

# ASSIGNMENT – 4 Report

## ELMO Model Hyperparameters

Embedding dimension= 150

Optimizer = optim.Adam(forward\_model.parameters(), lr=0.001)

Loss = CrossEntropyLoss

Batch Size = 34

## Classification Model with Frozen Weights

weights = [0.3300, 0.3300, 0.3300]

## Train Metrics

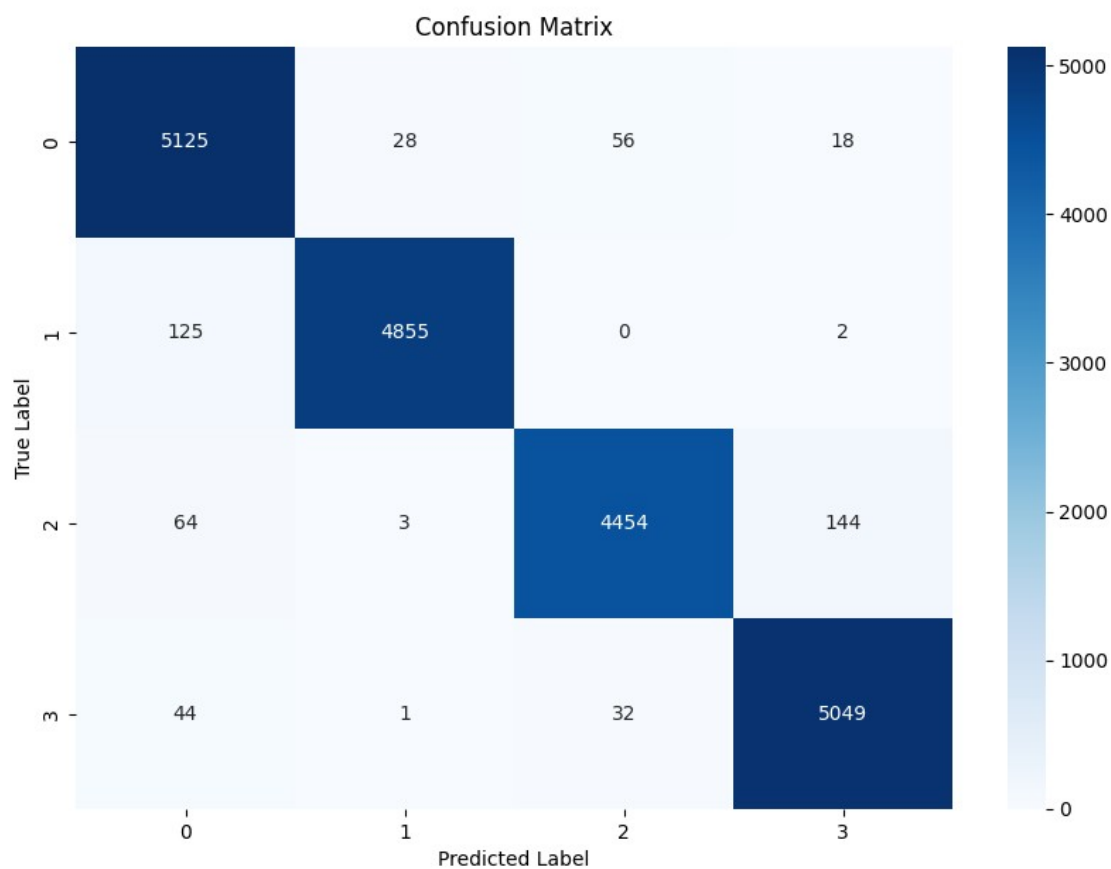
Loss: 0.0759, Accuracy: 0.9817

Accuracy: 0.9817

Precision: 0.9817333478191024

