1 NH3/colour forecasting NH3

1.1 Multivariate NH_3N forecasting model, baseline performance

Table 1: Multivariate model evaluation of each NH_3N forecasting approach.

Rank	Model-Dataset	Test loss	Valid loss
1	LSTM-ew3	0.0379	1.0702
2	LSTM-sg7	0.0379	1.1582
3	LSTM-ew4	0.0380	1.0641
4	GRU-ew3	0.0386	1.1137
5	LSTM-sg5	0.0387	1.1531
6	LSTM-ew2	0.0389	1.0909
7	GRU-sg7	0.0390	1.3082
8	GRU-sg5	0.0392	1.1839
9	GRU-ew4	0.0394	1.2183
10	GRU-sg9	0.0400	1.2075
11	GRU-ew2	0.0402	1.1545
12	LSTM-sg9	0.0409	1.2460
13	LSTM-obs	0.0411	1.1552
14	RNN-sg5	0.0413	1.4160
15	RNN-sg7	0.0417	1.4258
16	GRU-obs	0.0420	1.2439
17	RNN-ew2	0.0424	1.3500
18	RNN-ew3	0.0426	1.4554
19	RNN-ew4	0.0427	1.5066
20	RNN-obs	0.0437	1.4610

1.2 NH_3N forecasting, LSTM LSTM-4 comparison

Table 2: Evaluation of multivariate model trained with positional encoding.

LSTM	Test loss	LSTM-4[1]	Test loss
sg7	0.0379	sg7	0.0369
ew3	0.0379	sg9	0.0384
ew4	0.0380	ew3	0.0392
sg5	0.0387	sg5	0.0397
ew2	0.0389	ew4	0.0399
sg9	0.0409	ew2	0.0404
obs	0.0411	obs	0.0432

[1]Number 4 stands for the number of features.

2 NH3/colour forecasting colour

2.1 Multivariate colour forecasting model, baseline performance

Table 3: Multivariate model evaluation of each colour forecasting approach.

Rank	Model-Dataset	Test loss	Valid loss
1	LSTM-sg9	1.5358	0.7016
2	GRU-sg9	1.7454	0.7415
3	LSTM-sg7	1.8177	0.7633
4	GRU-sg7	1.9366	0.7463
5	RNN-sg9	2.0959	0.8345
6	RNN-sg7	2.4952	0.8160
7	LSTM-ew4	2.9674	0.7590
8	GRU-ew4	3.0119	0.7475
9	RNN-ew4	3.3010	0.8599
10	LSTM-sg5	3.3376	0.8231
11	LSTM-ew3	3.4504	0.7473
12	GRU-sg5	3.5714	0.7687
13	GRU-ew3	3.8090	0.7899
14	RNN-sg5	3.8777	0.8963
15	RNN-ew3	3.9121	0.8344
16	DNN-sg9	4.6878	1.4568
17	LSTM-ew2	4.7100	0.7855
18	GRU-ew2	4.8043	0.8067
19	RNN-ew2	4.9021	0.8804
20	DNN-sg7	5.1713	1.4630

2.2 LSTM LSTM-4 comparison

Table 4: Evaluation of LSTM model trained with positional encoding.

LSTM	Test loss	LSTM-4[2]	Test loss
ew3	0.0132	sg9	0.0129
ew4	0.0135	sg7	0.0136
ew2	0.0139	ew3	0.0136
sg9	0.0146	ew4	0.0137
obs	0.0152	obs	0.0140
sg7	0.0154	ew2	0.0141
sg5	0.0159	sg5	0.0155

[2]Number 4 stands for the number of features.