2004.02.17.12.22.39 2004.02.17.12.32.39 2004.02.17.12.42.39 2004.02.17.12.52.39 2004.02.17.13.02.39 2004.02.17.13.12.39 2004.02.17.13.22.39 2004.02.17.13.32.39 2004.02.17.13.42.39 2004.02.17.13.52.39 2004.02.17.14.02.39 2004.02.17.14.12.39 2004.02.17.14.22.39 2004.02.17.14.32.39 2004.02.17.14.42.39 2004.02.17.14.52.39 2004.02.17.15.02.39 2004.02.17.15.12.39 2004.02.17.15.22.39 2004.02.17.15.32.39 2004.02.17.15.42.39 2004.02.17.15.52.39 2004.02.17.16.02.39 2004.02.17.16.12.39 2004.02.17.16.22.39 2004.02.17.16.32.39 2004.02.17.16.42.39 2004.02.17.16.52.39 2004.02.17.17.02.39 2004.02.17.17.12.39 2004.02.17.17.22.39 2004.02.17.17.32.39 2004.02.17.17.42.39 2004.02.17.17.52.39 2004.02.17.18.02.39 2004.02.17.18.12.39 2004.02.17.18.22.39 2004.02.17.18.32.39 2004.02.17.18.42.39 2004.02.17.18.52.39 2004.02.17.19.02.39 2004.02.17.19.12.39 2004.02.17.19.22.39 2004.02.17.19.32.39 2004.02.17.19.42.39 2004.02.17.19.52.39 2004.02.17.20.02.39 2004.02.17.20.12.39 2004.02.17.20.22.39 2004.02.17.20.32.39 2004.02.17.20.42.39 2004.02.17.20.52.39 2004.02.17.21.02.39 2004.02.17.21.12.39 2004.02.17.21.22.39 2004.02.17.21.32.39 2004.02.17.21.42.39 2004.02.17.21.52.39 2004.02.17.22.02.39 2004.02.17.22.12.39 2004.02.17.22.22.39 2004.02.17.22.32.39 2004.02.17.22.42.39 2004.02.17.22.52.39 2004.02.17.23.02.39 2004.02.17.23.12.39 2004.02.17.23.22.39 2004.02.17.23.32.39 2004.02.17.23.42.39 2004.02.17.23.52.39 2004.02.18.00.02.39 2004.02.18.00.12.39 2004.02.18.00.22.39 2004.02.18.00.32.39 2004.02.18.00.42.39 2004.02.18.00.52.39 2004.02.18.01.02.39 2004.02.18.01.12.39 2004.02.18.01.22.39 2004.02.18.01.32.39 2004.02.18.01.42.39 2004.02.18.01.52.39 2004.02.18.02.02.39 2004.02.18.02.12.39 2004.02.18.02.22.39 2004.02.18.02.32.39 2004.02.18.02.42.39 2004.02.18.02.52.39 2004.02.18.03.02.39 2004.02.18.03.12.39 2004.02.18.03.22.39 2004.02.18.03.32.39 2004.02.18.03.42.39 2004.02.18.03.52.39 2004.02.18.04.02.39 2004.02.18.04.12.39 2004.02.18.04.22.39 2004.02.18.04.32.39 2004.02.18.04.42.39 2004.02.18.04.52.39 2004.02.18.05.02.39 2004.02.18.05.12.39 2004.02.18.05.22.39 2004.02.18.05.32.39 2004.02.18.05.42.39 2004.02.18.05.52.39 2004.02.18.06.02.39 2004.02.18.06.12.39 2004.02.18.06.22.39 2004.02.18.06.32.39 2004.02.18.06.42.39 2004.02.18.06.52.39 2004.02.18.07.02.39 2004.02.18.07.12.39 2004.02.18.07.22.39 2004.02.18.07.32.39 2004.02.18.07.42.39 2004.02.18.07.52.39 2004.02.18.08.02.39 2004.02.18.08.12.39 2004.02.18.08.22.39 2004.02.18.08.32.39 2004.02.18.08.42.39 2004.02.18.08.52.39 2004.02.18.09.02.39 2004.02.18.09.12.39 2004.02.18.09.22.39 2004.02.18.09.32.39 2004.02.18.09.42.39 2004.02.18.09.52.39 2004.02.18.10.02.39 