Recall: 0.9817

F1 Score: 0.9816908247356889



Test Metrics

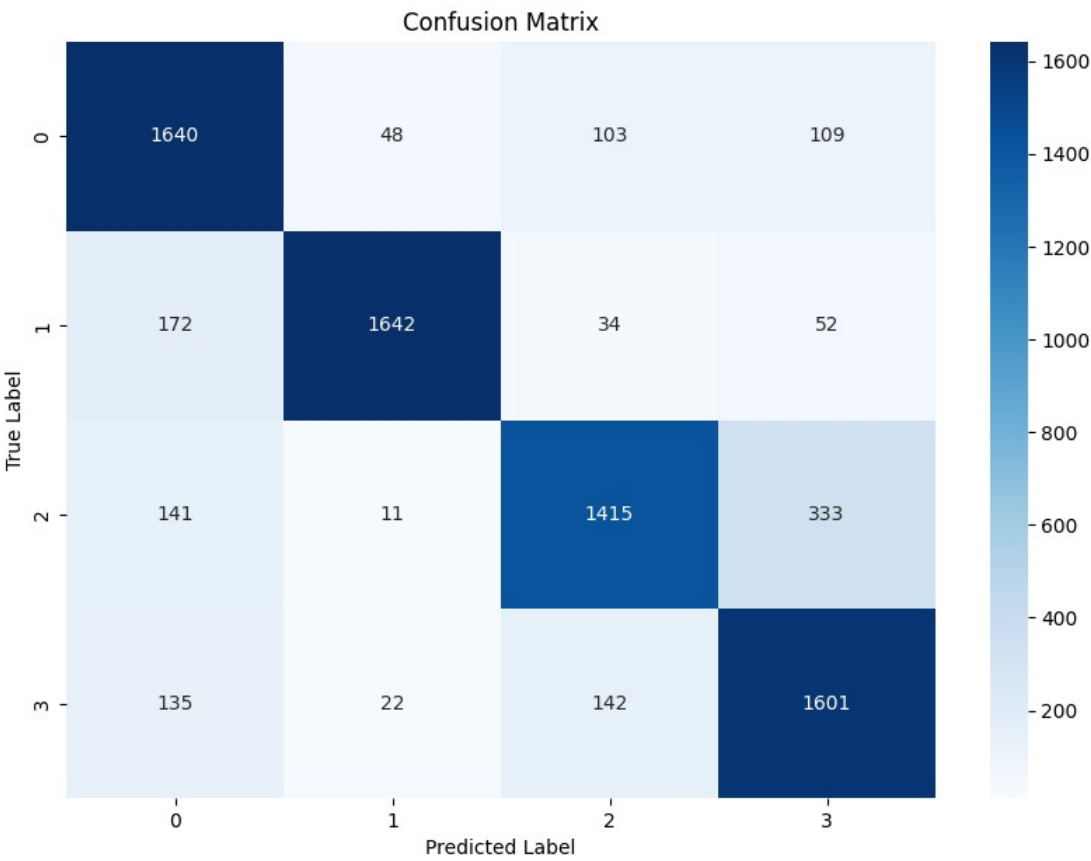
Loss: 0.5277, Accuracy: 0.8421

Accuracy: 0.8421052631578947

Precision: 0.8439886948681167

Recall: 0.8421052631578947

F1 Score: 0.8421575257512016

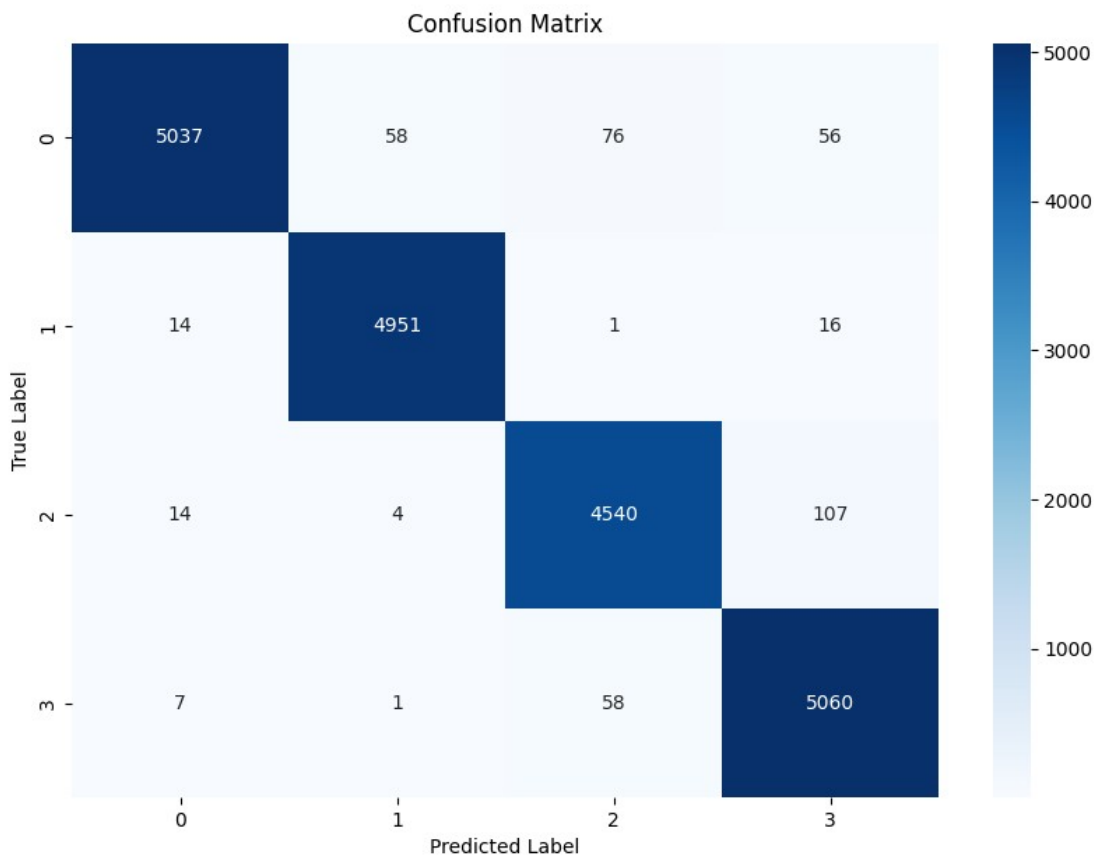


# Classification Model with Trainable Weights

weights = [0.2465, 0.3400, 0.5102]

