10%KDD99中从未出现的攻击类型

·Dos: apache2

·Probe:

·U2R:

·R2L:

AE121-100：

Epoch 1/20

2023-03-15 16:05:20.985409: I tensorflow/stream\_executor/cuda/cuda\_blas.cc:1786] TensorFloat-32 will be used for the matrix multiplication. This will only be logged once.

3860/3860 [==============================] - 14s 3ms/step - loss: 8.1973e-04

Epoch 2/20

3860/3860 [==============================] - 13s 3ms/step - loss: 2.3022e-05

Epoch 3/20

3860/3860 [==============================] - 13s 3ms/step - loss: 4.9216e-06

Epoch 4/20

3860/3860 [==============================] - 13s 3ms/step - loss: 3.4746e-06

Epoch 5/20

3860/3860 [==============================] - 13s 3ms/step - loss: 2.7458e-06

Epoch 6/20

3860/3860 [==============================] - 13s 3ms/step - loss: 2.2313e-06

Epoch 7/20

3860/3860 [==============================] - 13s 3ms/step - loss: 2.0493e-06

Epoch 8/20

3860/3860 [==============================] - 13s 3ms/step - loss: 1.9119e-06

Epoch 9/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.8430e-06

Epoch 10/20

3860/3860 [==============================] - 13s 3ms/step - loss: 1.7573e-06

Epoch 11/20

3860/3860 [==============================] - 14s 4ms/step - loss: 1.7981e-06

Epoch 12/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.6338e-06

Epoch 13/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.5933e-06

Epoch 14/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.5284e-06

Epoch 15/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.5276e-06

Epoch 16/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.4371e-06

Epoch 17/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.4000e-06

Epoch 18/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.4101e-06

Epoch 19/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.3502e-06

Epoch 20/20

3860/3860 [==============================] - 12s 3ms/step - loss: 1.3026e-06

AE123-100-81：

Epoch 1/20

2023-03-15 14:34:20.445698: I tensorflow/stream\_executor/cuda/cuda\_blas.cc:1786] TensorFloat-32 will be used for the matrix multiplication. This will only be logged once.

3860/3860 [==============================] - 16s 4ms/step - loss: 7.3831e-04

Epoch 2/20

3860/3860 [==============================] - 13s 3ms/step - loss: 7.0444e-05

Epoch 3/20

3860/3860 [==============================] - 13s 3ms/step - loss: 2.9960e-05

Epoch 4/20

3860/3860 [==============================] - 13s 3ms/step - loss: 1.3319e-05

Epoch 5/20

3860/3860 [==============================] - 13s 3ms/step - loss: 9.9226e-06

Epoch 6/20

3860/3860 [==============================] - 13s 3ms/step - loss: 8.4154e-06

Epoch 7/20

3860/3860 [==============================] - 13s 3ms/step - loss: 7.8362e-06

Epoch 8/20

3860/3860 [==============================] - 14s 4ms/step - loss: 6.9387e-06

Epoch 9/20

3860/3860 [==============================] - 14s 4ms/step - loss: 6.8235e-06

Epoch 10/20

3860/3860 [==============================] - 13s 3ms/step - loss: 6.3107e-06

Epoch 11/20

3860/3860 [==============================] - 14s 4ms/step - loss: 6.1086e-06

Epoch 12/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.7024e-06

Epoch 13/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.7507e-06

Epoch 14/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.3880e-06

Epoch 15/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.3046e-06

Epoch 16/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.1782e-06

Epoch 17/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.1196e-06

Epoch 18/20

3860/3860 [==============================] - 14s 4ms/step - loss: 4.9114e-06

Epoch 19/20

3860/3860 [==============================] - 14s 4ms/step - loss: 4.9764e-06

Epoch 20/20

3860/3860 [==============================] - 14s 4ms/step - loss: 4.6757e-06

AE123-100-64：

Epoch 1/20

2023-03-15 15:38:48.076393: I tensorflow/stream\_executor/cuda/cuda\_blas.cc:1786] TensorFloat-32 will be used for the matrix multiplication. This will only be logged once.

3860/3860 [==============================] - 13s 3ms/step - loss: 7.0670e-04

Epoch 2/20

3860/3860 [==============================] - 12s 3ms/step - loss: 8.6206e-05

Epoch 3/20

3860/3860 [==============================] - 14s 4ms/step - loss: 4.6873e-05

Epoch 4/20

3860/3860 [==============================] - 13s 3ms/step - loss: 1.9313e-05

Epoch 5/20

3860/3860 [==============================] - 14s 4ms/step - loss: 1.0115e-05

Epoch 6/20

3860/3860 [==============================] - 14s 4ms/step - loss: 9.0605e-06

Epoch 7/20

3860/3860 [==============================] - 14s 4ms/step - loss: 8.2923e-06

Epoch 8/20

3860/3860 [==============================] - 13s 3ms/step - loss: 7.7072e-06

Epoch 9/20

3860/3860 [==============================] - 12s 3ms/step - loss: 7.1914e-06

Epoch 10/20

3860/3860 [==============================] - 12s 3ms/step - loss: 6.6204e-06

Epoch 11/20

3860/3860 [==============================] - 12s 3ms/step - loss: 6.0932e-06

Epoch 12/20

3860/3860 [==============================] - 12s 3ms/step - loss: 6.1110e-06

Epoch 13/20

3860/3860 [==============================] - 12s 3ms/step - loss: 5.4789e-06

Epoch 14/20

3860/3860 [==============================] - 12s 3ms/step - loss: 5.6180e-06

Epoch 15/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.2618e-06

Epoch 16/20

3860/3860 [==============================] - 14s 4ms/step - loss: 5.2936e-06

Epoch 17/20

3860/3860 [==============================] - 13s 3ms/step - loss: 4.9415e-06

Epoch 18/20

3860/3860 [==============================] - 15s 4ms/step - loss: 4.8381e-06

Epoch 19/20

3860/3860 [==============================] - 15s 4ms/step - loss: 4.9921e-06

Epoch 20/20

3860/3860 [==============================] - 15s 4ms/step - loss: 4.7064e-06

MinMax:

Relu-Leaky:

Leaky-Leaky:

Leaky-sigmoid:

Relu-sigmoid:

Relu-Relu: 0.0125