train NN on 1110 set of HW Annotatons:

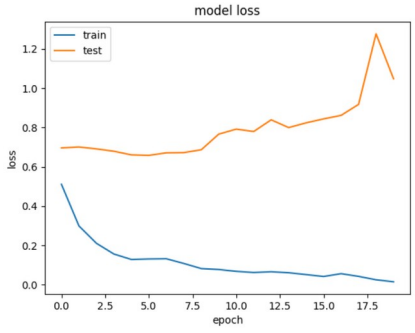
data is stored in: h5fileHWcalls_1110records.h5"

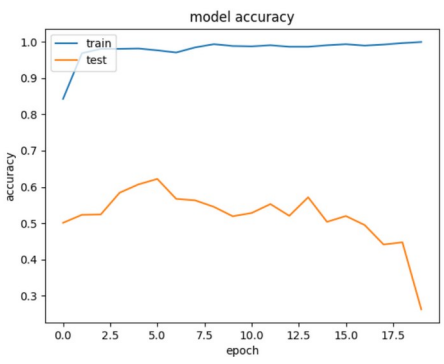
eval_labels length 54
eval_specs length 54
test_labels length 228
test_specs length 228
train_labels length 828
train_specs length 828

Prior to training:
Confusion matrix fractions for predictions on dataset train dataset of length 100
PREDICT 0 1
Label = 0 TN 0.030 FN 0.480
Label = 1 FP 0.040 TP 0.450

After 20 epochs:
Epoch 20: loss improved from 0.02560 to 0.01537, saving model to /home/val/PycharmProjects/github/signal-classifier/models/Classifier_75_20_5_[256-128-32-8]_Em_h5_best_1100.ckpt
10/10 - 90s - loss: 0.0154 - accuracy: 1.0000 - val_loss: 1.0484 - val_accuracy: 0.2621 - 90s/epoch - 9s/step
save classifyAE_Model Classifier_75_20_5_[256-128-32-8]_Em_h5 at directory /home/val/PycharmProjects/github/signal-classifier/models/Classifier_75_20_5_[256-128-32-8]_Em_h5_0_20_epochs/
Elapsed time s 2374, m 39, hr 0.66 s/epoch 118.73
history keys dict_keys(['loss', 'accuracy', 'val_loss', 'val_accuracy'])
models/history_Classifier_75_20_5_[256-128-32-8]_Em_h5_[]-0_1100.pkl

Confusion matrix fractions for predictions on dataset train dataset of length 100
PREDICT 0 1
Label = 0 TN 0.540 FN 0.000
Label = 1 FP 0.130 TP 0.330
Confusion matrix fractions for predictions on dataset test dataset of length 8
PREDICT 0 1
Label = 0 TN 0.000 FN 0.875
Label = 1 FP 0.000 TP 0.125
top of generate
Confusion matrix fractions for predictions on dataset eval dataset of length 54
PREDICT 0 1
Label = 0 TN 0.241 FN 0.111
Label = 1 FP 0.648 TP 0.000





```
Model: "model_1"
_________________________________________________________________
 Layer (type)                Output Shape              Param #
=================================================================
 input_1 (InputLayer)        [(None, 256, 256, 1)]     0
 conv2d (Conv2D)             (None, 128, 128, 256)     2304
 batch_normalization (BatchN  (None, 128, 128, 256)    1024
 ormalization)
 leaky_re_lu (LeakyReLU)     (None, 128, 128, 256)     0
 conv2d_1 (Conv2D)           (None, 64, 64, 128)       294912
 batch_normalization_1 (Batc  (None, 64, 64, 128)      512
 hNormalization)
 leaky_re_lu_1 (LeakyReLU)   (None, 64, 64, 128)       0
 conv2d_2 (Conv2D)           (None, 32, 32, 32)        36864
 batch_normalization_2 (Batc  (None, 32, 32, 32)       128
 hNormalization)
 leaky_re_lu_2 (LeakyReLU)   (None, 32, 32, 32)        0
 conv2d_3 (Conv2D)           (None, 16, 16, 8)         2304
 batch_normalization_3 (Batc  (None, 16, 16, 8)        32
 hNormalization)
 leaky_re_lu_3 (LeakyReLU)   (None, 16, 16, 8)         0
-------------  Above is the Encoder section ----------------
 flatten (Flatten)           (None, 2048)              0
 dense (Dense)               (None, 64)                131136
 re_lu (ReLU)                (None, 64)                0
 dense_1 (Dense)             (None, 16)                1040
 re_lu_1 (ReLU)              (None, 16)                0
 dense_2 (Dense)             (None, 1)                 17
 activation (Activation)     (None, 1)                 0
=================================================================
Total params: 470,273
Trainable params: 469,425
Non-trainable params: 848
```