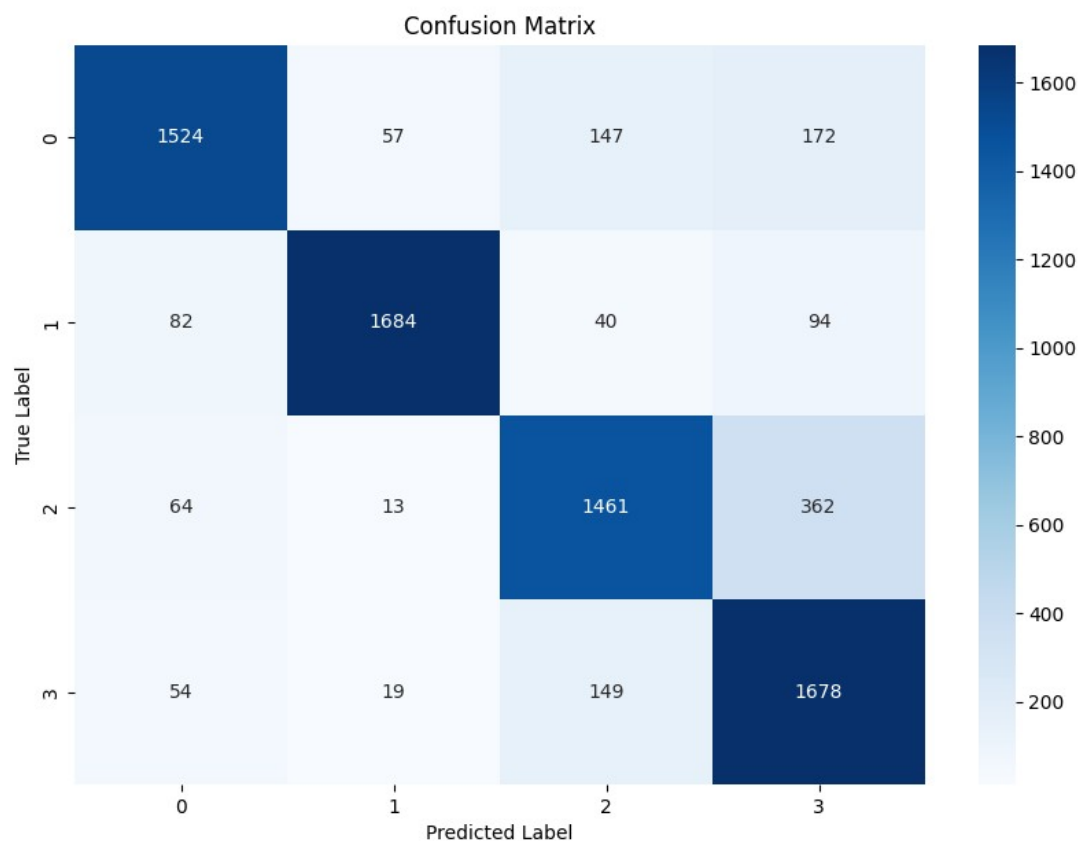
## Train Metrics

Loss: 0.0748, Accuracy: 0.9806  
Accuracy: 0.98055  
Precision: 0.9806313767858823  
Recall: 0.98055  
F1 Score: 0.9805672255565027



