

A Novel Method for Handwritten Digit Recognition System

Train the model

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In [17]: early_stop = EarlyStopping(monitor='val_loss',patience=10)
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In [18]: model.fit(X_train,y_train,epochs=250,validation_data=(X_test,y_test),callbacks=[early_stop])
```

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Epoch 1/250
1875/1875 [=====] - 13s 7ms/step - loss: 0.1417 - accuracy: 0.9570 - val_loss: 0.0571 - val_accuracy:
0.9823
Epoch 2/250
1875/1875 [=====] - 12s 7ms/step - loss: 0.0468 - accuracy: 0.9856 - val_loss: 0.0385 - val_accuracy:
0.9868
Epoch 3/250
1875/1875 [=====] - 12s 7ms/step - loss: 0.0309 - accuracy: 0.9901 - val_loss: 0.0390 - val_accuracy:
0.9863
Epoch 4/250
1875/1875 [=====] - 12s 7ms/step - loss: 0.0213 - accuracy: 0.9931 - val_loss: 0.0378 - val_accuracy:
0.9877
Epoch 5/250
1875/1875 [=====] - 12s 6ms/step - loss: 0.0142 - accuracy: 0.9953 - val_loss: 0.0365 - val_accuracy:
0.9890
Epoch 6/250
1875/1875 [=====] - 12s 6ms/step - loss: 0.0114 - accuracy: 0.9964 - val_loss: 0.0553 - val_accuracy:
0.9846
Epoch 7/250
1875/1875 [=====] - 13s 7ms/step - loss: 0.0091 - accuracy: 0.9969 - val_loss: 0.0490 - val_accuracy:
0.9868
Epoch 8/250
1875/1875 [=====] - 12s 6ms/step - loss: 0.0072 - accuracy: 0.9975 - val_loss: 0.0469 - val_accuracy:
0.9879
```

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Epoch 8/250
1875/1875 [=====] - 12s 6ms/step - loss: 0.0072 - accuracy: 0.9975 - val_loss: 0.0469 - val_accuracy:
0.9879
Epoch 9/250
1875/1875 [=====] - 13s 7ms/step - loss: 0.0058 - accuracy: 0.9978 - val_loss: 0.0518 - val_accuracy:
0.9859
Epoch 10/250
1875/1875 [=====] - 12s 7ms/step - loss: 0.0046 - accuracy: 0.9984 - val_loss: 0.0482 - val_accuracy:
0.9887
Epoch 11/250
1875/1875 [=====] - 12s 6ms/step - loss: 0.0049 - accuracy: 0.9984 - val_loss: 0.0554 - val_accuracy:
0.9863
Epoch 12/250
1875/1875 [=====] - 12s 6ms/step - loss: 0.0033 - accuracy: 0.9988 - val_loss: 0.0547 - val_accuracy:
0.9877
Epoch 13/250
1875/1875 [=====] - 12s 7ms/step - loss: 0.0035 - accuracy: 0.9988 - val_loss: 0.0496 - val_accuracy:
0.9883
Epoch 14/250
1875/1875 [=====] - 12s 7ms/step - loss: 0.0037 - accuracy: 0.9989 - val_loss: 0.0652 - val_accuracy:
0.9864
Epoch 15/250
1875/1875 [=====] - 12s 7ms/step - loss: 0.0030 - accuracy: 0.9989 - val_loss: 0.0591 - val_accuracy:
0.9874
```

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Out[18]: <keras.callbacks.History at 0x2924d40f7c0>
```