2004.02.18.10.12.39 2004.02.18.10.22.39 2004.02.18.10.32.39 2004.02.18.10.42.39 2004.02.18.10.52.39 2004.02.18.11.02.39 2004.02.18.11.12.39 2004.02.18.11.22.39 2004.02.18.11.32.39 2004.02.18.11.42.39 2004.02.18.11.52.39 2004.02.18.12.02.39 2004.02.18.12.12.39 2004.02.18.12.22.39 2004.02.18.12.32.39 2004.02.18.12.42.39 2004.02.18.12.52.39 2004.02.18.13.02.39 2004.02.18.13.12.39 2004.02.18.13.22.39 2004.02.18.13.32.39 2004.02.18.13.42.39 2004.02.18.13.52.39 2004.02.18.14.02.39 2004.02.18.14.12.39 2004.02.18.14.22.39 2004.02.18.14.32.39 2004.02.18.14.42.39 2004.02.18.14.52.39 2004.02.18.15.02.39 2004.02.18.15.12.39 2004.02.18.15.22.39 2004.02.18.15.32.39 2004.02.18.15.42.39 2004.02.18.15.52.39 2004.02.18.16.02.39 2004.02.18.16.12.39 2004.02.18.16.22.39 2004.02.18.16.32.39 2004.02.18.16.42.39 2004.02.18.16.52.39 2004.02.18.17.02.39 2004.02.18.17.12.39 2004.02.18.17.22.39 2004.02.18.17.32.39 2004.02.18.17.42.39 2004.02.18.17.52.39 2004.02.18.18.02.39 2004.02.18.18.12.39 2004.02.18.18.22.39 2004.02.18.18.32.39 2004.02.18.18.42.39 2004.02.18.18.52.39 2004.02.18.19.02.39 2004.02.18.19.12.39 2004.02.18.19.22.39 2004.02.18.19.32.39 2004.02.18.19.42.39 2004.02.18.19.52.39 2004.02.18.20.02.39 2004.02.18.20.12.39 2004.02.18.20.22.39 2004.02.18.20.32.39 2004.02.18.20.42.39 2004.02.18.20.52.39 2004.02.18.21.02.39 2004.02.18.21.12.39 2004.02.18.21.22.39 2004.02.18.21.32.39 2004.02.18.21.42.39 2004.02.18.21.52.39 2004.02.18.22.02.39 2004.02.18.22.12.39 2004.02.18.22.22.39 2004.02.18.22.32.39 2004.02.18.22.42.39 2004.02.18.22.52.39 2004.02.18.23.02.39 2004.02.18.23.12.39 2004.02.18.23.22.39 2004.02.18.23.32.39 2004.02.18.23.42.39 2004.02.18.23.52.39 2004.02.19.00.02.39 2004.02.19.00.12.39 2004.02.19.00.22.39 2004.02.19.00.32.39 2004.02.19.00.42.39 2004.02.19.00.52.39 2004.02.19.01.02.39 2004.02.19.01.12.39 2004.02.19.01.22.39 2004.02.19.01.32.39 2004.02.19.01.42.39 2004.02.19.01.52.39 2004.02.19.02.02.39 2004.02.19.02.12.39 2004.02.19.02.22.39 2004.02.19.02.32.39 2004.02.19.02.42.39 2004.02.19.02.52.39 2004.02.19.03.02.39 2004.02.19.03.12.39 2004.02.19.03.22.39 2004.02.19.03.32.39

```
2004.02.19.03.42.39

2004.02.19.04.02.39

2004.02.19.04.12.39

2004.02.19.04.22.39

2004.02.19.04.32.39

2004.02.19.04.32.39

2004.02.19.04.42.39

2004.02.19.04.52.39

2004.02.19.05.02.39

2004.02.19.05.22.39

2004.02.19.05.32.39

2004.02.19.05.32.39

2004.02.19.05.32.39
```

W0802 14:48:34.981591 23232 deprecation_wrapper.py:119] From C:\Users\Yesser\Anaconda3\lib\site-packages\keras\backend\tensorflow_backend.py:74: The name tf.get_default_graph is deprecated. Please use tf.compat.v1.get_default_graph instead.

W0802 14:48:34.981591 23232 deprecation_wrapper.py:119] From C:\Users\Yesser\Anaconda3\lib\site-packages\keras\backend\tensorflow_backend.py:517: The name tf.placeholder is deprecated. Please use tf.compat.v1.placeholder instead.

W0802 14:48:34.981591 23232 deprecation_wrapper.py:119] From C:\Users\Yesser\Anaconda3\lib\site-packages\keras\backend\tensorflow_backend.py:4138: The name tf.random_uniform is deprecated. Please use tf.random.uniform instead.

2004.02.19.05.52.39 2004.02.19.06.02.39 2004.02.19.06.12.39 2004.02.19.06.22.39

	Bearing 1	Bearing 2	Bearing 3	Bearing 4
2004-02-12 10:32:39	0.058333	0.071832	0.083242	0.043067
2004-02-12 10:42:39	0.058995	0.074006	0.084435	0.044541
2004-02-12 10:52:39	0.060236	0.074227	0.083926	0.044443
2004-02-12 11:02:39	0.061455	0.073844	0.084457	0.045081
2004-02-12 11:12:39	0.061361	0.075609	0.082837	0.045118

Layer (type)	Output Shape	Param #
<pre>input_1 (InputLayer)</pre>	(None, 4)	0
dense_1 (Dense)	(None, 32)	160
dense_2 (Dense)	(None, 16)	528
dense_3 (Dense)	(None, 16)	272
donso 4 (Donso)	(None 4)	60

ense_4 (Dense) (None, 4) 68

W0802 14:48:35.040623 23232 deprecation_wrapper.py:119] From C:\Users\Yesser\Anaconda3\lib\site-packages\keras\optimizers.py:790: The name tf.train.Optimizer is deprecated. Please use tf.compat.v1.train.Optimizer instead.

W0802 14:48:35.139214 23232 deprecation_wrapper.py:119] From C:\Users\Yesser\Anaconda3\lib\site-packages\keras\backend\tensorflow_backend.py:986: The name tf.assign_add is deprecated. Please use tf.compat.v1.assign_add instead.

Total params: 1,028 Trainable params: 1,028 Non-trainable params: 0

```
Train on 213 samples, validate on 12 samples
Epoch 1/100
213/213 [============= ] - 0s 1ms/step - loss: 0.0712 - acc: 0.1925 -
val loss: 0.0132 - val acc: 0.1667
Epoch 2/100
val loss: 0.0139 - val acc: 0.1667
Epoch 3/100
213/213 [============ ] - 0s 92us/step - loss: 0.0091 - acc: 0.6995 -
val loss: 0.0078 - val acc: 0.1667
Epoch 4/100
213/213 [============ ] - 0s 115us/step - loss: 0.0062 - acc: 0.7653 -
val loss: 0.0061 - val acc: 0.3333
Epoch 5/100
213/213 [============ ] - 0s 119us/step - loss: 0.0043 - acc: 0.7653 -
val loss: 0.0054 - val acc: 0.3333
Epoch 6/100
213/213 [============ ] - 0s 118us/step - loss: 0.0032 - acc: 0.7887 -
val loss: 0.0042 - val acc: 0.3333
Epoch 7/100
213/213 [============= ] - 0s 78us/step - loss: 0.0025 - acc: 0.8216 -
val loss: 0.0031 - val acc: 0.3333
Epoch 8/100
213/213 [============== ] - 0s 81us/step - loss: 0.0020 - acc: 0.8779 -
val loss: 0.0038 - val acc: 0.3333
Epoch 9/100
213/213 [============== ] - 0s 78us/step - loss: 0.0016 - acc: 0.8685 -
val loss: 0.0022 - val acc: 0.4167
Epoch 10/100
val loss: 0.0021 - val acc: 0.4167
Epoch 11/100
213/213 [============ ] - 0s 93us/step - loss: 0.0011 - acc: 0.9014 -
val_loss: 0.0010 - val_acc: 0.6667
Epoch 12/100
213/213 [============= ] - 0s 94us/step - loss: 8.6308e-04 - acc: 0.9108 -
val_loss: 0.0014 - val_acc: 0.5833
Epoch 13/100
213/213 [============= ] - 0s 87us/step - loss: 6.5105e-04 - acc: 0.9202 -
val loss: 0.0010 - val acc: 0.7500
Epoch 14/100
213/213 [============] - 0s 69us/step - loss: 5.7188e-04 - acc: 0.9531 -
val loss: 5.7413e-04 - val acc: 0.8333
Epoch 15/100
213/213 [============= ] - 0s 80us/step - loss: 4.3372e-04 - acc: 0.9343 -
val loss: 4.4352e-04 - val acc: 0.8333
Epoch 16/100
213/213 [============] - 0s 77us/step - loss: 3.4724e-04 - acc: 0.9531 -
val loss: 2.8174e-04 - val acc: 0.8333
Epoch 17/100
val loss: 1.4795e-04 - val acc: 0.9167
Epoch 18/100
213/213 [============] - 0s 61us/step - loss: 2.3720e-04 - acc: 0.9671 -
val loss: 1.9359e-04 - val acc: 0.9167
Epoch 19/100
val loss: 8.9373e-05 - val acc: 0.9167
```

```
Epoch 20/100
val loss: 7.9647e-05 - val acc: 1.0000
Epoch 21/100
val loss: 9.1540e-05 - val acc: 0.9167
Epoch 22/100
val_loss: 4.3652e-05 - val_acc: 1.0000
Epoch 23/100
213/213 [============] - 0s 87us/step - loss: 1.3264e-04 - acc: 0.9859 -
val loss: 6.1750e-05 - val acc: 1.0000
Epoch 24/100
213/213 [============= ] - 0s 74us/step - loss: 1.3063e-04 - acc: 0.9718 -
val loss: 8.0482e-05 - val acc: 1.0000
Epoch 25/100
213/213 [============= ] - 0s 59us/step - loss: 1.1520e-04 - acc: 0.9812 -
val loss: 5.3266e-05 - val acc: 1.0000
Epoch 26/100
213/213 [============== ] - 0s 83us/step - loss: 1.1196e-04 - acc: 0.9812 -
val loss: 4.4906e-05 - val acc: 1.0000
Epoch 27/100
val loss: 5.7432e-05 - val acc: 1.0000
Epoch 28/100
213/213 [============] - 0s 78us/step - loss: 1.0574e-04 - acc: 0.9765 -
val loss: 5.0378e-05 - val acc: 1.0000
Epoch 29/100
val loss: 5.9725e-05 - val acc: 1.0000
Epoch 30/100
