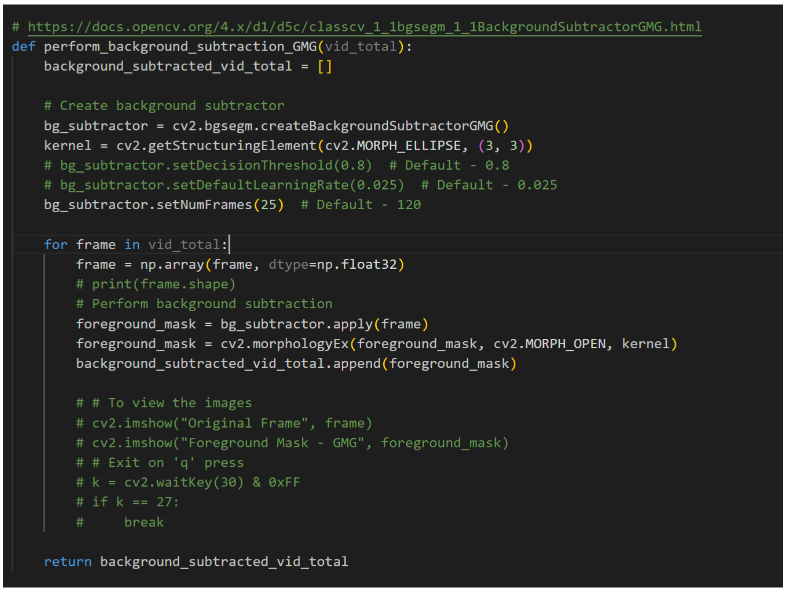
```
Train Dataloader - 48
Test Dataloader - 173

Device Used - cuda

Model Used - Base_3DCAE
Feature Extraction - True
Background Subtraction - True
Background Subtraction Algorithm - GMG
Data Augmentation - False

Window Length = 8
Stride = 1
Fair Comparison = True
Dropout = 0.25
Learning Rate = 0.0002
Num Epochs = 20
Chunk Size = 64
Forward Chunk = 8
Forward Chunk Size = 8
Loss Fn = SmoothL1Loss()

Training has Begun
epoch [1/20], loss:0.5611
epoch [2/20], loss:0.5609
epoch [3/20], loss:0.5608
epoch [4/20], loss:0.5607
epoch [5/20], loss:0.5607
epoch [6/20], loss:0.5607
epoch [7/20], loss:0.5606
epoch [8/20], loss:0.5606
epoch [9/20], loss:0.5606
epoch [10/20], loss:0.5606
epoch [11/20], loss:0.5606
epoch [12/20], loss:0.5606
epoch [13/20], loss:0.5606
epoch [14/20], loss:0.5606
epoch [15/20], loss:0.5606
epoch [16/20], loss:0.5605
epoch [17/20], loss:0.5605
epoch [18/20], loss:0.5605
epoch [19/20], loss:0.5605
```

```
c:\Users\abdul\anaconda3\envs\fyp_base_paper_2\lib\site-packages\numpy\lib\npyio.py:528: V
isibleDeprecationWarning: Creating an ndarray from ragged nested sequences (which is a lis
t-or-tuple of lists-or-tuples-or ndarrays with different lengths or shapes) is deprecated.
If you meant to do this, you must specify 'dtype=object' when creating the ndarray.
