

Python 3.7.4 (default, Aug 9 2019, 18:34:13) [MSC v.1915 64 bit (AMD64)]
Type "copyright", "credits" or "license" for more information.

IPython 7.10.1 -- An enhanced Interactive Python.

```
In [1]: 'C:/Users/strix/Documents/GitHub/AI-PAAS/CMAPSS/Script_Main.py' = 'C:/Users/strix/Documents/GitHub/AI-PAAS/CMAPSS'
```

Number of extracted features are 3

WARNING:tensorflow:From C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core\python\ops\resource_variable_ops.py:1630: calling BaseResourceVariable.__init__ (from tensorflow.python.ops.resource_variable_ops) with constraint is deprecated and will be removed in a future version.

Instructions for updating:

If using Keras pass *_constraint arguments to layers.

C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core\python\keras\layers\recurrent.py:781: DeprecationWarning: Using or importing the ABCs from 'collections' instead of from 'collections.abc' is deprecated, and in 3.8 it will stop working

```
if isinstance(inputs, collections.Sequence)
```

C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core\python\keras\engine\training_utils.py:1293: DeprecationWarning: Using or importing the ABCs from 'collections' instead of from 'collections.abc' is deprecated, and in 3.8 it will stop working

```
if isinstance(sample_weight_mode, collections.Mapping):
```

Model: "sequential"

Layer (type)	Output Shape	Param #
masking (Masking)	(None, None, 3)	0
simple_rnn (SimpleRNN)	(None, None, 15)	285
layer_normalization (LayerNo	(None, None, 15)	30
simple_rnn_1 (SimpleRNN)	(None, 15)	465
layer_normalization_1 (Layer	(None, 15)	30
dense (Dense)	(None, 15)	240
leaky_re_lu (LeakyReLU)	(None, 15)	0
batch_normalization (BatchNo	(None, 15)	60
dense_1 (Dense)	(None, 15)	240
leaky_re_lu_1 (LeakyReLU)	(None, 15)	0
batch_normalization_1 (Batch	(None, 15)	60
dense_2 (Dense)	(None, 1)	16

Total params: 1,426

Trainable params: 1,366

Non-trainable params: 60

None

Train on 4235 samples, validate on 1818 samples

Epoch 1/5
 4235/4235 [=====] - 58s 14ms/sample - loss: 4792.9349 - val_loss: 2698.4720
 Epoch 2/5
 4235/4235 [=====] - 55s 13ms/sample - loss: 2268.5516 - val_loss: 1238.3249
 Epoch 3/5
 4235/4235 [=====] - 54s 13ms/sample - loss: 1382.2325 - val_loss: 1341.8584
 Epoch 4/5
 4235/4235 [=====] - 54s 13ms/sample - loss: 1381.9599 - val_loss: 1146.9747
 Epoch 5/5
 4235/4235 [=====] - 54s 13ms/sample - loss: 1357.7348 - val_loss: 921.2180
 PCA test variation is less than the train variation. It is - 0.82
 The score is - 1069 and mse is - 1133.1431762913576 and pme is - -26.082073676439478 !!! Cry or Celebrate

In [2]: 'C:/Users/strix/Documents/GitHub/AI-PAAS/CMAPSS/Script_Main.py' = 'C:/Users/strix/Documents/GitHub/AI-PAAS/CMAPSS'

Reloaded modules: Run, Input, Preprocess, Testing, Training

Number of extracted features are 3
 Model: "sequential"

Layer (type)	Output Shape	Param #
masking (Masking)	(None, None, 3)	0
simple_rnn (SimpleRNN)	(None, None, 30)	1020
layer_normalization (LayerNo	(None, None, 30)	60
simple_rnn_1 (SimpleRNN)	(None, 25)	1400
layer_normalization_1 (Layer	(None, 25)	50
dense (Dense)	(None, 30)	780
leaky_re_lu (LeakyReLU)	(None, 30)	0
batch_normalization (BatchNo	(None, 30)	120
dense_1 (Dense)	(None, 25)	775
leaky_re_lu_1 (LeakyReLU)	(None, 25)	0
batch_normalization_1 (Batch	(None, 25)	100
dense_2 (Dense)	(None, 1)	26

