

```
In [1]: import numpy as np
import tensorflow as tf
from skimage.transform import resize

def load_test_data():
    data = np.load('data_train.npy') # Replace with your test data file
    labels = np.load('labels_train.npy') # Replace with your test labels file

    # Replicating the same preprocessing as in the training script
    data_resaped = data.T.reshape((-1, 300, 300, 3))
    resized_data = np.array([resize(img, (100, 100, 3), anti_aliasing=True) for img in data_resaped])

    if resized_data.max() > 1.0:
        data_normalized = resized_data.astype(np.float32) / 255.0
    else:
        data_normalized = resized_data

    return data_normalized, labels

def test(model, test_data, test_labels):
    loss, accuracy = model.evaluate(test_data, test_labels)
    predictions = model.predict(test_data)
    predicted_labels = np.argmax(predictions, axis=1)
    return accuracy, predicted_labels

if __name__ == "__main__":
    test_data, test_labels = load_test_data()
    model = tf.keras.models.load_model('final_model.h5')
    accuracy, predicted_labels = test(model, test_data, test_labels)

    print(f"Test Accuracy: {accuracy}")

    # Print all predicted labels side by side
    print("All Predicted Labels:")
    print(' , '.join(map(str, predicted_labels)))

    # Option 2: Save the predicted labels to a file
    # np.savetxt("predicted_labels.txt", predicted_labels, fmt="%d")
```

2023-12-06 22:45:41.813226: I tensorflow/core/platform/cpu_feature_guard.cc:151] This TensorFlow binary is optimized with oneAPI Deep Neural Network Library (oneDNN) to use the following CPU instructions in performance-critical operations: SSE4.1 SSE4.2 AVX AVX2 FMA

To enable them in other operations, rebuild TensorFlow with the appropriate compiler flags.

2023-12-06 22:45:42.876312: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1525] Created device /job:localhost/replica:0/task:0/device:GPU:0 with 78911 MB memory: -> device: 0, name: NVIDIA A100-SXM4-80GB, pci bus id: 0000:b7:00.0, compute capability: 8.0

2023-12-06 22:45:42.878054: I tensorflow/core/common_runtime/gpu/gpu_device.cc:1525] Created device /job:localhost/replica:0/task:0/device:GPU:1 with 78911 MB memory: -> device: 1, name: NVIDIA A100-SXM4-80GB, pci bus id: 0000:bd:00.0, compute capability: 8.0

2023-12-06 22:45:45.530500: I tensorflow/stream_executor/cuda/cuda_dnn.cc:366] Loaded cuDNN version 8201
50/264 [====>.....] - ETA: 0s - loss: 0.5935 - accuracy: 0.9638

2023-12-06 22:45:47.177030: I tensorflow/stream_executor/cuda/cuda_blas.cc:1774] TensorFloat-32 will be used for the matrix multiplication. This will only be logged once.

264/264 [=====] - 3s 3ms/step - loss: 0.5907 - accuracy: 0.9632

Test Accuracy: 0.963164746761322

All Predicted Labels:

0, 8, 1, 3, 0, 8, 6, 7, 2, 2, 7, 0, 1, 5, 3, 8, 0, 4, 5, 6, 1, 6, 4, 0, 7, 8, 8, 3, 4, 0
, 2, 3, 4, 4, 5, 7, 2, 8, 8, 8, 5, 2, 0, 7, 2, 2, 6, 1, 5, 0, 6, 7, 5, 1, 8, 0, 5, 4, 0
, 4, 1, 0, 6, 2, 3, 4, 2, 4, 3, 4, 2, 4, 6, 8, 1, 0, 1, 0, 8, 4, 4, 8, 0, 2, 5, 5, 5, 5
, 7, 8, 3, 3, 5, 4, 6, 6, 0, 2, 5, 0, 3, 3, 8, 8, 6, 5, 2, 1, 5, 6, 3, 5, 7, 8, 8, 3, 4, 0
, 4, 1, 5, 3, 2, 8, 8, 5, 4, 0, 1, 1, 2, 2, 6, 1, 4, 0, 8, 2, 4, 8, 7, 2, 2, 5, 4, 3
, 3, 7, 0, 2, 4, 8, 1, 4, 0, 3, 4, 1, 0, 6, 5, 5, 0, 5, 1, 2, 3, 6, 1, 3, 1, 7, 5, 4, 5
, 7, 6, 7, 4, 5, 0, 8, 4, 4, 4, 4, 7, 0, 0, 7, 6, 5, 8, 4, 8, 4, 5, 5, 4, 6, 0, 8, 5
, 2, 7, 1, 7, 3, 5, 1, 0, 6, 5, 5, 0, 0, 7, 7, 5, 5, 5, 5, 4, 0, 0, 2, 4, 3, 1, 1, 7, 6, 1, 4
, 7, 3, 4, 4, 1, 0, 6, 3, 2, 3, 6, 1, 8, 0, 0, 5, 2, 0, 8, 3, 2, 0, 4, 6, 8, 4, 2, 8, 0, 2, 4
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3	3	4	7	4	4	5	7	1	8	5	5	4	6	4	5	4	6	2	4	6	7	2	6	7	2	5	2	7	6	1	6	8	2	3	1	2	5	8	8
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4	0	1	5	8	3	3	7	3	3	0	3	6	2	2	0	1	8	7	5	4	5	5	0	3	1	4	3	2	2	4	7	2	6	5	7	7			
3	8	3	2	2	2	3	2	3	2	6	5	2	7	0	8	7	3	5	1	6	2	5	3	8	2	1	5	4	2	3	2	0	3	1	0	5			
6	0	0	7	0	2	8	1	3	2	5	3	0	8	0	1	6	3	5	5	0	4	8	2	6	8	8	3	2	6	3	1	0	1	6	4	4			
7	2	6	8	7	7	7	3	2	3	3	0	8	4	5	2	2	7	3	5	5	5	6	0	5	7	5	6	2	2	6	7	1	2	8	4	5			
3	8	5	7	1	1	8	2	3	1	6	5	0	4	2	5	4	6	1	3	8	6	7	0	4	6	2	2	6	6	0	7	3	7	8	6	5			
1	3	4	1	1	5	0	0	4	6	0	6	0	4	6	8	2	7	1	3	8	6	1	3	8	3	2	2	6	8	1	2	4	5	8	6	6			
4	1	1	6	5	6	2	2	4	7	0	5	3	7	5	8	5	6	1	0	3	5	6	3	4	6	1	4	5	2	7	4	0	5	4	2	6			
4	5	6	1	0	3	4	1	5	7	6	7	6	4	6	4	0	6	2	3	2	6	2	5	1	7	0	3	0	3	0	0	0	4	6	0	0			
7	3	5	7	1	7	1	6	2	1	5	7	7	6	6	6	5	8	0	0	6	7	8	0	5	2	6	0	3	3	3	0	0	7	0	7	0			
2	4	2	6	5	3	5	3	0	4	5	6	0	7	8	8	7	8	0	8	6	0	7	6	1	7	4	7	2	1	5	8	6	3	1	6	3			
5	4	4	7	7	6	4	5	0	4	6	8	1	7	8	1	4	0	7	4	6	2	5	1	2	7	1	7	7	3	4	7	3	8	5	1	8			
1	3	3	3	2	3	2	2	2	2	6	4	5	8	1	4	0	2	6	4	5	0	7	6	2	6	1	7	5	3	2	1	0	6	5	3	7			
8	3	5	7	2	5	2	7	6	5	3	5	0	3	7	2	1	7	0	1	3	0	5	1	8	8	0	2	8	3	7	4	2	1	6	8	1</			

7 , 5 , 8 , 1 , 1 , 1 , 6 , 0 , 3 , 8 , 4 , 2 , 6 , 2 , 3 , 1 , 4 , 7 , 5 , 8 , 3 , 7 , 7 , 5 , 2 , 4 , 4 , 8 , 2 , 8
, 5 , 6 , 1 , 4 , 8 , 2 , 5 , 7 , 1 , 8 , 2 , 0 , 0 , 4 , 3 , 1 , 7 , 5 , 3 , 6 , 2 , 7 , 1 , 1 , 7 , 3 , 5 , 5 , 0 ,
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, 3 , 0 , 1 , 3 , 6 , 3 , 5 , 8 , 5 , 6 , 3 , 8 , 3 , 0 , 2 , 8 , 4 , 6 , 4 , 1 , 2 , 5 , 1 , 2 , 4 , 2 , 1 , 4 , 1 ,
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, 0 , 7 , 6 , 2 , 6 , 2 , 5 , 8 , 5 , 2 , 0 , 5 , 2 , 4 , 3 , 5 , 7 , 7 , 3 , 6 , 5 , 4 , 2 , 0 , 1 , 7 , 5 , 6 , 3 ,
5 , 2 , 5 , 2 , 0 , 4 , 1 , 2 , 8 , 8 , 7 , 4 , 7 , 5 , 6 , 2 , 4 , 6 , 8 , 2 , 5 , 3 , 2 , 8 , 1 , 6 , 0 , 7 , 3 , 3
, 8 , 8 , 1 , 7 , 6 , 6 , 2 , 3 , 3 , 6 , 0 , 6 , 4 , 2 , 0 , 7 , 0 , 5 , 0 , 4 , 7 , 7 , 0 , 3 , 5 , 2 , 7 , 1 , 5 ,
8 , 3 , 6 , 1 , 5 , 5

In []: