# figiangzuzana / deep-devops Private

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giangzuzana Update README.md		I	Latest commit 8	392b21e 25 (	days ag
gitkeep	results> reports			3 mor	nths ag
a 20181015_lstm_6m_1h_1h.png	results> reports			3 mor	nths ag
20181019-GRU-6month-1h-10m.png	results> reports			3 mor	nths ag
20181019-LSTM-6month-1h-10m.png	results> reports			3 mor	nths ag
20181026-lstm-bez-delta-3mesiace.png	results> reports			3 mor	nths ag
a 20181026-lstm-bez-delta.png	results> reports			3 mor	nths ag
a 20190326_141124-eval.tsv	results> reports			3 mor	nths ag
a 20190327_033636-eval.tsv	results> reports			3 mor	nths aç
a 20190327_210357-eval_delta.tsv	results> reports			3 mor	nths ag
a 20190327_210357-eval_delta_true.tsv	results> reports			3 mor	nths ag
a 20190328_134237-eval.tsv	results> reports			3 mor	nths ag
a 20190328_134237-eval_delta_false.tsv	results> reports			3 mor	nths aç
a 20190329_093201-eval_sequence_len.tsv	results> reports			3 mor	nths aç
20190329_151339-eval_steps_ahead.tsv	results> reports			3 mor	nths a
20190330_085413-eval_sequence_len.tsv	results> reports			3 mor	nths a
20190331_102622-eval_delta_true.tsv	results> reports			3 mor	nths a
20190401_084101-eval_CPU_delta_true.tsv	results> reports			3 mor	nths a
20190401_163044-eval_CPU_delta_false.tsv	results> reports			3 mor	nths a
20190403_152005-eval_delta_false.tsv	results> reports			3 mor	nths a
20190407_072514-eval_delta_true.tsv	result			3 mor	nths a
20190528_select_features_adf.tsv	select feature - code cleaning			2 mor	nths a
20190528_select_features_mir_n3.tsv	MIR knn			2 mor	nths a
20190528_select_features_mir_n5.tsv	MIR knn			2 mor	nths a
20190528_select_features_mir_n7.tsv	MIR knn			2 mor	nths a
20190529_130739-eval-ssh_in-delta_false.tsv	ssh_in: test models			2 mor	nths a
20190530_083837-eval-ssh_in-delta_true.tsv	results			las	st mon
20190602_123100-eval-payload-delta_true.tsv	results			las	st mon
20190603_103015-eval-payload-delta_false.tsv	results			las	st mon
20190606_154908-eval-14-delta_false.tsv	14 features			las	st mon
20190607_123752-eval-14-delta_true.tsv	14 features			las	st mon
20190612_084925-eval_batch_norm.tsv	stacked LSTM			28 c	days aç
20190617_125812-eval_stackedLSTM.tsv	stacked LSTM			28 c	days a
20190618_140520-eval_autoencoder.tsv	results: autoencoder			28 c	days aç
20190618_152323-eval_cudnn_tcn.tsv	speedup by cudnn, temporal TCN			27 c	days a
20190619_094702-eval_attention_stackedtcn.tsv	attention model			27 c	days aç
20190619_144152-eval.tsv	11 models			26 c	days aç
20190620_083509-eval_1y_train.tsv	1y data for train, 1m data for test			25 c	days aç
README.md	Update README.md			25 c	days aç

■ README.md

# Header (separator '\t')

- model\_type, mse, mae, <-- evaluations with data from models
- SMAPE(train), f1, f2, test, f1, f2, <-- evaluations with real data (after back-transformation)
- R2(train), f1, f2, test, f1, f2,
- COSINE(train), f1, f2, test, f1, f2,
- TIMER, t <-- runtime of 1 cycle: train-test

### **Default params**

• num\_epochs = 50; GPU venv

## Datapools (201905) w01h-s10m with more features

• 8 features in one model: conn\_in\_count\_uid, conn\_out\_count\_uid, dns\_in\_count\_uid, dns\_in\_distinct\_query, sip\_in\_count\_uid, http\_in\_count\_uid, ssh\_in\_count\_uid, ssl\_in\_count\_uid

#### data\_train = 20180414-20190413; data\_test = 20190414-20190514; sequence\_len = 12

 14 features in one model: conn\_in\_sum\_orig\_bytes, conn\_in\_sum\_resp\_bytes, conn\_in\_count\_uid, conn\_out\_sum\_orig\_bytes, conn\_out\_sum\_resp\_bytes, conn\_out\_count\_uid, dns\_in\_count\_uid, dns\_in\_distinct\_query, dns\_in\_RD\_true, dns\_out\_count\_uid, sip\_in\_count\_uid, http\_in\_count\_uid, ssh\_in\_count\_uid, ssl\_in\_count\_uid

### data\_train = 20180414-20190413; data\_test = 20190414-20190514; sequence\_len = 12

- quite stochastic results, average test of 10x is needed
  - 20190620\_083509-eval\_1y\_train.tsv

#### data train = 20180501-20181231; data test = 20190101-20190430; sequence len = 12

- delta=True is better, more stable results
  - o 20190606 154908-eval-14-delta false.tsv
  - 20190607\_123752-eval-14-delta\_true.tsv
- conn|in\_sum\_orig\_bytes|in\_sum\_resp\_bytes
  - 20190602\_123100-eval-payload-delta\_true.tsv
  - 20190603\_103015-eval-payload-delta\_false.tsv
- ssh|ssh\_in
  - 20190530\_083837-eval-ssh\_in-delta\_true.tsv
  - 20190529\_130739-eval-ssh\_in-delta\_false.tsv
- batch\_normalization: no effects
  - 20190612\_084925-eval\_batch\_norm.tsv
- stacked LSTM (3 stacks): long runtime, improved results like birectLSTM a seq2seqLSTM
  - 20190617\_125812-eval\_stackedLSTM.tsv
- autoencoder MLP: quite good
  - 20190618\_140520-eval\_autoencoder.tsv
- · temporal TCN: quite good; speed-up all by cuDNN
  - 20190618\_152323-eval\_cudnn\_tcn.tsv
- · attention LSTM: similar like bidirect or stacked
  - 20190619\_094702-eval\_attention\_stackedtcn.tsv
- 11 models: 'MLP', 'autoencoderMLP', 'LSTM', 'GRU', 'bidirectLSTM', 'seq2seqLSTM', 'stackedLSTM', 'attentionLSTM', 'Conv1D', 'TCN', 'stackedTCN'. Stochatic results --> need average of n-test
  - o 20190619\_144152-eval.tsv

#### Estimation MI for continuous vars 20190528 MIR n=3 n=5 n=7

• MIR values amongs features are quite small --> separate models are better

- Augmented Dickey-Fuller Test (ADF) passed for all features (OK)
- test linearity passed for all features (OK)