=====
 Total params: 4,331
 Trainable params: 4,221
 Non-trainable params: 110

None
 Train on 4235 samples, validate on 1818 samples
 Epoch 1/10

224/4235 [>.....] - ETA: 1:01 - loss: 5397.8730Traceback (most recent call last):

```
File "C:\Users\strix\Documents\GitHub\AI-PAAS\CMAPSS\Script_Main.py", line 49, in <module>
    tracking = False)

File "C:\Users\strix\Documents\GitHub\AI-PAAS\CMAPSS\Run.py", line 96, in cMAPPS
    rnn_ff.train_model(cp.train_in, cp.train_out, cp.val_in, cp.val_out)

File "C:\Users\strix\Documents\GitHub\AI-PAAS\CMAPSS\Training.py", line 185, in
train_model
    callbacks      = callbacks)

File "C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core
\python\keras\engine\training.py", line 728, in fit
    use_multiprocessing=use_multiprocessing)

File "C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core
\python\keras\engine\training_arrays.py", line 674, in fit
    steps_name='steps_per_epoch')

File "C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core
\python\keras\engine\training_arrays.py", line 393, in model_iteration
    batch_outs = f(ins_batch)

File "C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core
\python\keras\backend.py", line 3580, in __call__
    run_metadata=self.run_metadata)

File "C:\Users\strix\AppData\Local\Continuum\miniconda3\lib\site-packages\tensorflow_core
\python\client\session.py", line 1472, in __call__
    run_metadata_ptr)
```

KeyboardInterrupt

```
In [3]:          'C:/Users/strix/Documents/GitHub/AI-PAAS/CMAPSS/Script_Main.py'      = 'C:/
Users/strix/Documents/GitHub/AI-PAAS/CMAPSS '
```

Reloaded modules: Run, Input, Preprocess, Testing, Training

Number of extracted features are 3

Model: "sequential_1"

Layer (type)	Output Shape	Param #
=====	=====	=====
masking_1 (Masking)	(None, None, 3)	0
simple_rnn_2 (SimpleRNN)	(None, None, 30)	1020
layer_normalization_2 (Layer	(None, None, 30)	60
simple_rnn_3 (SimpleRNN)	(None, 25)	1400
layer_normalization_3 (Layer	(None, 25)	50
dense_3 (Dense)	(None, 30)	780
leaky_re_lu_2 (LeakyReLU)	(None, 30)	0

batch_normalization_2 (Batch Normalization)	(None, 30)	120
dense_4 (Dense)	(None, 25)	775
leaky_re_lu_3 (LeakyReLU)	(None, 25)	0
batch_normalization_3 (Batch Normalization)	(None, 25)	100
dense_5 (Dense)	(None, 1)	26
=====		
Total params: 4,331		
Trainable params: 4,221		
Non-trainable params: 110		

```

None
Train on 4235 samples, validate on 1818 samples
Epoch 1/10
4235/4235 [=====] - 56s 13ms/sample - loss: 4301.1943 - val_loss: 1252.0575
Epoch 2/10
4235/4235 [=====] - 54s 13ms/sample - loss: 1785.2415 - val_loss: 2127.0879
Epoch 3/10
4235/4235 [=====] - 54s 13ms/sample - loss: 1507.6024 - val_loss: 1368.7453
Epoch 4/10
4235/4235 [=====] - 54s 13ms/sample - loss: 1405.6809 - val_loss: 1072.0123
Epoch 5/10
4235/4235 [=====] - 55s 13ms/sample - loss: 1330.4722 - val_loss: 1021.2278
Epoch 6/10
4235/4235 [=====] - 55s 13ms/sample - loss: 1317.1576 - val_loss: 904.6849
Epoch 7/10
4235/4235 [=====] - 55s 13ms/sample - loss: 1329.0421 - val_loss: 879.7451
Epoch 8/10
4235/4235 [=====] - 55s 13ms/sample - loss: 1281.9168 - val_loss: 1082.2638
Epoch 9/10
4235/4235 [=====] - 56s 13ms/sample - loss: 1307.7086 - val_loss: 836.4364
Epoch 10/10
4235/4235 [=====] - 56s 13ms/sample - loss: 1188.5978 - val_loss: 943.6180
PCA test variation is less than the train variation. It is - 0.82
The score is - 612 and mse is - 834.6220600130378 and pme is - -16.027409353256225 !!! Cry or Celebrate

```

In [4]: