

A NOVEL METHOD FOR HANDWRITTEN DIGIT RECOGNITION SYSTEM

TRAIN THE MODEL

```
model.fit(X_train,y_train,epochs=20,validation_data=(X_test,y_test),batch_size=32)
```

Epoch 1/20

1875/1875 [=====] - 119s 63ms/step - loss: 0.2257 - accuracy: 0.9503 - val_loss: 0.0825 - val_accuracy: 0.9746

Epoch 2/20

1875/1875 [=====] - 119s 64ms/step - loss: 0.0700 - accuracy: 0.9789 - val_loss: 0.0809 - val_accuracy: 0.9766

Epoch 3/20

1875/1875 [=====] - 114s 61ms/step - loss: 0.0545 - accuracy: 0.9833 - val_loss: 0.0775 - val_accuracy: 0.9775

Epoch 4/20

1875/1875 [=====] - 111s 59ms/step - loss: 0.0433 - accuracy: 0.9868 - val_loss: 0.0695 - val_accuracy: 0.9820

Epoch 5/20

1875/1875 [=====] - 110s 59ms/step - loss: 0.0350 - accuracy: 0.9891 - val_loss: 0.0883 - val_accuracy: 0.9764

Epoch 6/20

1875/1875 [=====] - 110s 59ms/step - loss: 0.0298 - accuracy: 0.9910 - val_loss: 0.0777 - val_accuracy: 0.9823

Epoch 7/20

1875/1875 [=====] - 111s 59ms/step - loss: 0.0258 - accuracy: 0.9922 - val_loss: 0.0855 - val_accuracy: 0.9800

Epoch 8/20

1875/1875 [=====] - 111s 59ms/step - loss: 0.0226 - accuracy: 0.9933 - val_loss: 0.0869 - val_accuracy: 0.9809

Epoch 9/20

1875/1875 [=====] - 111s 59ms/step - loss: 0.0203 - accuracy: 0.9937 - val_loss: 0.0814 - val_accuracy: 0.9840

Epoch 10/20

1875/1875 [=====] - 111s 59ms/step - loss: 0.0192 - accuracy: 0.9944 - val_loss: 0.0929 - val_accuracy: 0.9838

Epoch 11/20

1875/1875 [=====] - 113s 60ms/step - loss: 0.0194 - accuracy: 0.9945 - val_loss: 0.0844 - val_accuracy: 0.9867

Epoch 12/20

1875/1875 [=====] - 112s 60ms/step - loss: 0.0156 - accuracy: 0.9957 - val_loss: 0.1538 - val_accuracy: 0.9799