0.000003
28	V-LSTM vs. CNN-BiLSTM	4.508815	0.000007
27	Seq2Seq vs. CNN-LSTM	4.320948	0.000016
26	Seq2Seq vs. S-LSTM	4.007835	0.000061
25	BiLSTM vs. GRU	4.007835	0.000061
24	GRU vs. V-LSTM	3.819968	0.000133
23	Seq2Seq vs. CNN-BiLSTM	3.569478	0.000358
22	CNN vs. GRU-BiLSTM	3.318989	0.000903
21	GRU vs. Seq2Seq	2.880632	0.003969
20	CNN vs. CNN-LSTM	2.755387	0.005862
19	BiLSTM vs. CNN	2.692764	0.007086
18	CNN vs. V-LSTM	2.504897	0.012249
17	CNN vs. S-LSTM	2.442275	0.014595
16	GRU vs. GRU-BiLSTM	2.003918	0.045079
15	CNN vs. CNN-BiLSTM	2.003918	0.045079
14	CNN vs. Seq2Seq	1.565561	0.117451
13	GRU vs. CNN-LSTM	1.440316	0.149778
12	CNN-BiLSTM vs. GRU-BiLSTM	1.315071	0.188486
11	CNN vs. GRU	1.315071	0.188486
10	GRU vs. S-LSTM	1.127204	0.259656
9	BiLSTM vs. Seq2Seq	1.127204	0.259656
8	Seq2Seq vs. V-LSTM	0.939336	0.347558
7	S-LSTM vs. GRU-BiLSTM	0.876714	0.380642
6	CNN-BiLSTM vs. CNN-LSTM	0.751469	0.45237
5	GRU vs. CNN-BiLSTM	0.688847	0.49092
4	CNN-LSTM vs. GRU-BiLSTM	0.563602	0.573025
3	S-LSTM vs. CNN-BiLSTM	0.438357	0.661128
2	S-LSTM vs. CNN-LSTM	0.313112	0.754195
1	BiLSTM vs. V-LSTM	0.187867	0.850981

Table 2: P-values Table for $\alpha = 0.05$

$R_i)/SE$ p	0	0	0	0	0	0.000001	0.000001	0.000003	0.000007	0.000016	0.000061	0.000061	0.000133	0.000358	0.000903	0.003969	0.005862	0.007086	0.012249	0.014595	0.045079	0.045079	0.117451	0.149778	0.188486	0.188486	0.259656	0.259656	0.347558	0.380642	0.45237	0.49092	0.573025	0.661128	0.754195
$z = (R_0 - R_i)$	6.011753	5.823886	5.448151	5.260284	5.135039	4.947172	4.884549	4.696682	4.508815	4.320948	4.007835	4.007835	3.819968	3.569478	3.318989	2.880632	2.755387	2.692764	2.504897	2.442275	2.003918	2.003918	1.565561	1.440316	1.315071	1.315071	1.127204	1.127204	0.939336	0.876714	0.751469	0.688847	0.563602	0.438357	0.313112
algorithms	1 -	0	_	V-LSTM vs. CNN-LSTM	Bilstm vs. S-lstm	V-LSTM vs. S-LSTM	_	Bilstm vs. CNN-Bilstm	V-LSTM vs. CNN-Billstm	Seq2Seq vs. CNN-LSTM	Seq2Seq vs. S-LSTM	BiLSTM vs. GRU	GRU vs. V-LSTM	Seq2Seq vs. CNN-BiLSTM	CNN vs. GRU-BiLSTM	ďΩ	CNN vs. CNN-LSTM	ΓM	CNN vs. V-LSTM	~	GRU vs. GRU-BiLSTM	CNN vs. CNN-BiLSTM	92	GRU vs. CNN-LSTM		CNN vs. GRU	GRU vs. S-LSTM		Seq2Seq vs. V-LSTM	S-LSTM vs. GRU-Bilstm	CNN-Bilstm vs. CNN-LSTM	GRU vs. CNN-BiLSTM	CNN-LSTM vs. GRU-Bilstm		MTS.I.MNS SV MTS.I.S.
.5	36	35	34	33	32	31	30	29	28	22	56	25	24	23	22	21	20	19	18	17	16	15	14	13	12	11	10	6	∞	~	9	2	4	3	c

Table 3: P-values Table for $\alpha = 0.10$

i	hypothesis	unadjusted p
1	BiLSTM vs .GRU-BiLSTM	0
2	V-LSTM vs .GRU-BiLSTM	0
3	BiLSTM vs .CNN-LSTM	0
4	V-LSTM vs .CNN-LSTM	0
5	BiLSTM vs .S-LSTM	0
6	V-LSTM vs .S-LSTM	0.000001
7	Seq2Seq vs $.GRU-BiLSTM$	0.000001
8	BiLSTM vs .CNN-BiLSTM	0.000003
9	V-LSTM vs .CNN-BiLSTM	0.000007
10	Seq2Seq vs .CNN-LSTM	0.000016
11	Seq2Seq vs .S-LSTM	0.000061
12	BiLSTM vs .GRU	0.000061
13	GRU vs .V-LSTM	0.000133
14	Seq2Seq vs .CNN-BiLSTM	0.000358
15	CNN vs .GRU-BiLSTM	0.000903
16	GRU vs .Seq2Seq	0.003969
17	CNN vs .CNN-LSTM	0.005862
18	BiLSTM vs .CNN	0.007086
19	CNN vs .V-LSTM	0.012249
20	CNN vs .S-LSTM	0.014595
21	GRU vs .GRU-BiLSTM	0.045079
22	CNN vs .CNN-BiLSTM	0.045079
23	CNN vs .Seq2Seq	0.117451
24	GRU vs .CNN-LSTM	0.149778
25	CNN-BiLSTM vs .GRU-BiLSTM	0.188486
26	CNN vs .GRU	0.188486
27	GRU vs .S-LSTM	0.259656
28	BiLSTM vs .Seq2Seq	0.259656
29	Seq2Seq vs .V-LSTM	0.347558
30	S-LSTM vs .GRU-BiLSTM	0.380642
31	CNN-BiLSTM vs .CNN-LSTM	0.45237
32	GRU vs .CNN-BiLSTM	0.49092
33	CNN-LSTM vs .GRU-BiLSTM	0.573025
34	S-LSTM vs .CNN-BiLSTM	0.661128
35	S-LSTM vs .CNN-LSTM	0.754195
36	BiLSTM vs .V-LSTM	0.850981

Table 4: Adjusted p-values