

# Model Performance Report

## Training and Classification Times

Model: resnet | Training Time: 257.62s | Classification Time: 1.33s

Model: lstm | Training Time: 26.30s | Classification Time: 0.50s

Model: transformer | Training Time: 42.48s | Classification Time: 0.84s

## AUC Scores

Model: resnet | AUC Score: 0.68

Model: lstm | AUC Score: 0.58

Model: transformer | AUC Score: 0.56

## Model: resnet

Class: Class 0

precision: 0.85

recall: 0.44

f1-score: 0.58

support: 25.00

Class: Class 1

precision: 0.44

recall: 0.74

f1-score: 0.55

support: 38.00

Class: Class 2

precision: 0.56

recall: 0.54

f1-score: 0.55

support: 35.00

Class: Class 3

precision: 0.80

recall: 0.35

f1-score: 0.48

support: 23.00

accuracy: 0.55

Class: macro avg

precision: 0.66

recall: 0.52

f1-score: 0.54

support: 121.00

Class: weighted avg

precision: 0.63

recall: 0.55

f1-score: 0.54

support: 121.00

## Model: Istm

Class: Class 0

precision: 0.50

recall: 0.04

f1-score: 0.07

support: 25.00

Class: Class 1

precision: 0.47

recall: 0.74

f1-score: 0.57

support: 38.00

Class: Class 2

precision: 0.40

recall: 0.66

f1-score: 0.49

support: 35.00

Class: Class 3

precision: 1.00

recall: 0.04

f1-score: 0.08

support: 23.00

accuracy: 0.44

Class: macro avg

precision: 0.59

recall: 0.37

f1-score: 0.31

support: 121.00

Class: weighted avg

precision: 0.55

recall: 0.44

f1-score: 0.35

support: 121.00

## Model: transformer

Class: Class 0

precision: 0.00

recall: 0.00

f1-score: 0.00

support: 25.00

Class: Class 1

precision: 0.49

recall: 0.55

f1-score: 0.52

support: 38.00

Class: Class 2

precision: 0.36

recall: 0.80

f1-score: 0.50

support: 35.00

Class: Class 3

precision: 0.00

recall: 0.00

f1-score: 0.00

support: 23.00

accuracy: 0.40

Class: macro avg

precision: 0.21

recall: 0.34

f1-score: 0.25

support: 121.00

Class: weighted avg

precision: 0.26

recall: 0.40

f1-score: 0.31

support: 121.00

Figure 1

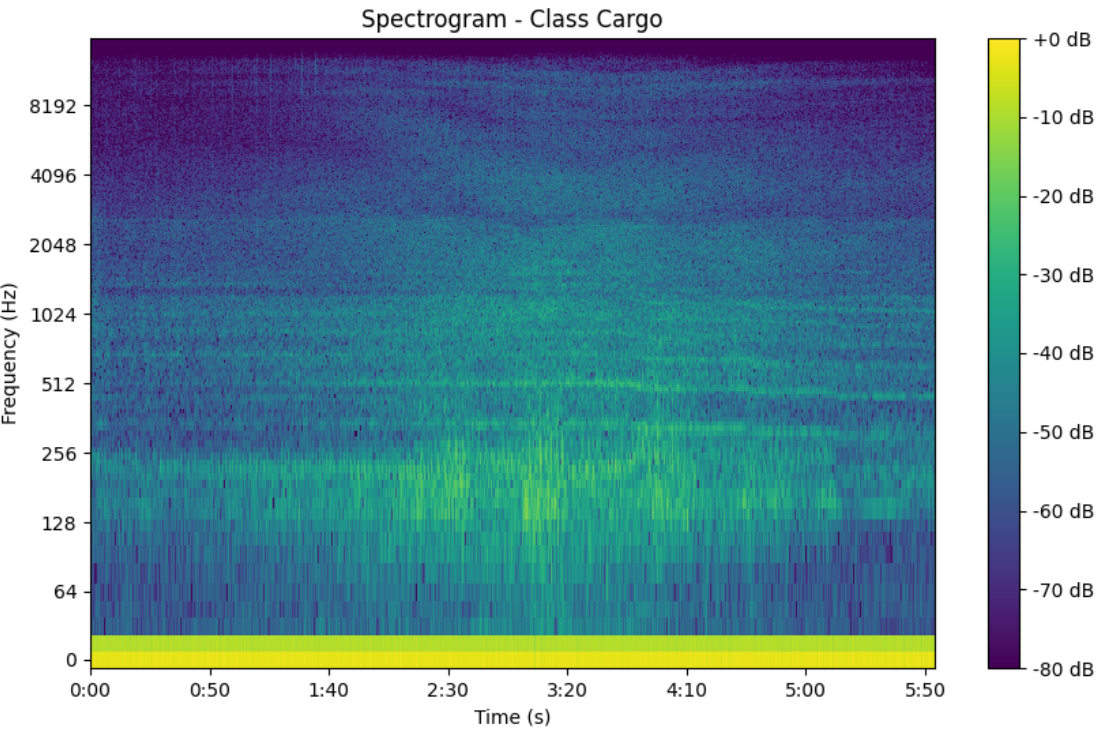


Figure 2

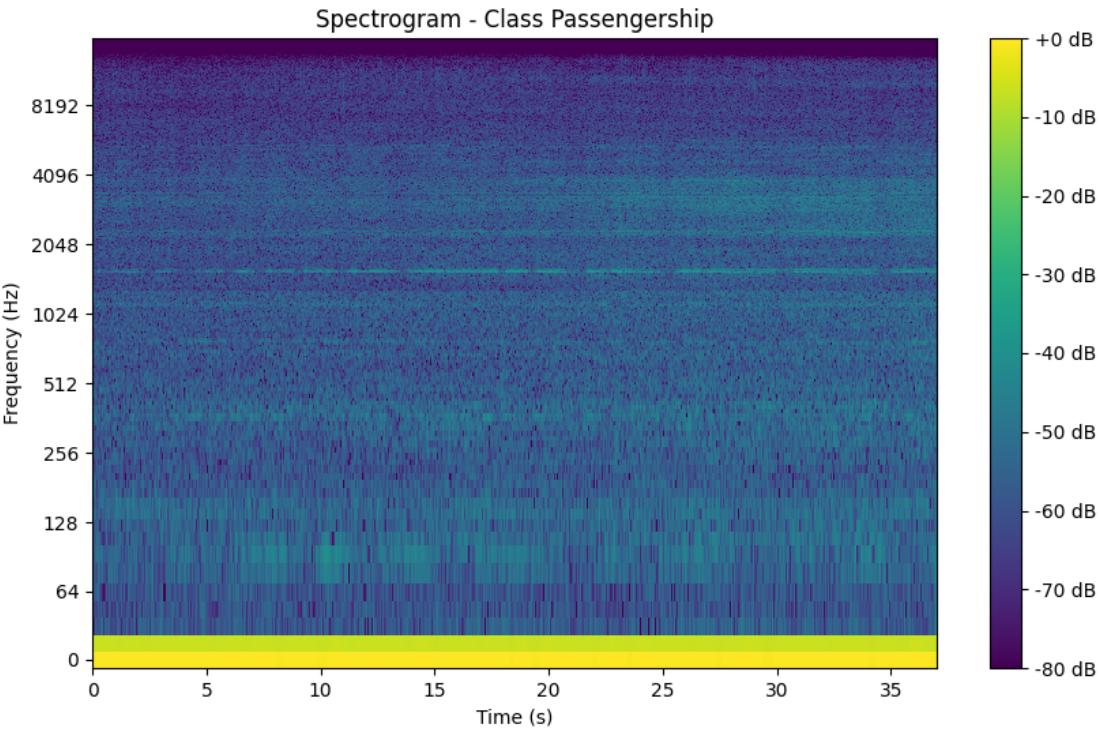


Figure 3

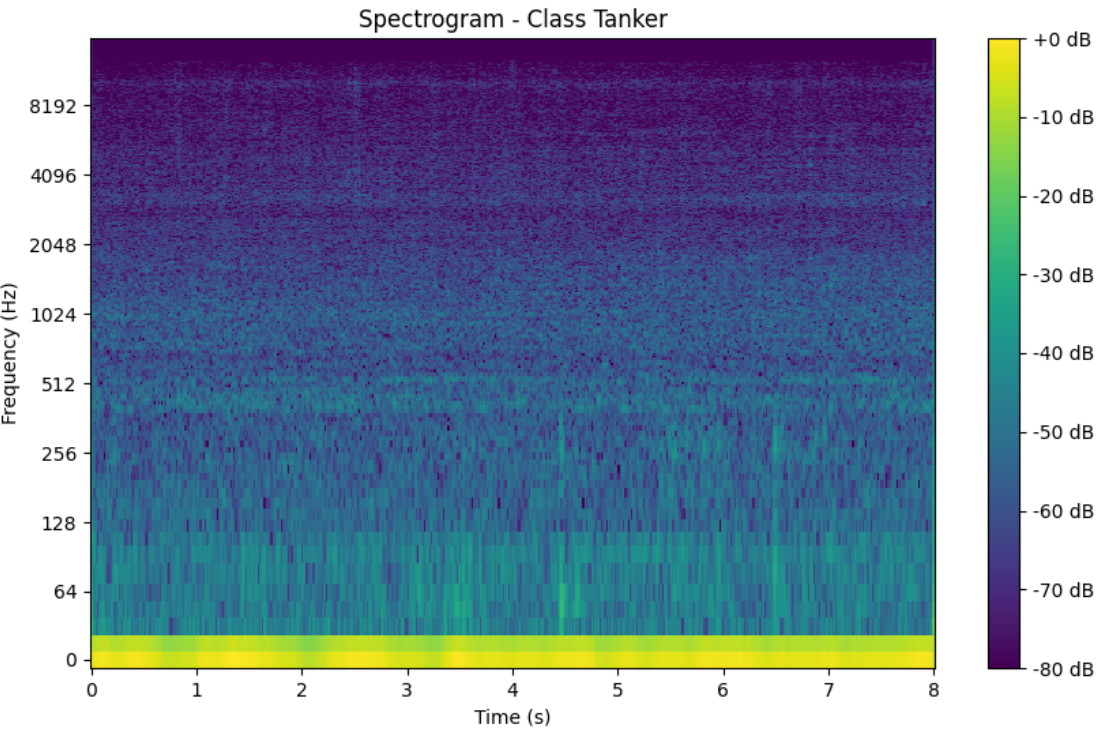


Figure 4

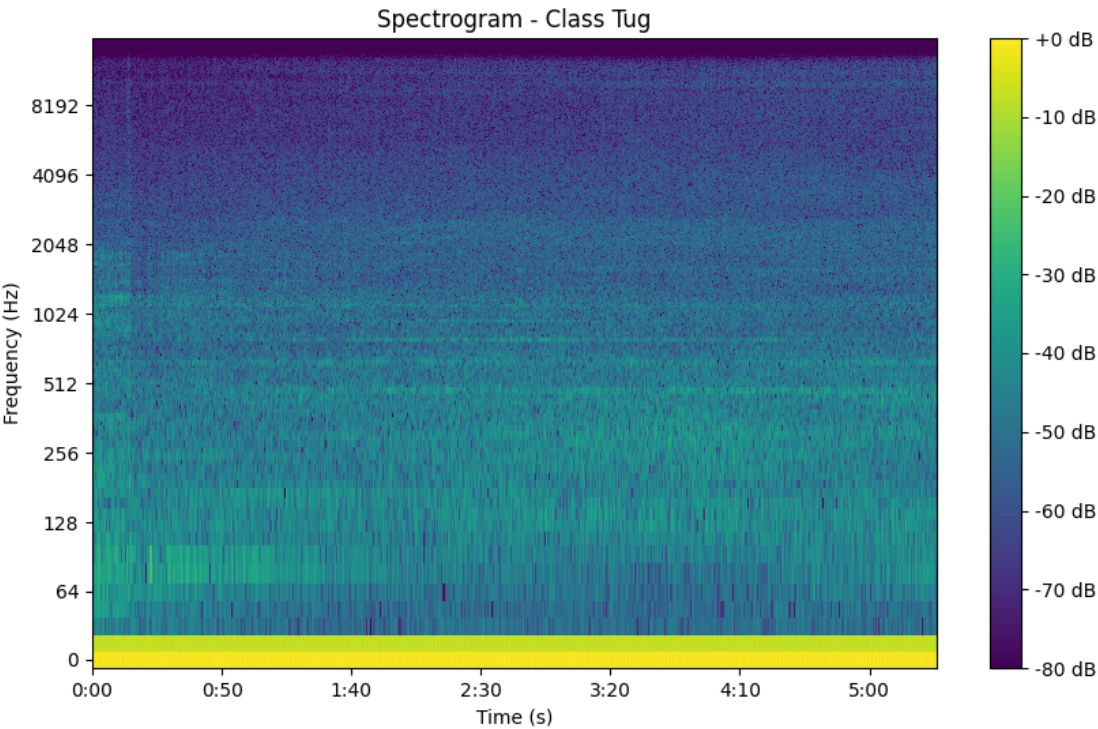




Figure 5

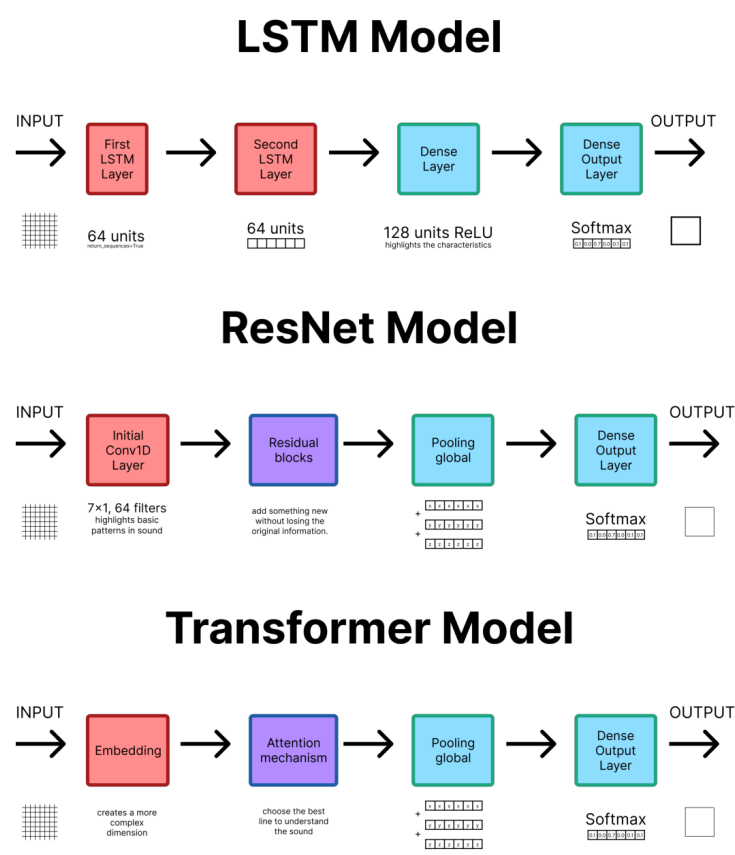


Figure 6

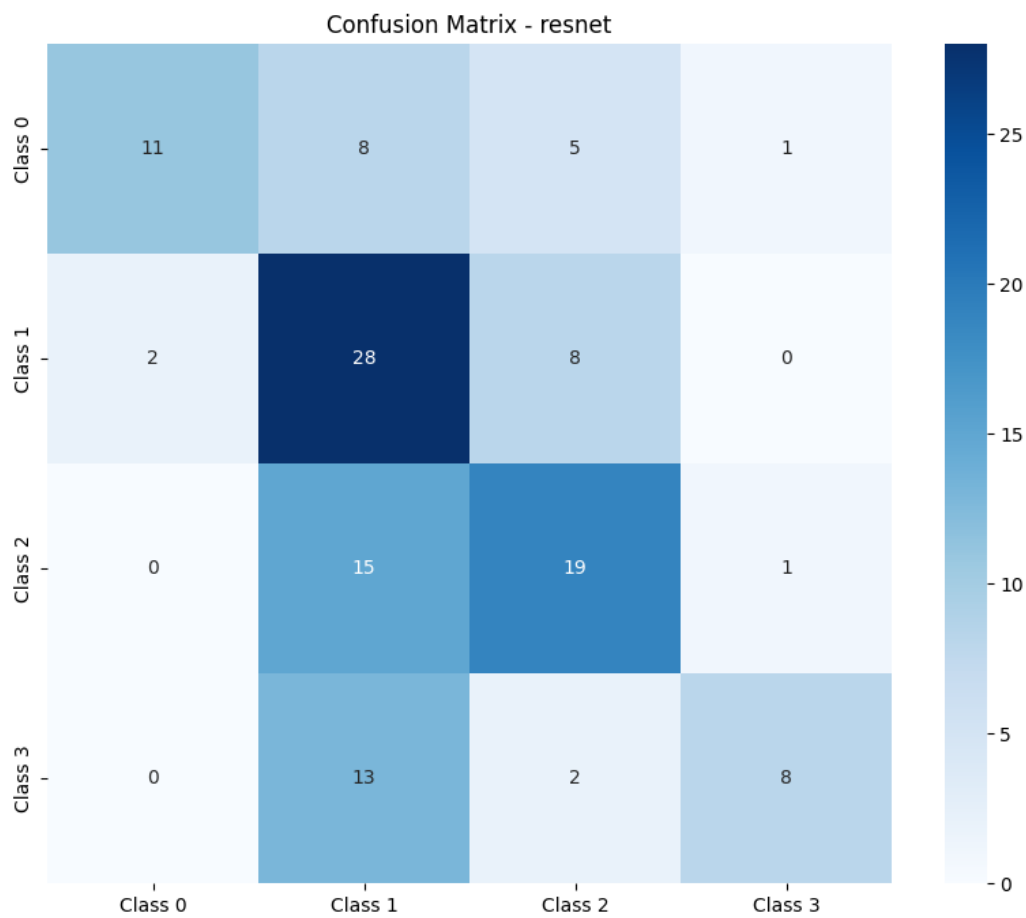


Figure 7

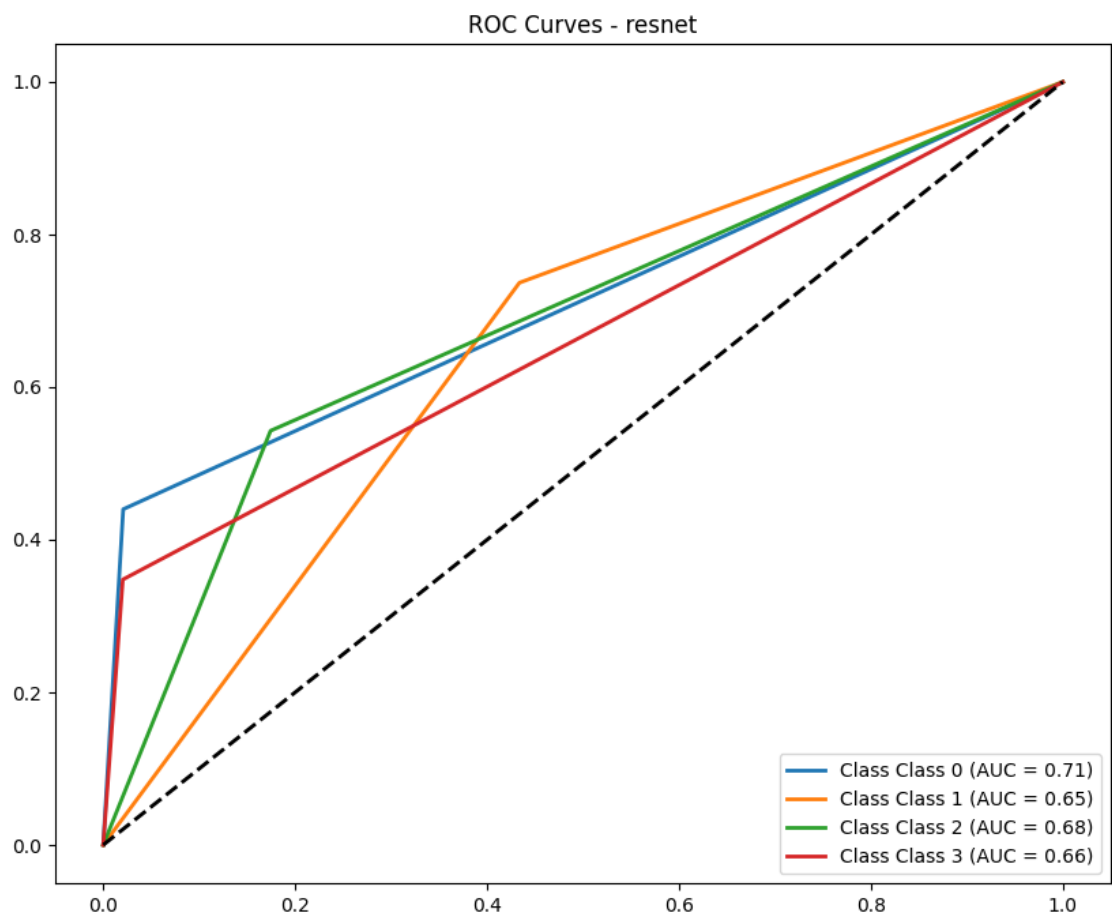


Figure 8

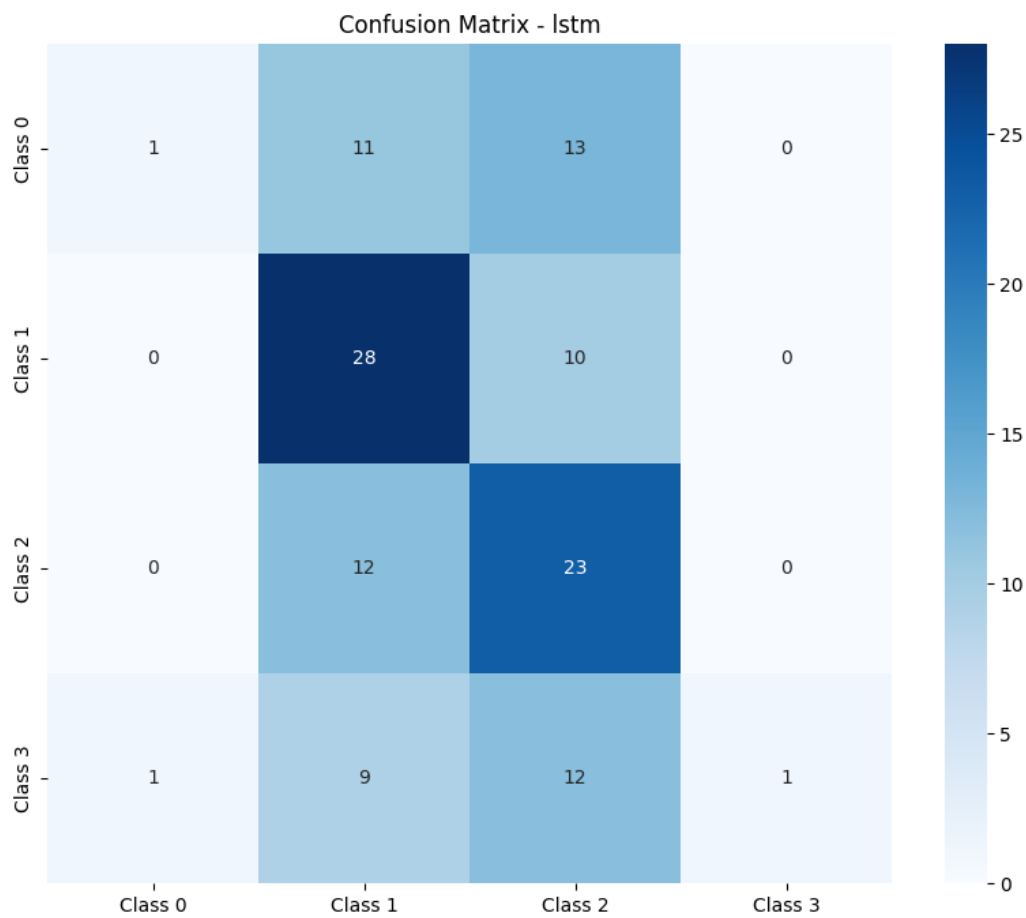


Figure 9

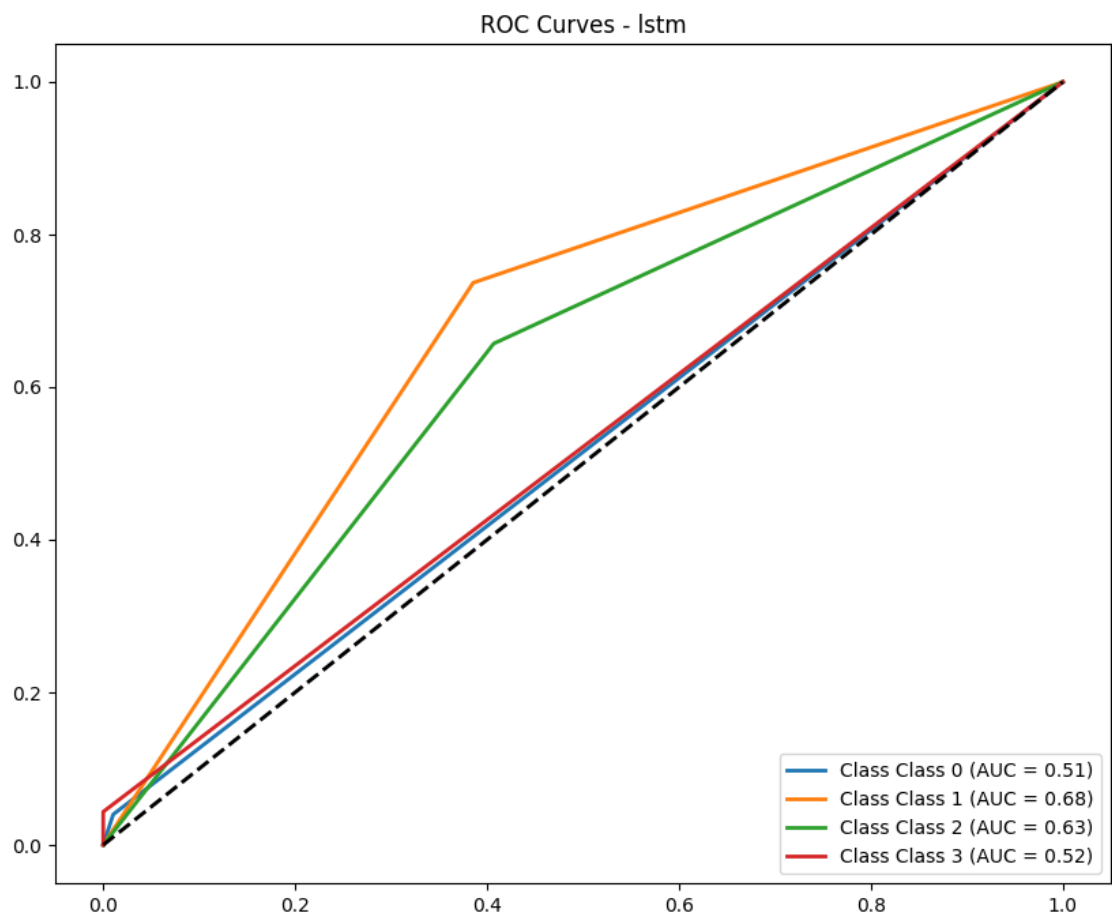


Figure 10

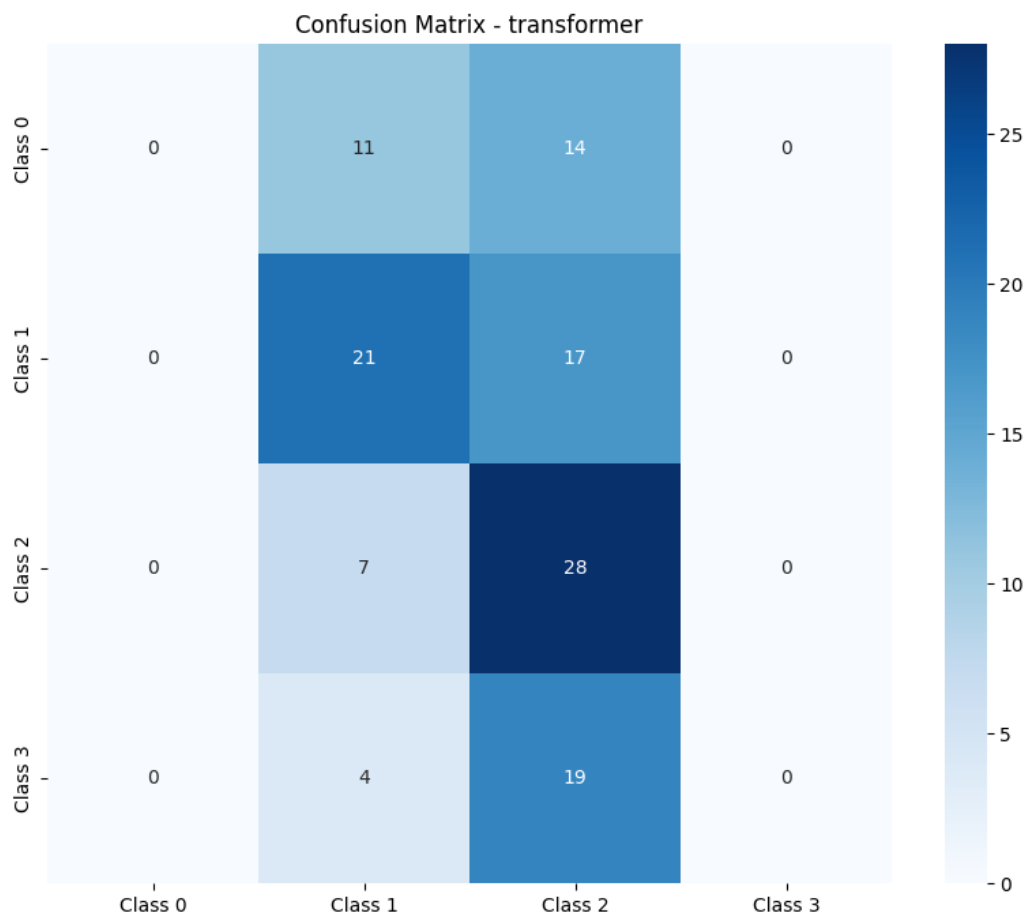


Figure 11

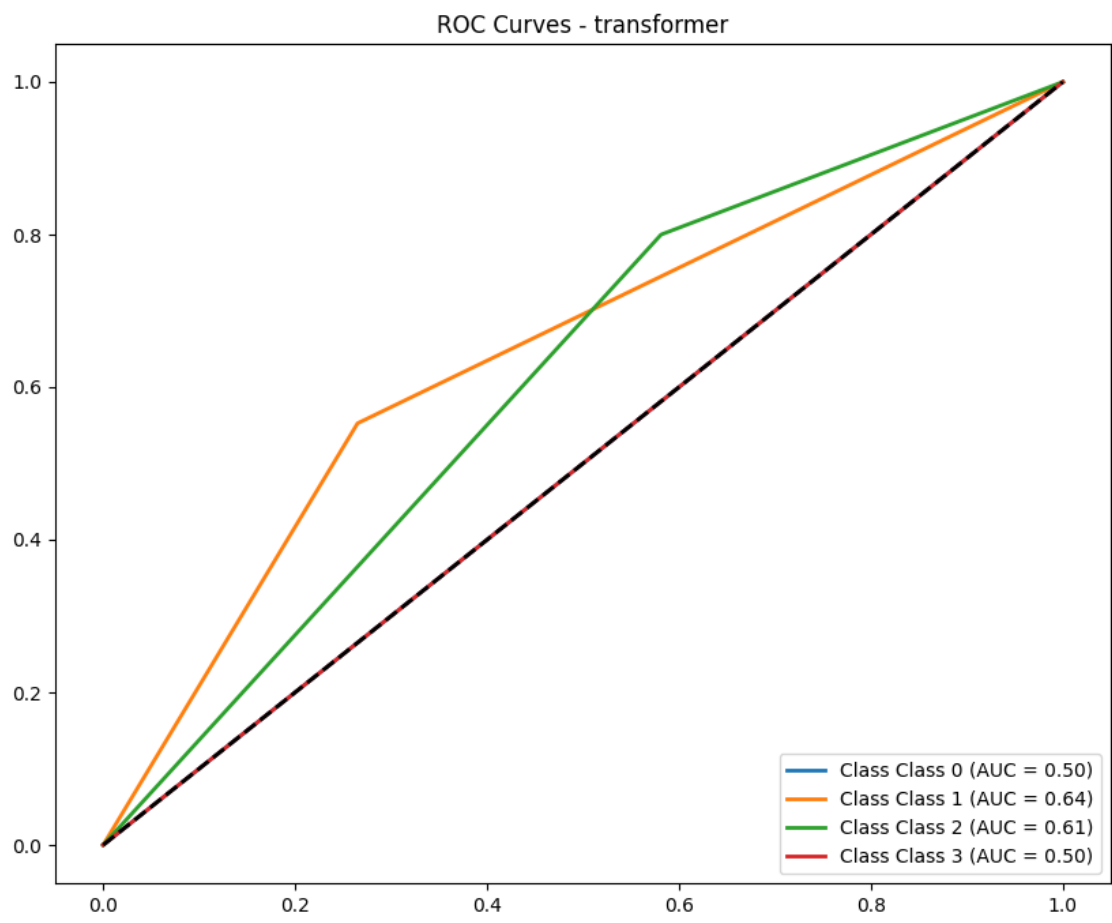


Figure 12

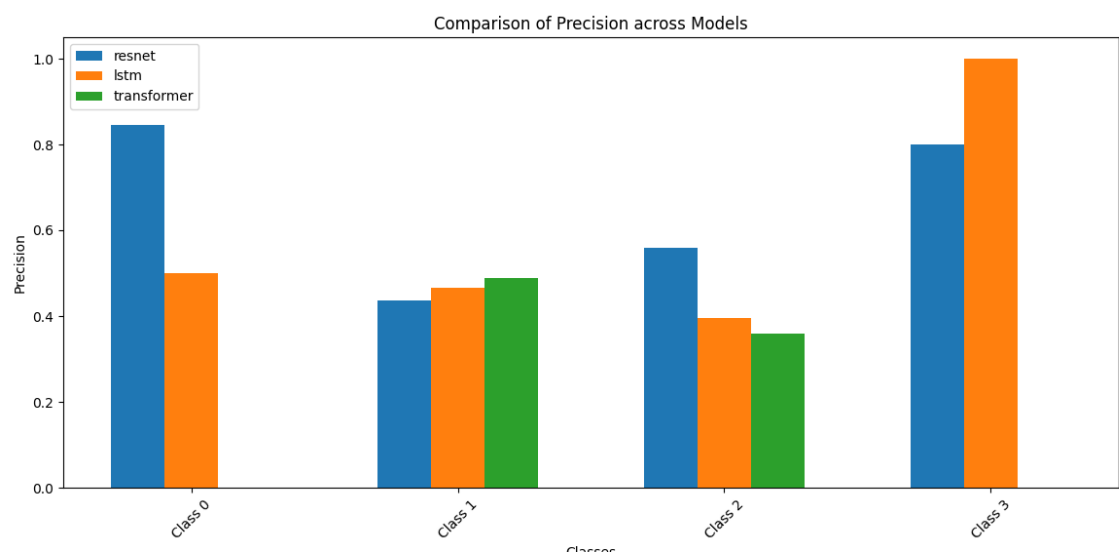




Figure 13

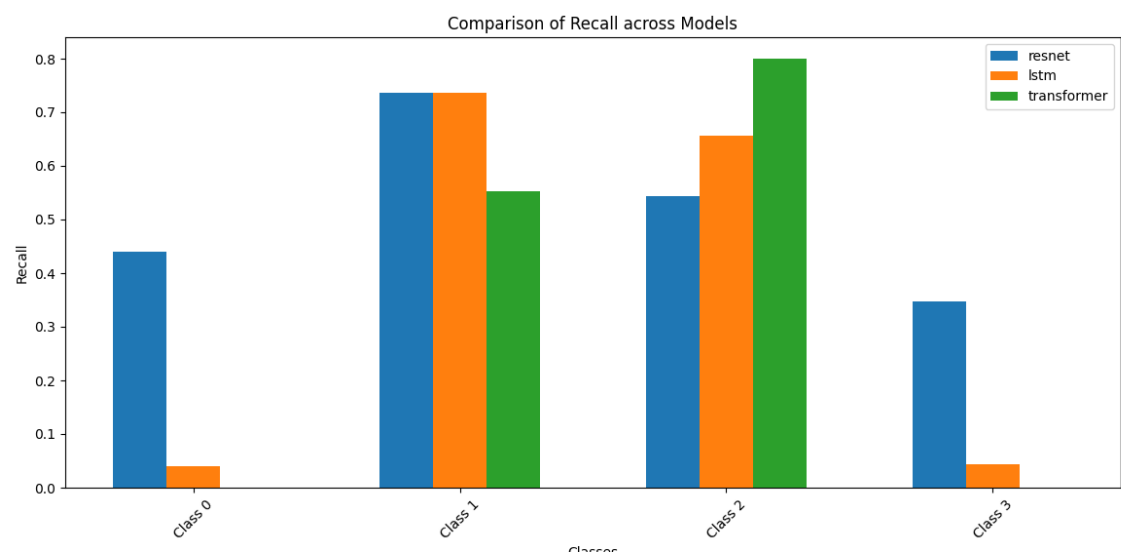


Figure 14

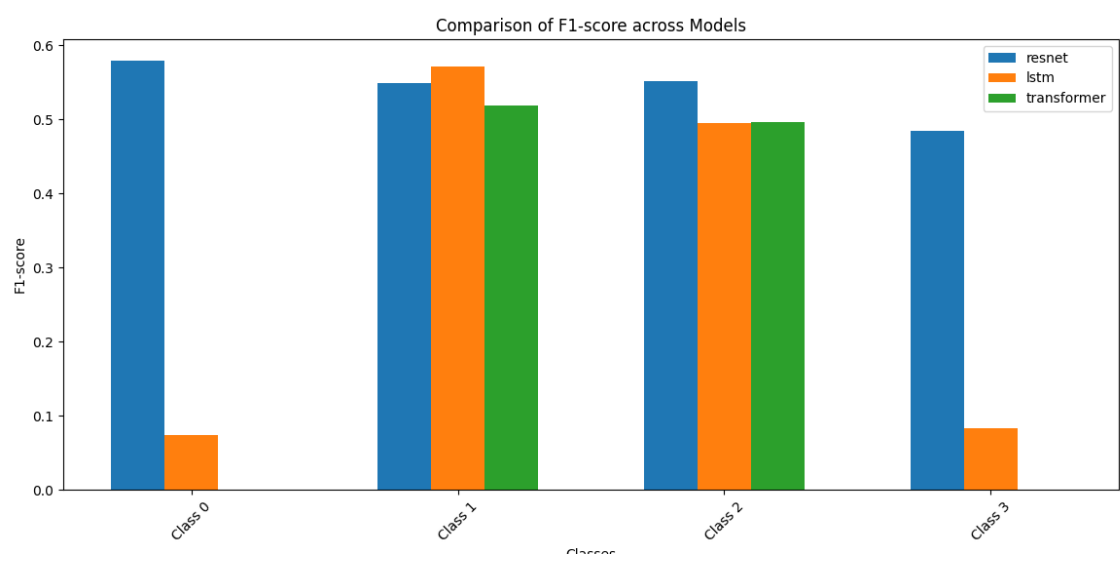


Figure 15

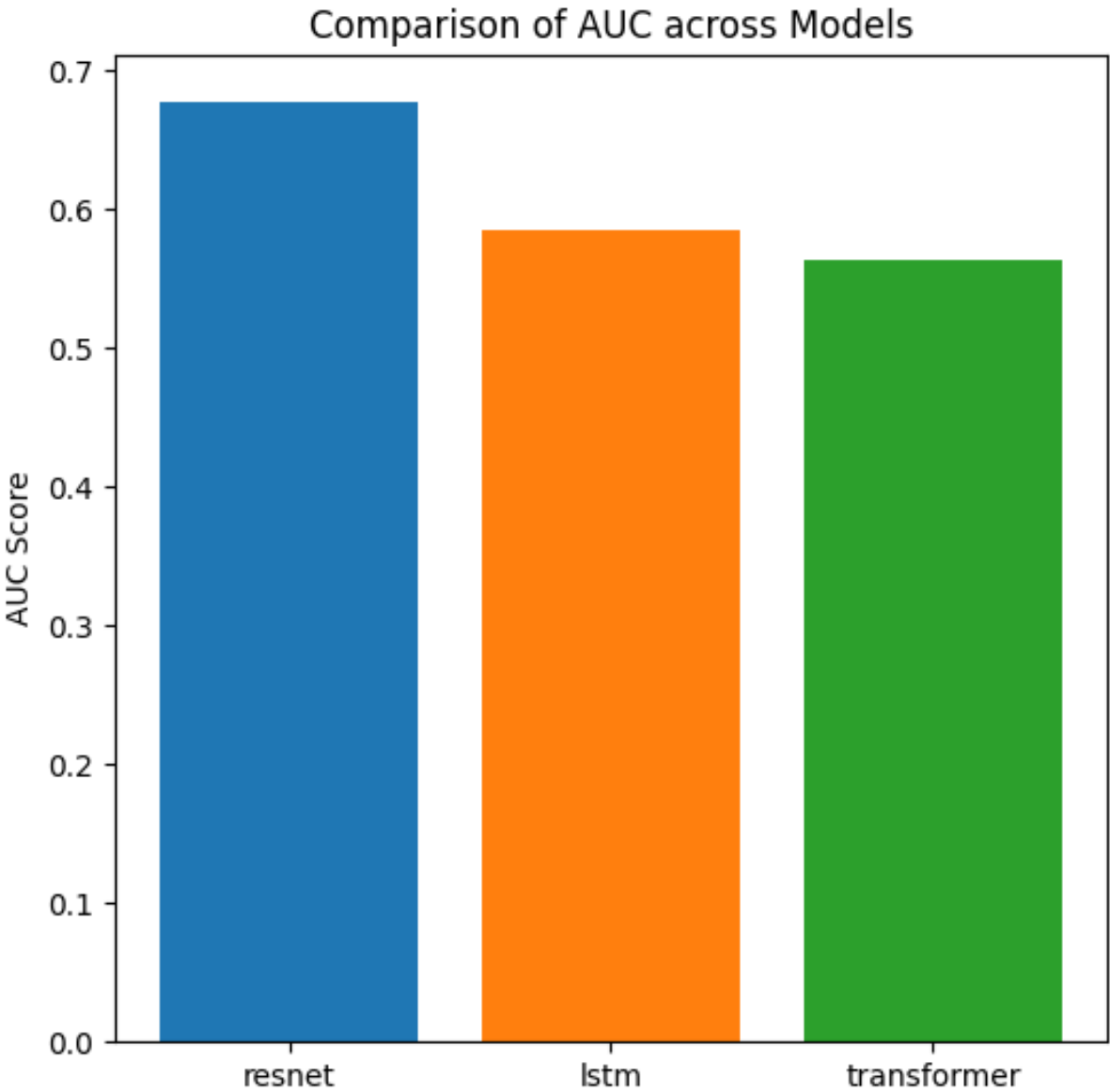


Figure 16

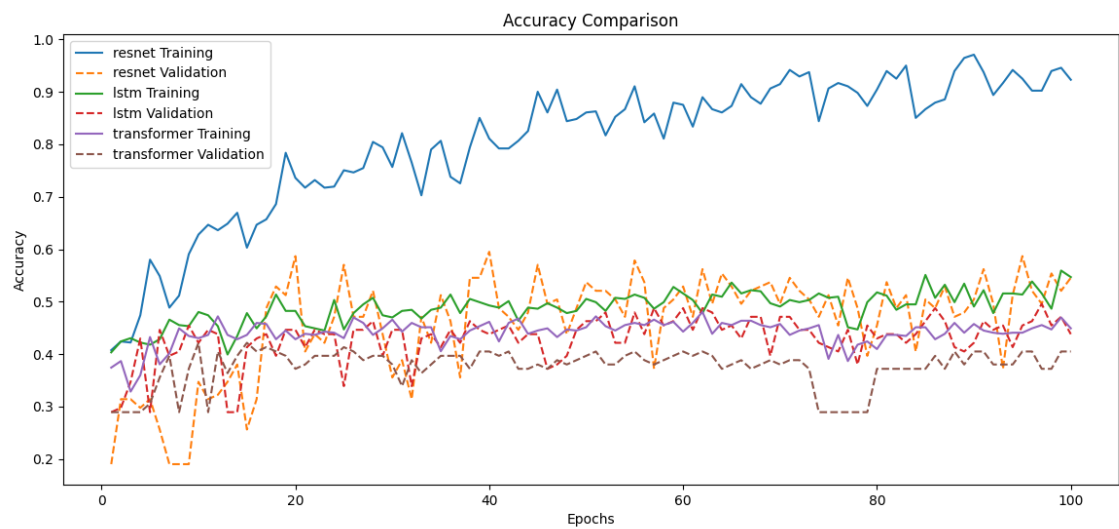


Figure 17

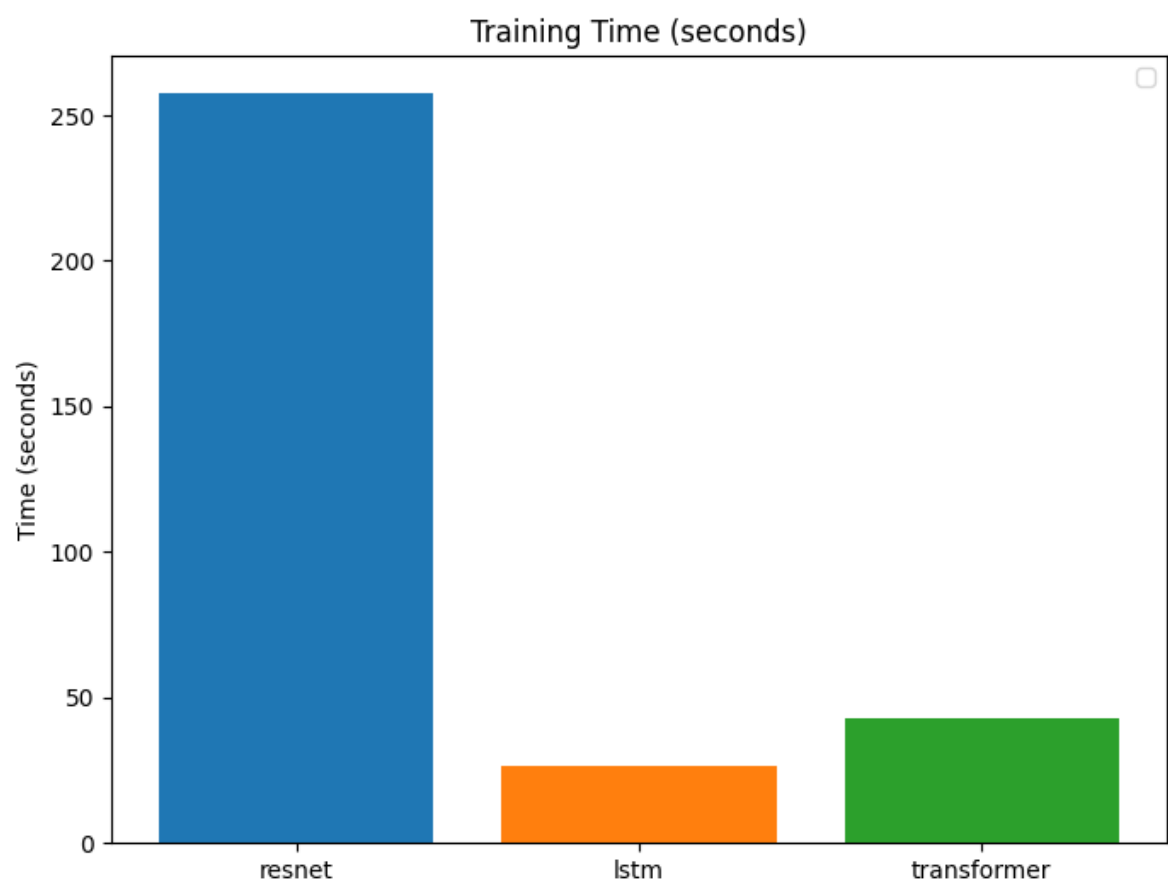
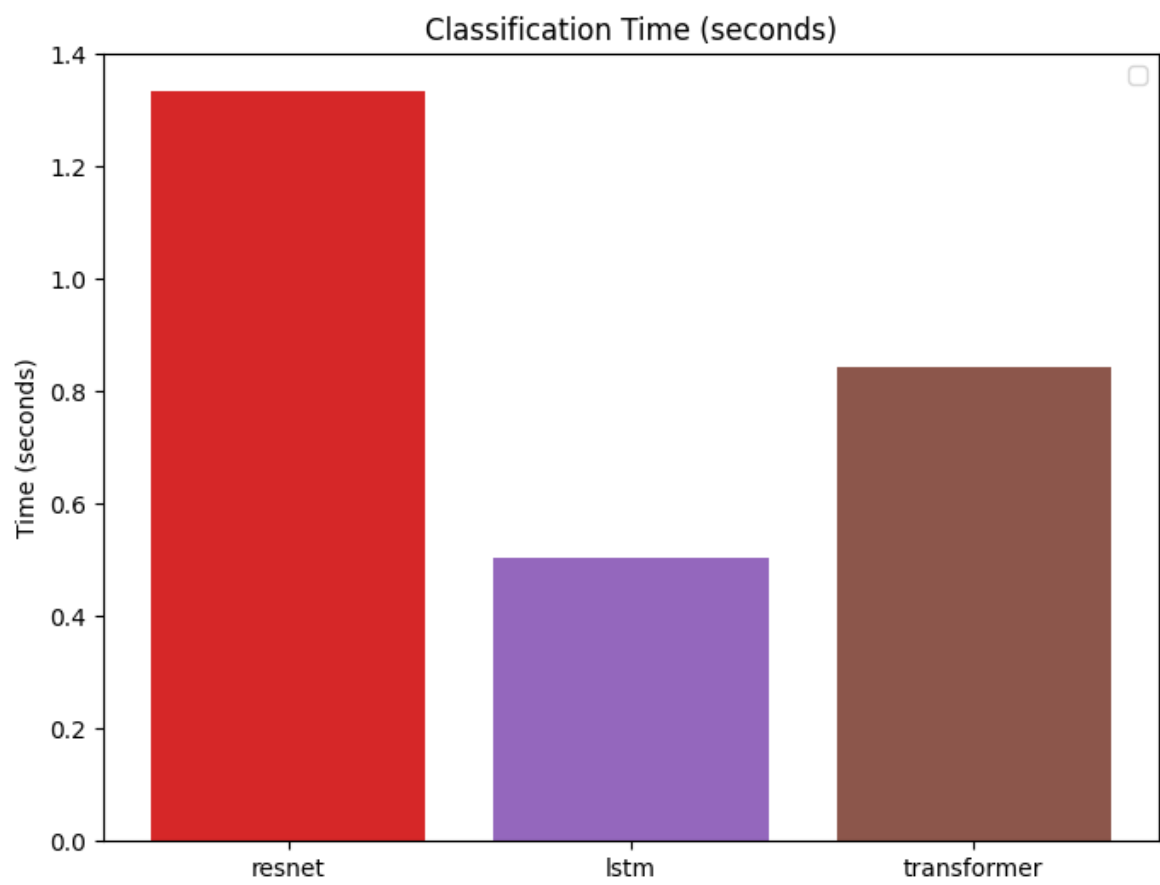


Figure 18



## Configuration Settings

data\_path: D:\deepship\original

metadata\_path: C:\Users\gumar\OneDrive\Área de Trabalho\Pesquisa UBO\Revisão Literaria\UrbanSound8K\UrbanSound8K\m

epochs: 100

batch\_size: 32

test\_size: 0.2

random\_state: 42

num\_classes: 4

learning\_rate: 0.001

dense\_units: 128

dropout\_rate: 0.3

lstm\_units: 64

lstm\_dropout: 0.2

resnet\_filters: 32

resnet\_kernel\_size: 3

resnet\_blocks: 3

transformer\_heads: 4

transformer\_ff\_dim: 128

transformer\_layers: 2

transformer\_epsilon: 1e-06

preprocessing\_methods:

MFCC: True

GFCC: False

STFT: False

Delta: False

LOFAR: False

DEMON: False

selected\_models: ['resnet', 'lstm', 'transformer']