213/213 [============= ] - 0s 95us/step - loss: 9.5335e-05 - acc: 0.9812 -
val loss: 5.3440e-05 - val acc: 1.0000
Epoch 31/100
213/213 [============= ] - 0s 92us/step - loss: 9.3548e-05 - acc: 0.9765 -
val loss: 5.5996e-05 - val acc: 1.0000
Epoch 32/100
val_loss: 5.9954e-05 - val_acc: 1.0000
Epoch 33/100
213/213 [============] - 0s 78us/step - loss: 9.0218e-05 - acc: 0.9765 -
val loss: 5.1862e-05 - val acc: 1.0000
Epoch 34/100
val loss: 8.0360e-05 - val acc: 1.0000
Epoch 35/100
val loss: 5.6963e-05 - val acc: 1.0000
Epoch 36/100
213/213 [============= ] - 0s 78us/step - loss: 7.6377e-05 - acc: 0.9859 -
val loss: 5.4954e-05 - val acc: 1.0000
Epoch 37/100
val loss: 6.3340e-05 - val acc: 1.0000
Epoch 38/100
213/213 [============ ] - 0s 88us/step - loss: 7.8866e-05 - acc: 0.9765 -
val loss: 4.9992e-05 - val acc: 1.0000
Epoch 39/100
```

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val loss: 8.8050e-05 - val acc: 1.0000
Epoch 40/100
213/213 [============= ] - 0s 93us/step - loss: 8.0483e-05 - acc: 0.9718 -
val loss: 7.2359e-05 - val acc: 1.0000
Epoch 41/100
val loss: 4.6618e-05 - val acc: 1.0000
Epoch 42/100
val loss: 7.3333e-05 - val acc: 0.9167
Epoch 43/100
213/213 [============ ] - 0s 93us/step - loss: 7.9466e-05 - acc: 0.9765 -
val loss: 4.7595e-05 - val acc: 1.0000
Epoch 44/100
val loss: 6.6622e-05 - val acc: 1.0000
Epoch 45/100
val loss: 5.2876e-05 - val acc: 1.0000
Epoch 46/100
val loss: 7.4503e-05 - val acc: 1.0000
Epoch 47/100
val loss: 1.1075e-04 - val acc: 1.0000
Epoch 48/100
213/213 [============ ] - 0s 79us/step - loss: 7.3244e-05 - acc: 0.9859 -
val loss: 6.0223e-05 - val acc: 1.0000
Epoch 49/100
213/213 [============= ] - 0s 102us/step - loss: 7.6752e-05 - acc: 0.9765 -
val_loss: 7.9657e-05 - val_acc: 1.0000
Epoch 50/100
213/213 [============ ] - 0s 90us/step - loss: 8.2313e-05 - acc: 0.9812 -
val loss: 1.1684e-04 - val acc: 0.9167
Epoch 51/100
213/213 [============= ] - 0s 77us/step - loss: 9.0986e-05 - acc: 0.9671 -
val_loss: 5.2471e-05 - val_acc: 1.0000
Epoch 52/100
val_loss: 7.2159e-05 - val_acc: 1.0000
Epoch 53/100
213/213 [============ ] - 0s 93us/step - loss: 6.4182e-05 - acc: 0.9765 -
val loss: 5.1518e-05 - val acc: 1.0000
Epoch 54/100
213/213 [============= ] - 0s 78us/step - loss: 6.3203e-05 - acc: 0.9812 -
val loss: 4.5283e-05 - val acc: 1.0000
Epoch 55/100
val loss: 5.4470e-05 - val acc: 1.0000
Epoch 56/100
val loss: 5.2795e-05 - val acc: 1.0000
Epoch 57/100
val_loss: 1.0133e-04 - val_acc: 0.9167
Epoch 58/100
213/213 [============= ] - 0s 93us/step - loss: 7.2652e-05 - acc: 0.9812 -
val loss: 7.1019e-05 - val acc: 1.0000
Epoch 59/100
```

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213/213 [============ ] - 0s 95us/step - loss: 6.2514e-05 - acc: 0.9765 -
val loss: 5.4180e-05 - val acc: 1.0000
Epoch 60/100
213/213 [============ ] - 0s 77us/step - loss: 6.5197e-05 - acc: 0.9671 -
val loss: 4.0187e-05 - val acc: 1.0000
Epoch 61/100
val loss: 1.1810e-04 - val acc: 1.0000
Epoch 62/100
val loss: 5.7003e-05 - val acc: 0.9167
Epoch 63/100
213/213 [============== ] - 0s 74us/step - loss: 6.4792e-05 - acc: 0.9812 -
val loss: 4.5533e-05 - val acc: 1.0000
Epoch 64/100
213/213 [============ ] - 0s 80us/step - loss: 5.6274e-05 - acc: 0.9812 -
val loss: 4.2033e-05 - val acc: 1.0000
Epoch 65/100
213/213 [============] - 0s 61us/step - loss: 5.3427e-05 - acc: 0.9859 -
val loss: 4.5497e-05 - val_acc: 1.0000
Epoch 66/100
213/213 [============ ] - 0s 76us/step - loss: 5.7775e-05 - acc: 0.9718 -
val loss: 3.6424e-05 - val acc: 1.0000
Epoch 67/100
val loss: 4.9050e-05 - val acc: 0.9167
Epoch 68/100
val loss: 4.7863e-05 - val acc: 1.0000
Epoch 69/100
213/213 [============= ] - 0s 78us/step - loss: 5.6029e-05 - acc: 0.9718 -
val loss: 4.9731e-05 - val acc: 1.0000
Epoch 70/100
213/213 [============ ] - 0s 83us/step - loss: 5.2057e-05 - acc: 0.9812 -
val loss: 3.9922e-05 - val acc: 1.0000
Epoch 71/100
val_loss: 3.6075e-05 - val_acc: 1.0000
Epoch 72/100
213/213 [============ ] - 0s 95us/step - loss: 5.1728e-05 - acc: 0.9718 -
val loss: 4.2200e-05 - val acc: 1.0000
Epoch 73/100
213/213 [============= ] - 0s 87us/step - loss: 5.1073e-05 - acc: 0.9765 -
val loss: 3.6881e-05 - val acc: 1.0000
Epoch 74/100
213/213 [============ ] - 0s 95us/step - loss: 5.3682e-05 - acc: 0.9765 -
val loss: 3.9113e-05 - val acc: 1.0000
Epoch 75/100
213/213 [============ ] - 0s 93us/step - loss: 5.6612e-05 - acc: 0.9906 -
val loss: 4.5268e-05 - val acc: 1.0000
Epoch 76/100
213/213 [============== ] - 0s 72us/step - loss: 6.9558e-05 - acc: 0.9765 -
val loss: 4.5650e-05 - val acc: 1.0000
Epoch 77/100
213/213 [============ ] - 0s 79us/step - loss: 6.1474e-05 - acc: 0.9906 -