  arr = np.asanyarray(arr)
```



```python
# https://docs.opencv.org/4.x/d1/d5c/classcv_1_1bgsegm_1_1BackgroundSubtractorGMG.html
def perform_background_subtraction_GMG(vid_total):
    background_subtracted_vid_total = []

    # Create background subtractor
    bg_subtractor = cv2.bgsegm.createBackgroundSubtractorGMG()
    kernel = cv2.getStructuringElement(cv2.MORPH_ELLIPSE, (3, 3))
    # bg_subtractor.setDecisionThreshold(0.8)  # Default - 0.8
    # bg_subtractor.setDefaultLearningRate(0.025)  # Default - 0.025
    bg_subtractor.setNumFrames(25)  # Default - 120

    for frame in vid_total:
        frame = np.array(frame, dtype=np.float32)
        # print(frame.shape)
        # Perform background subtraction
        foreground_mask = bg_subtractor.apply(frame)
        foreground_mask = cv2.morphologyEx(foreground_mask, cv2.MORPH_OPEN, kernel)
        background_subtracted_vid_total.append(foreground_mask)

        # # To view the images
        # cv2.imshow("Original Frame", frame)
        # cv2.imshow("Foreground Mask - GMG", foreground_mask)
        # # Exit on 'q' press
        # k = cv2.waitKey(30) & 0xFF
        # if k == 27:
        #     break

    return background_subtracted_vid_total
```

```
epoch [20/20], loss:0.5605
Training has Completed

Forward pass occuring
Forward pass completed

Thermal_T3_2024-03-14-01-46-48

----------------------------------
STD Global Classification Results
TPR 0.826, FPR 0.210, Precision 0.060, Recall 0.826
tn 52438, fp 13951, fn 187, tp 885
std_AUROC  0.845
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----------------------------------
Mean Global Classification Results
TPR 0.811, FPR 0.259, Precision 0.048, Recall 0.811
tn 49214, fp 17175, fn 203, tp 869
mean_AUROC 0.821
----------------------------------
```
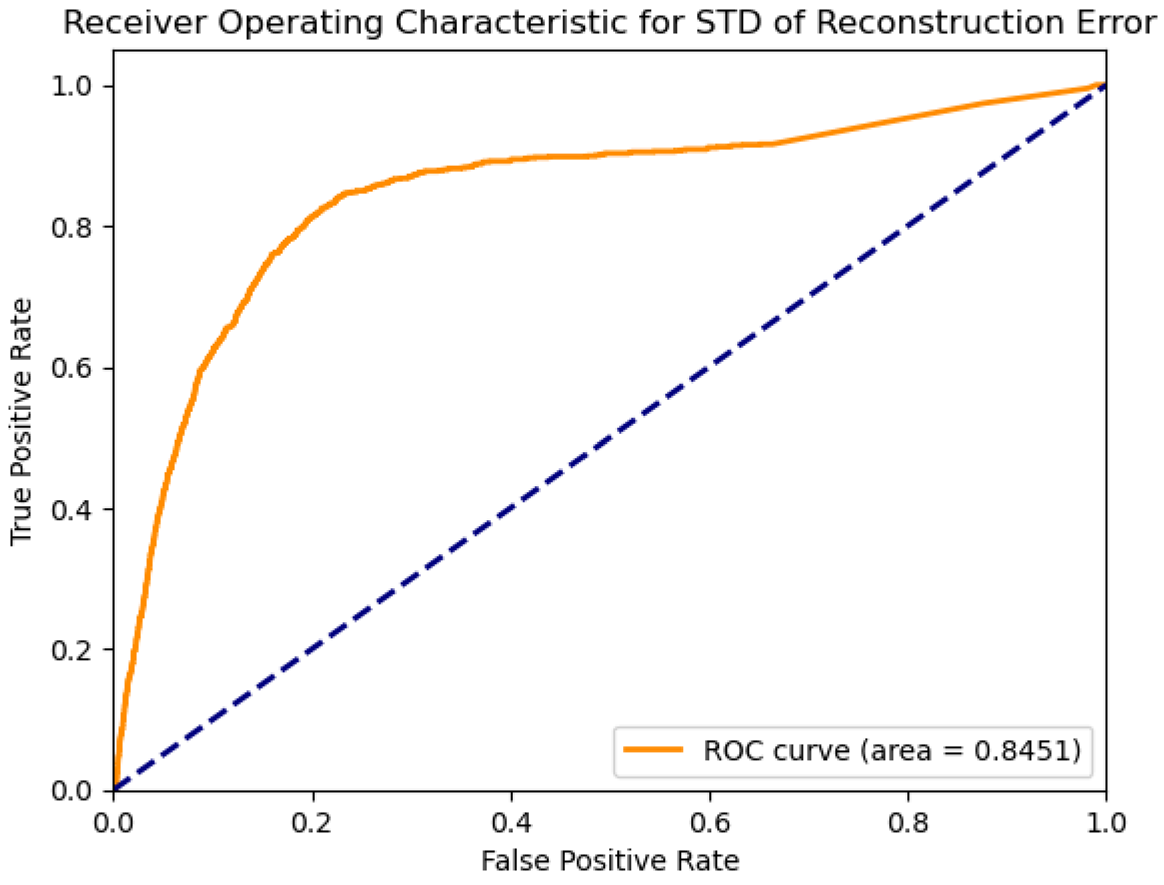
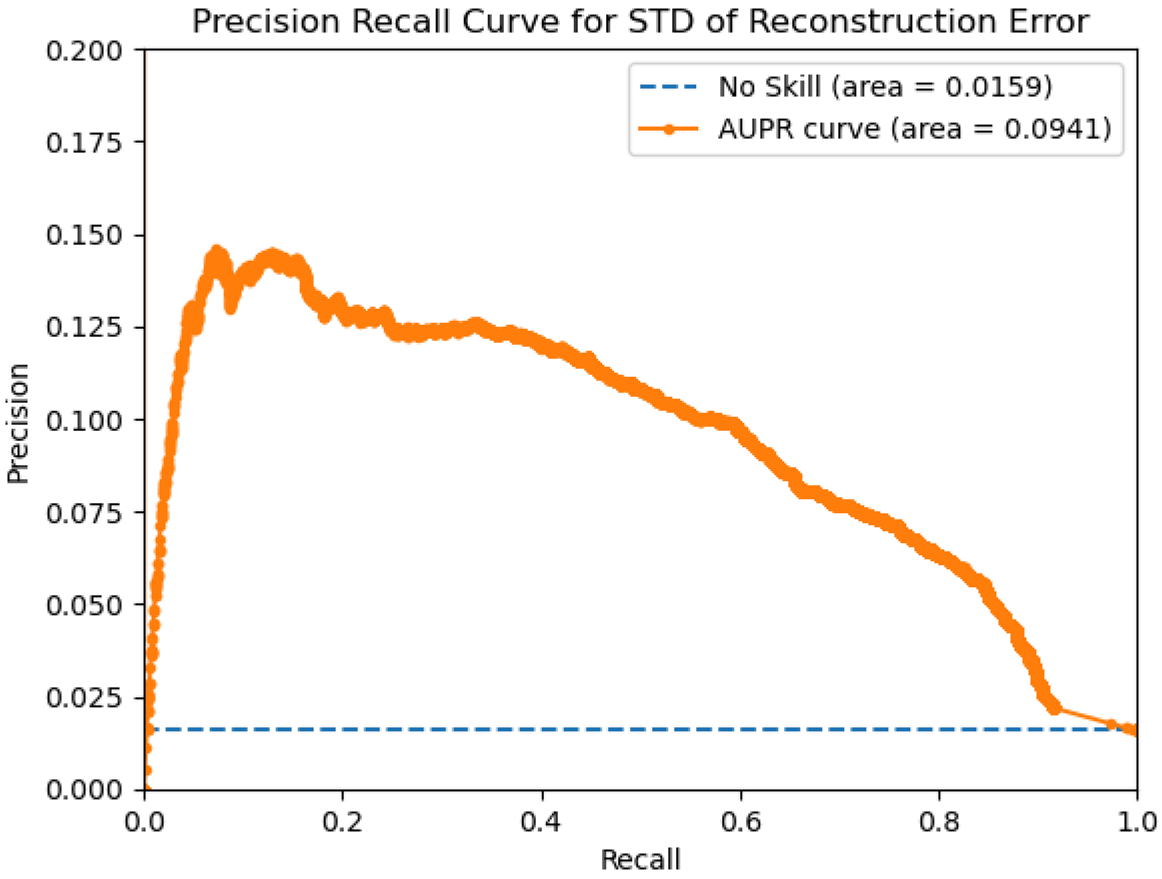
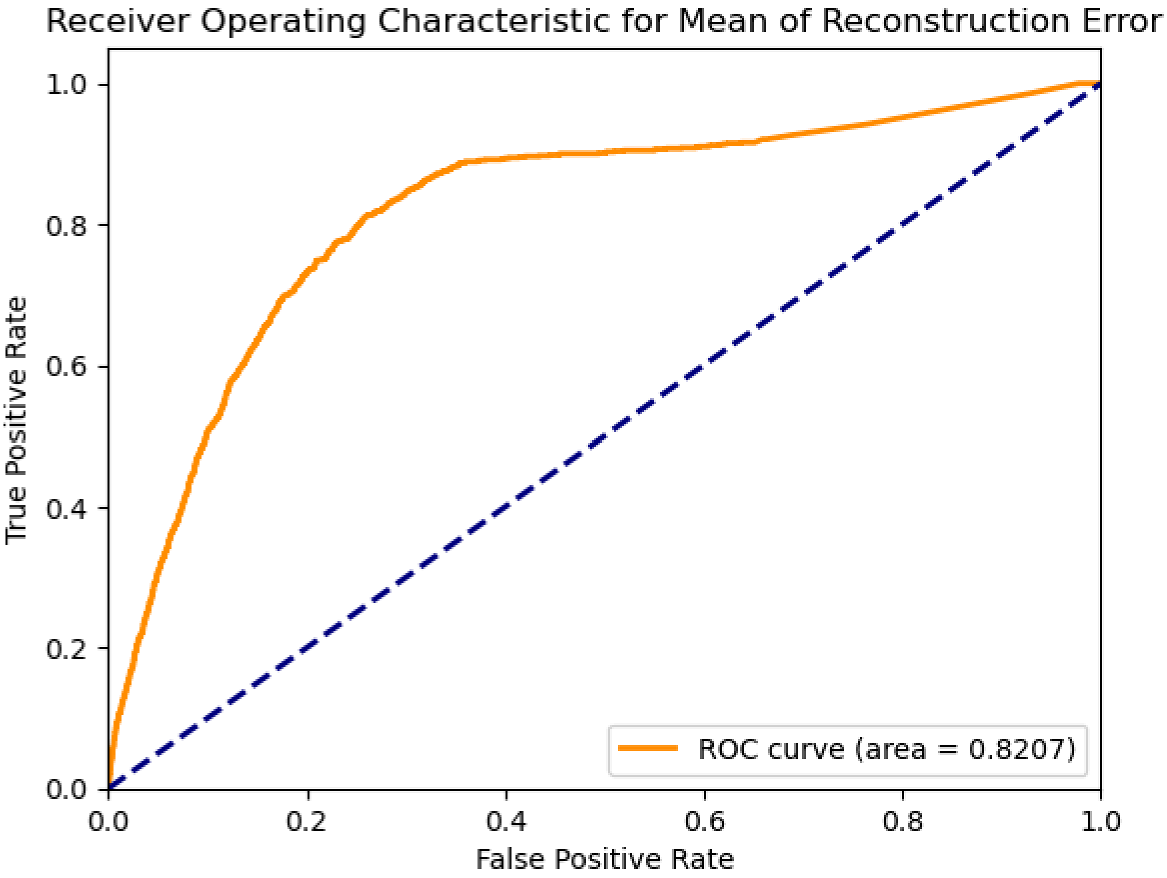
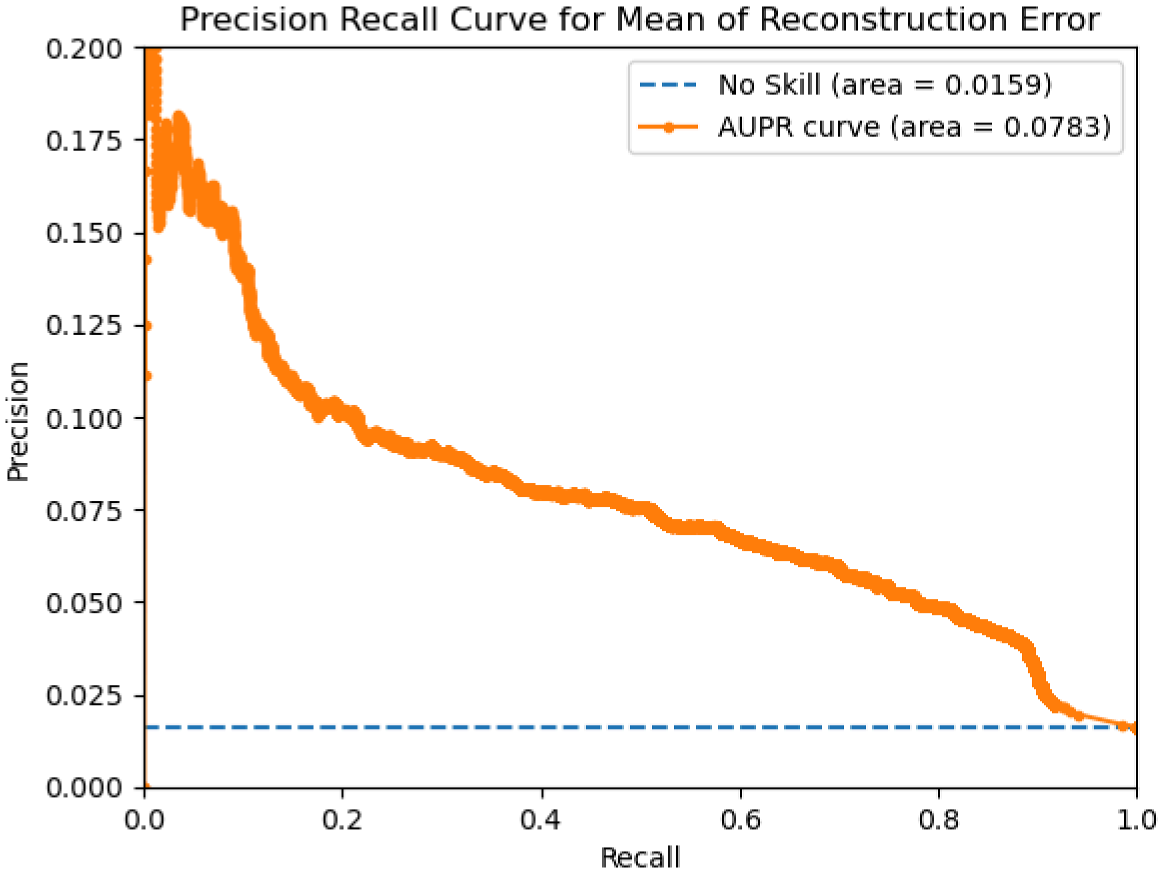

```
d:\Abdul Rasheed NITT\Academics\Eigth Semester\FYP\Implementation\FallDetection\Code\funct
ions.py:250: RuntimeWarning: Mean of empty slice
  final_performance_mean = np.nanmean(video_metrics, axis=0)  # get the mean performance a
cross all videos
c:\Users\abdul\anaconda3\envs\fyp_base_paper_2\lib\site-packages\numpy\lib\nanfunctions.p
y:1670: RuntimeWarning: Degrees of freedom <= 0 for slice.
  var = nanvar(a, axis=axis, dtype=dtype, out=out, ddof=ddof,
```




Precision Recall Curve for STD of Reconstruction Error
No Skill (area = 0.0159)
AUPR curve (area = 0.0941)
Precision
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.0
0.2
0.4
0.6
0.8
1.0
Recall


Receiver Operating Characteristic for Mean of Reconstruction Error
ROC curve (area = 0.8207)
True Positive Rate
1.0
0.8
0.6
0.4
0.2
0.0
0.0
0.2
0.4
0.6
0.8
1.0
False Positive Rate



Precision Recall Curve for Mean of Reconstruction Error
No Skill (area = 0.0159)
AUPR curve (area = 0.0783)
Precision
Recall
0.200
0.175
0.150
0.125
0.100
0.075
0.050
0.025
0.000
0.0
0.2
0.4
0.6
0.8
1.0