**Test Metrics**

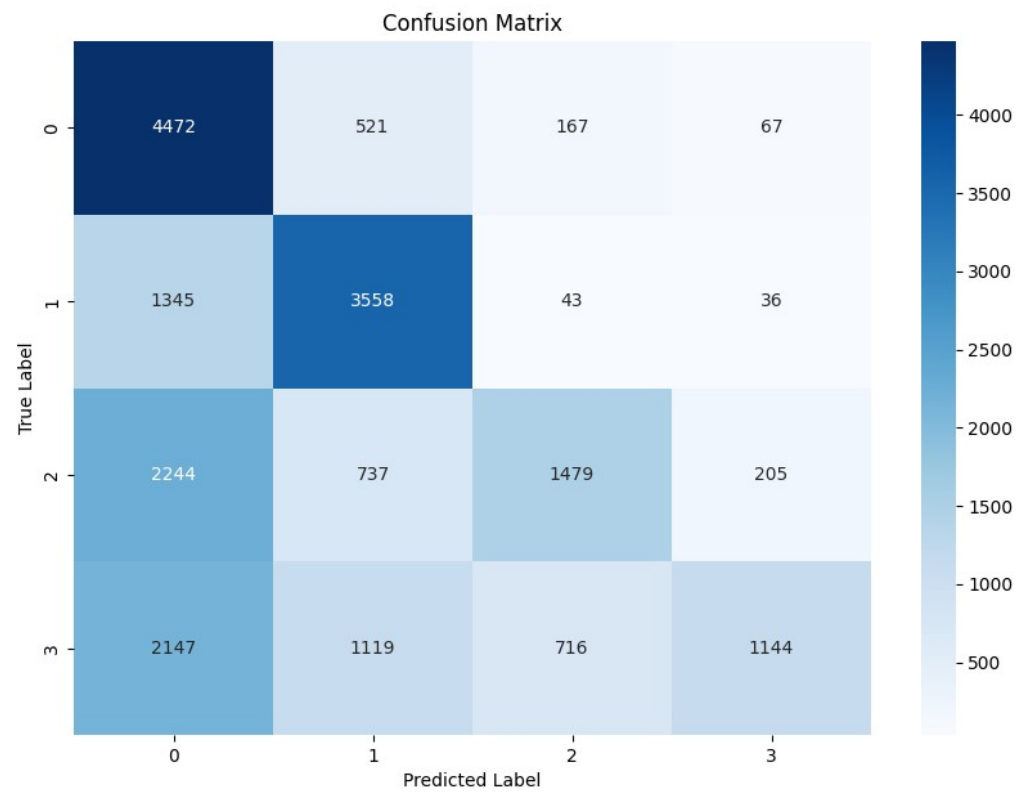
Loss: 0.5069, Accuracy: 0.8433  
Accuracy: 0.8432894736842105  
Precision: 0.8437262172000559  
Recall: 0.8432894736842105  
F1 Score: 0.8434486642651126



# Classification Model with Learnable Function

## Train Metrics

Loss: 0.0835, Accuracy: 0.9792  
Accuracy: 0.9792  
Precision: 0.9795081860282755  
Recall: 0.9792  
F1 Score: 0.979240369576893



## Test Metrics

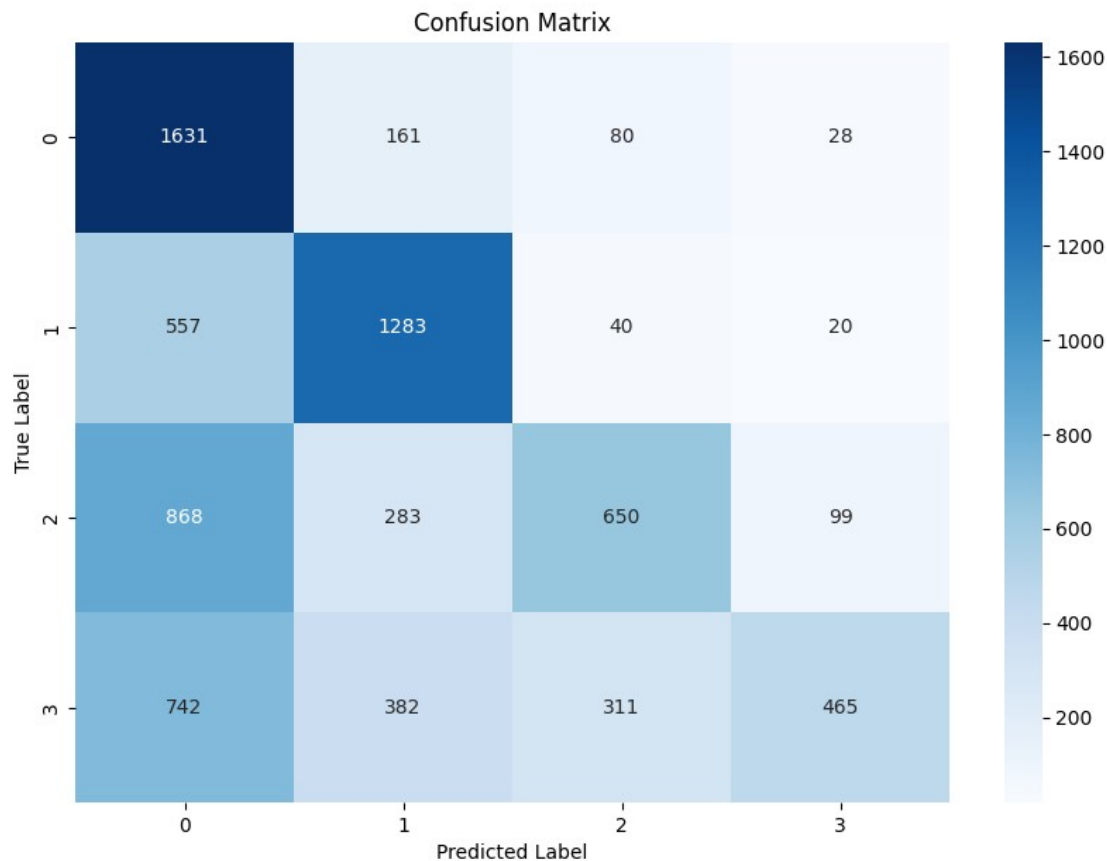
Loss: 0.5824, Accuracy: 0.8250

Accuracy: 0.825

Precision: 0.8313844732618452

Recall: 0.825

F1 Score: 0.8268247235005447



The Downstream Task Accuracy for frozen or trainable weights is almost same but the accuracy with the linear function was lower.

The model weights for the forward and backward ELMO models and the three classifiers are uploaded to google drive at

[https://drive.google.com/drive/folders/1\\_zE8RPjP-L9h1e4bCvCvVFjONDcjDXAP?usp=drive\\_link](https://drive.google.com/drive/folders/1_zE8RPjP-L9h1e4bCvCvVFjONDcjDXAP?usp=drive_link)