val loss: 5.0303e-05 - val acc: 1.0000
Epoch 78/100
213/213 [============= ] - 0s 84us/step - loss: 5.7964e-05 - acc: 0.9812 -
val loss: 5.7349e-05 - val acc: 1.0000
```

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Epoch 79/100
val loss: 4.5142e-05 - val acc: 1.0000
Epoch 80/100
val loss: 4.4044e-05 - val acc: 1.0000
Epoch 81/100
213/213 [============= ] - 0s 87us/step - loss: 5.1892e-05 - acc: 0.9812 -
val_loss: 3.1893e-05 - val_acc: 1.0000
Epoch 82/100
213/213 [============= ] - 0s 79us/step - loss: 4.4849e-05 - acc: 0.9812 -
val loss: 3.1178e-05 - val acc: 1.0000
Epoch 83/100
213/213 [============= ] - 0s 86us/step - loss: 4.4359e-05 - acc: 0.9718 -
val loss: 3.5720e-05 - val acc: 1.0000
Epoch 84/100
val loss: 6.2380e-05 - val acc: 1.0000
Epoch 85/100
val loss: 3.2333e-05 - val acc: 1.0000
Epoch 86/100
213/213 [============= ] - 0s 88us/step - loss: 4.5970e-05 - acc: 0.9765 -
val loss: 3.4559e-05 - val acc: 1.0000
Epoch 87/100
213/213 [============= ] - 0s 78us/step - loss: 3.9591e-05 - acc: 0.9812 -
val loss: 4.0575e-05 - val acc: 1.0000
Epoch 88/100
val loss: 5.6562e-05 - val acc: 1.0000
Epoch 89/100
213/213 [============= ] - 0s 79us/step - loss: 4.1171e-05 - acc: 0.9812 -
val loss: 2.4616e-05 - val acc: 1.0000
Epoch 90/100
val loss: 5.0599e-05 - val acc: 0.9167
Epoch 91/100
val_loss: 5.9225e-05 - val_acc: 0.9167
Epoch 92/100
213/213 [============ ] - 0s 76us/step - loss: 4.9512e-05 - acc: 0.9718 -
val loss: 2.4421e-05 - val acc: 1.0000
Epoch 93/100
val loss: 3.3003e-05 - val acc: 1.0000
Epoch 94/100
val loss: 3.7739e-05 - val acc: 1.0000
Epoch 95/100
val loss: 4.7923e-05 - val acc: 1.0000
Epoch 96/100
213/213 [============= ] - 0s 90us/step - loss: 5.8748e-05 - acc: 0.9765 -
val loss: 5.3504e-05 - val acc: 1.0000
Epoch 97/100
213/213 [============ ] - 0s 81us/step - loss: 4.9426e-05 - acc: 0.9718 -
val loss: 3.9967e-05 - val acc: 1.0000
Epoch 98/100
```

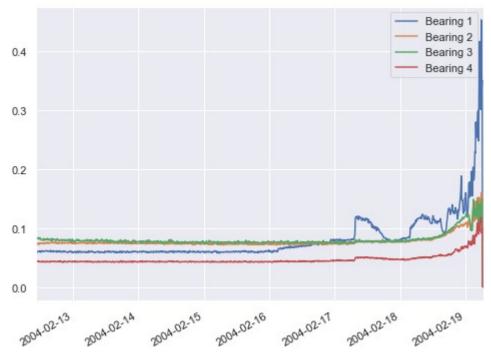
val_loss: 3.0664e-05 - val_acc: 1.0000

Epoch 99/100

val_loss: 3.8330e-05 - val_acc: 1.0000

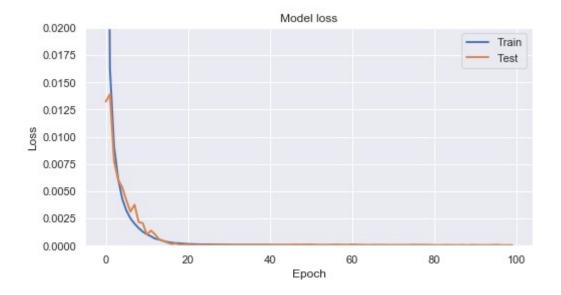
Epoch 100/100

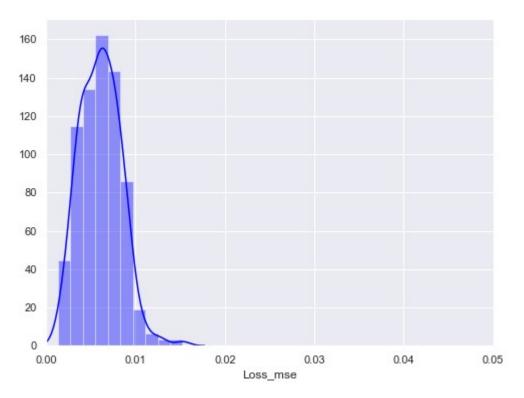
val_loss: 4.6852e-05 - val_acc: 1.0000

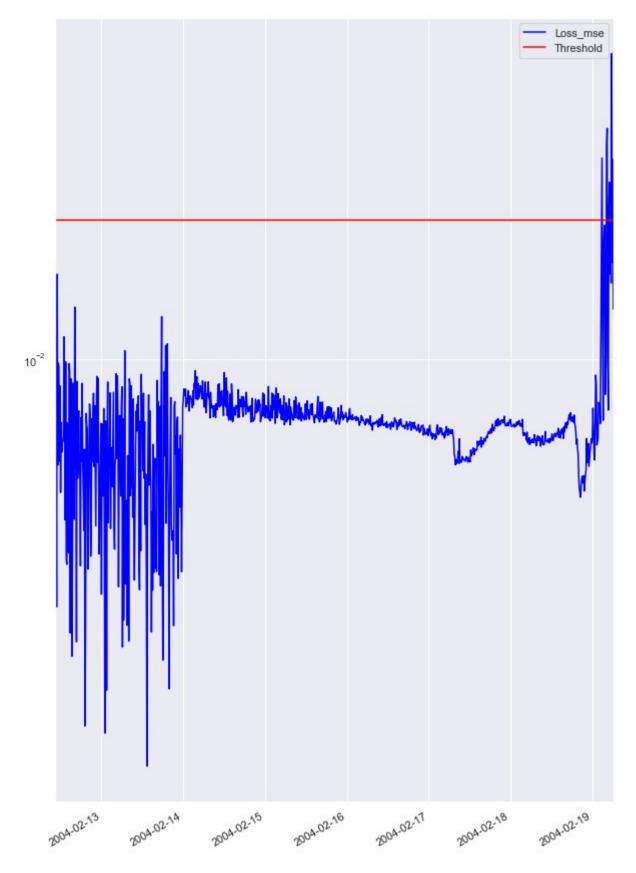


<Figure size 720x504 with 0 Axes>









In [16]: