Supplementary Figures

Section 1: Exploratory Data Analysis (EDA)
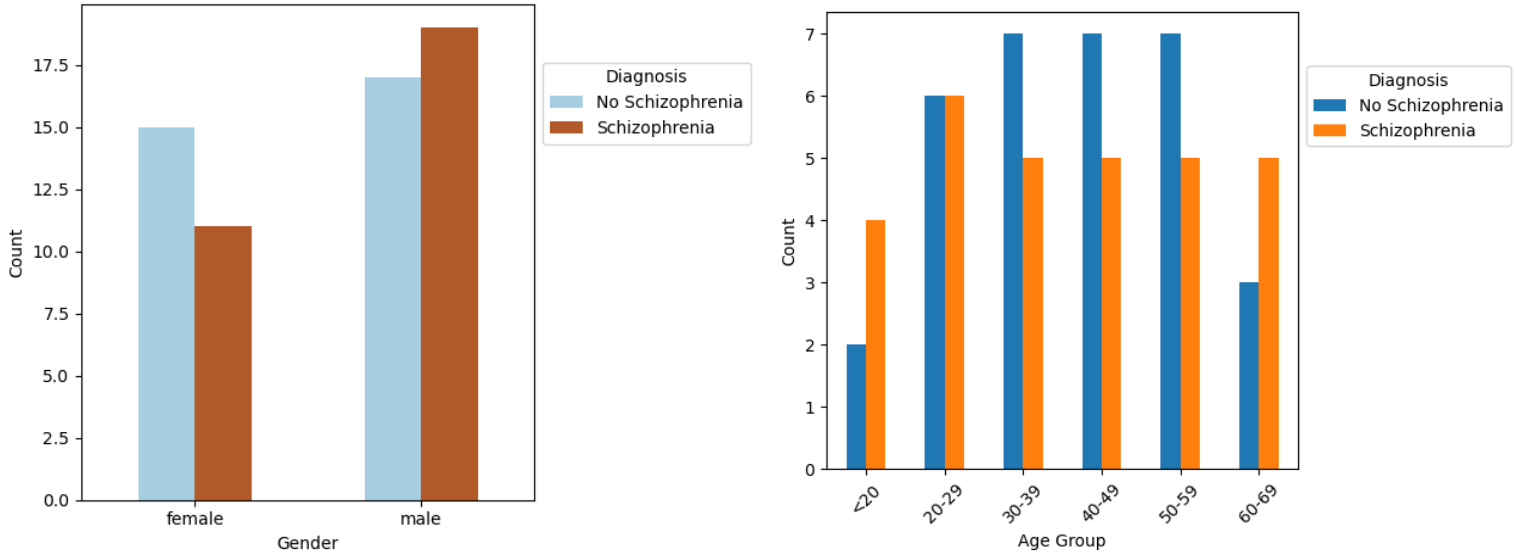

Figure 1: Gender distribution of schizophrenic and non-schizophrenic patients

Figure 2: Ager distribution of schizophrenic and non-schizophrenic patients

Section 2: Confusion Matrices and ROC Curves for Preprocessing Experiments
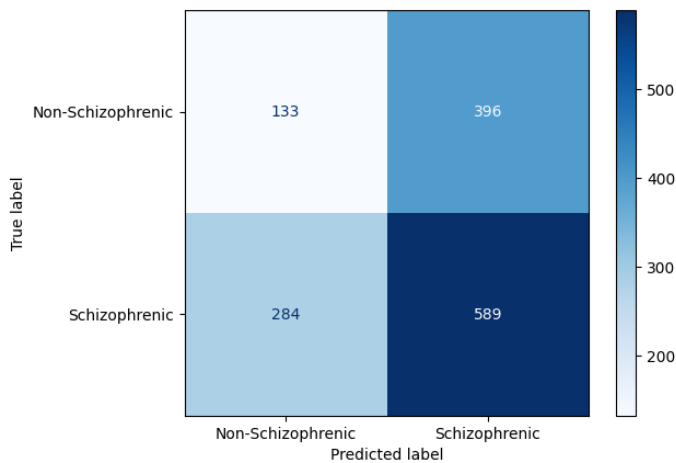

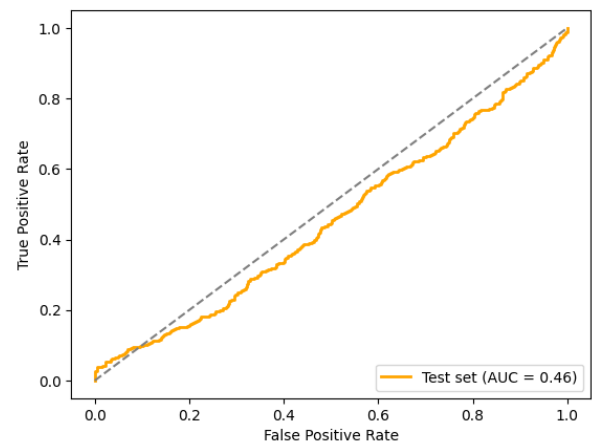Figure 3: Confusion matrix from first experiment-model training on raw images

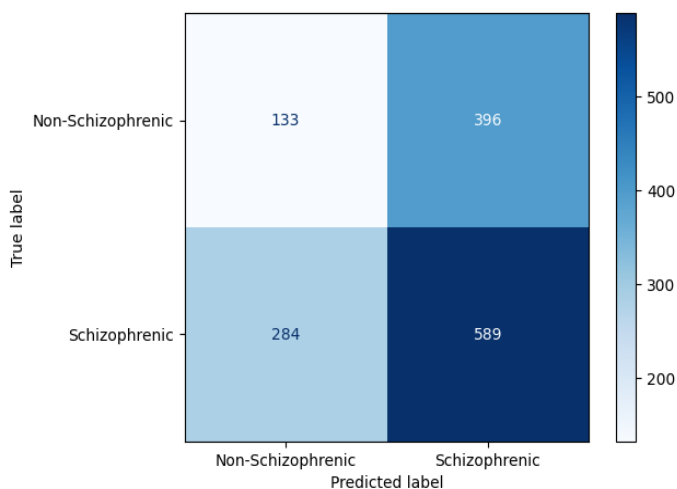Figure 4: ROC Curve from first experiment: model training on raw images

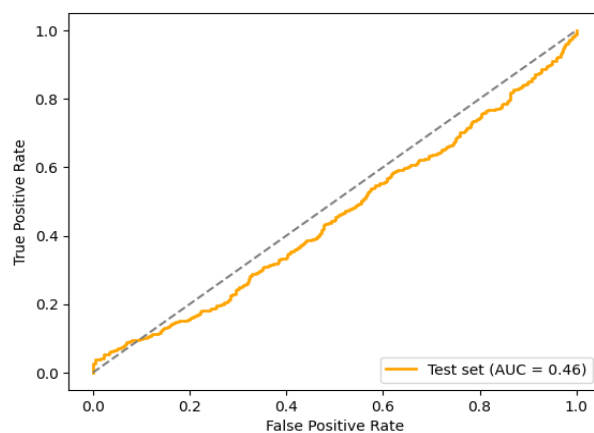Figure 5: Confusion matrix from second experiment-resampling images

Figure 6: ROC Curve from second experiment- model training on raw images
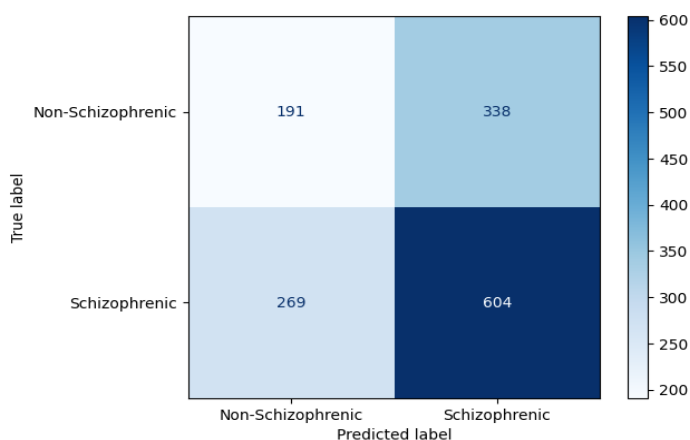

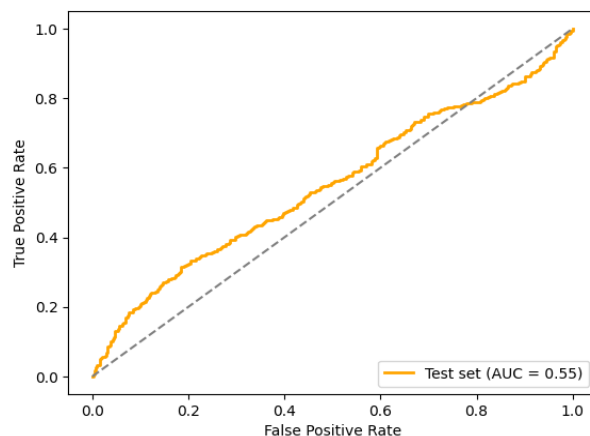Figure 7: Confusion matrix from third experiment-normalizing images

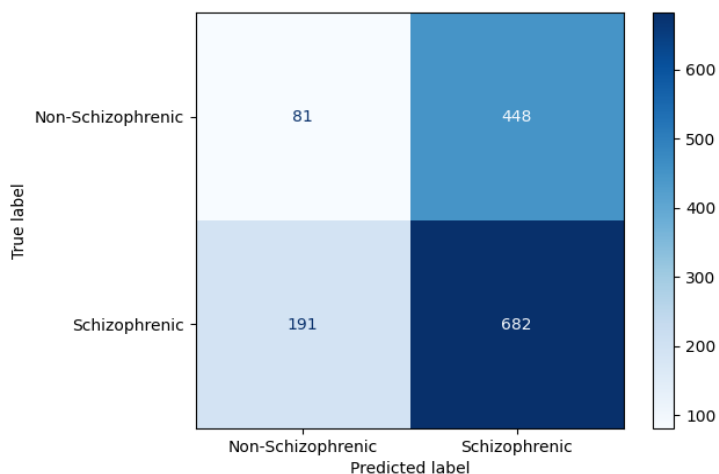Figure 8: ROC Curve from third experiment-normalizing images

Figure 9: Confusion matrix from forth experiment-brain extraction
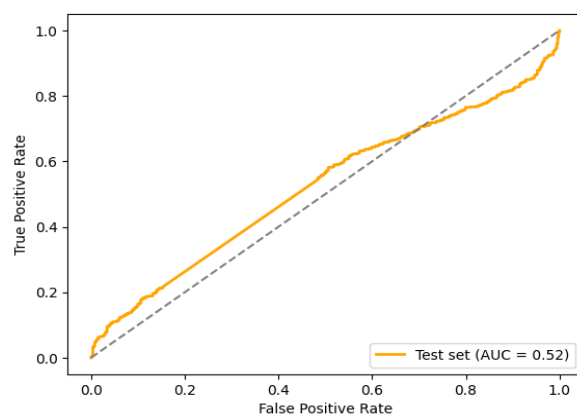

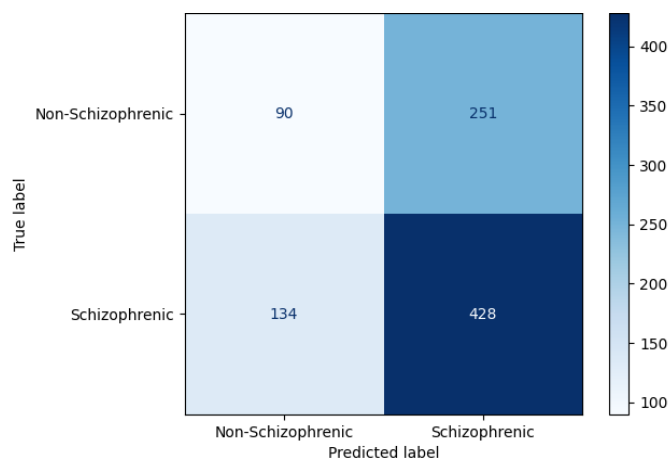Figure 10: ROC Curve from forth experiment- brain extraction
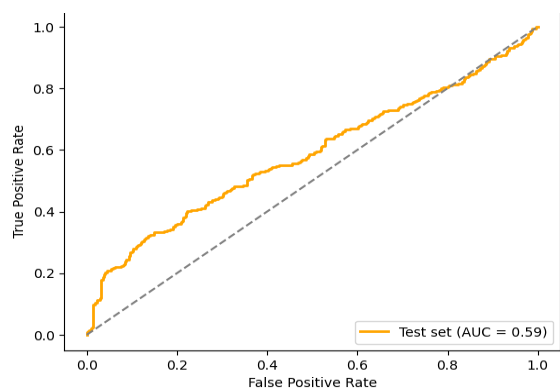
Figure 11: Confusion matrix from fifth experiment-cropping

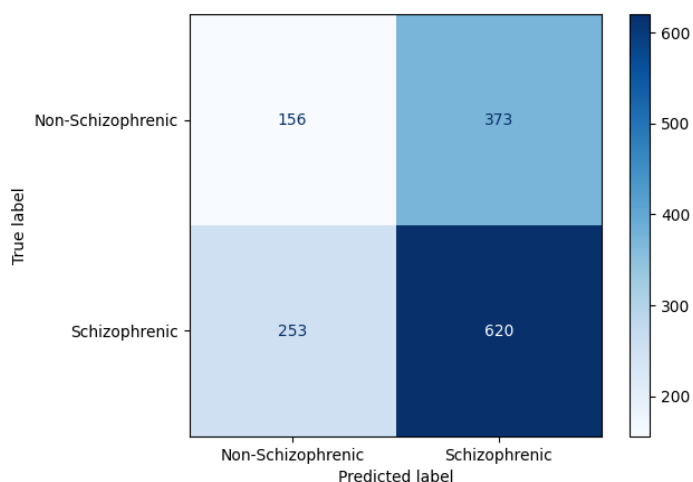Figure 12: ROC Curve from fifth experiment- cropping

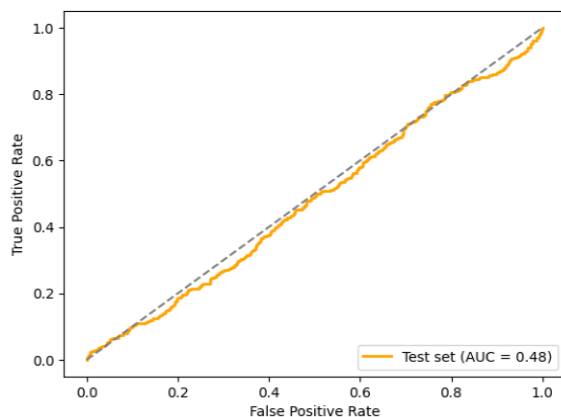Figure 13: Confusion matrix from sixth experiment-smoothing

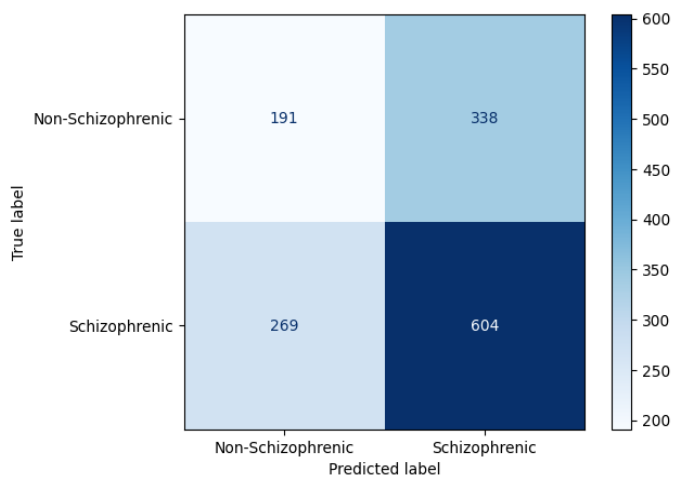Figure 14: ROC Curve from sixth experiment-smoothing

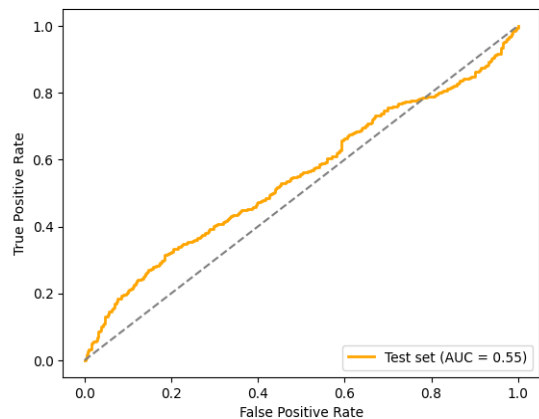Figure 15: Confusion matrix from seventh experiment-resampling + normalization

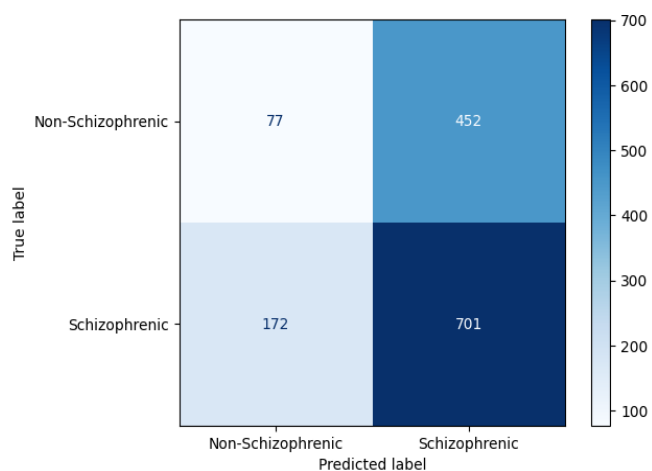Figure 16: ROC Curve from seventh experiment-resampling + normalization

Figure 17: Confusion matrix from eighth experiment- resampling + normalization + brain extraction
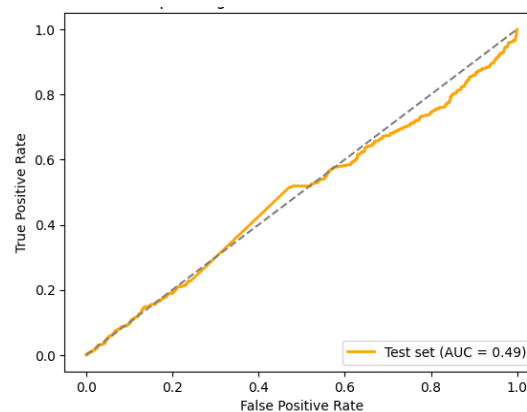

Figure 18: ROC Curve from eighth experiment- resampling + normalization + brain extraction
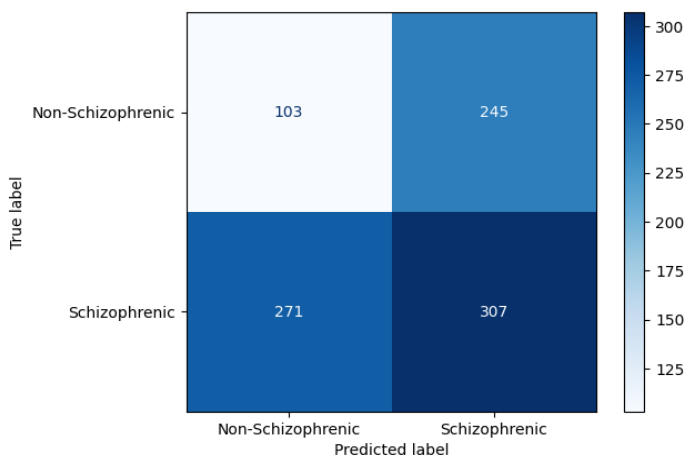

Figure 19: Confusion matrix from ninth experiment- resampling + normalization + brain extraction + cropping
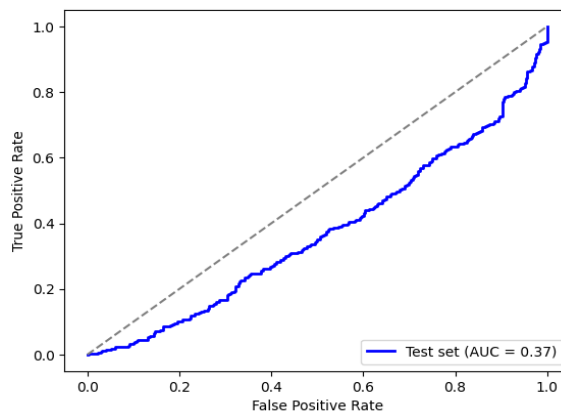

Figure 20: ROC Curve from ninth experiment- resampling + normalization + brain extraction + cropping
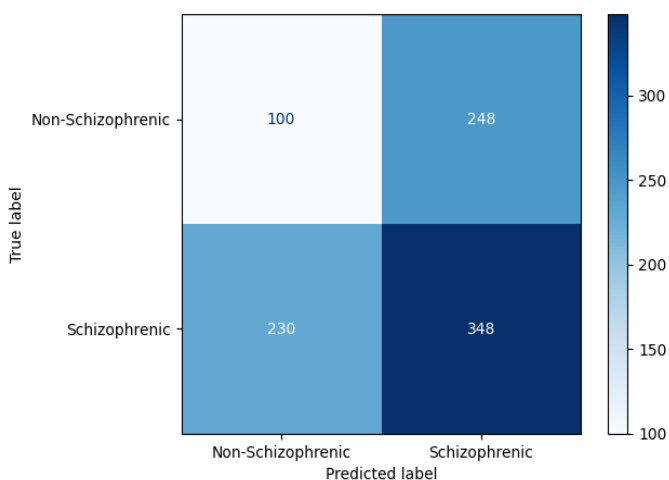

Figure 21: Confusion matrix from tenth experiment- resampling + normalization + brain extraction + cropping + smoothing
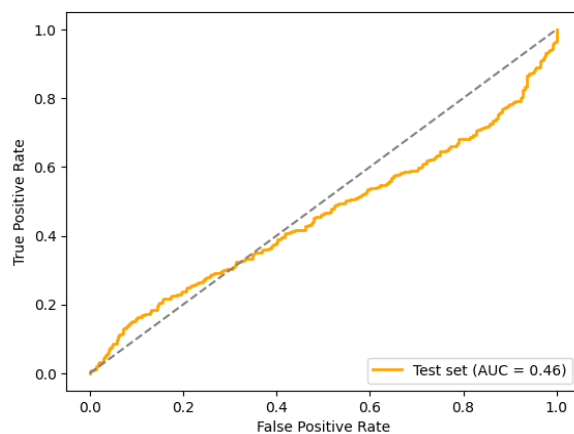

Figure 22: Confusion matrix from tenth experiment- resampling + normalization + brain extraction + cropping + smoothing
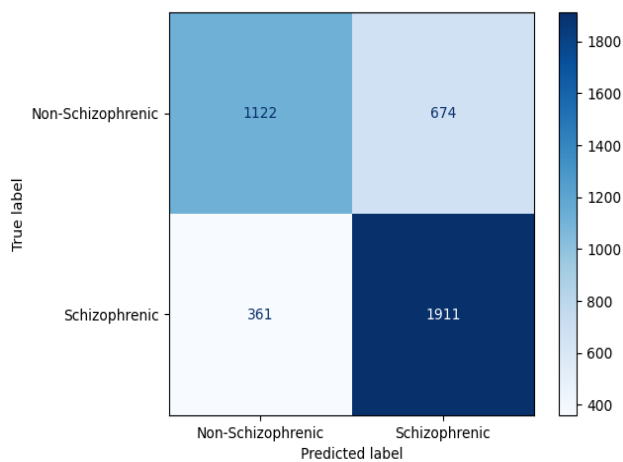
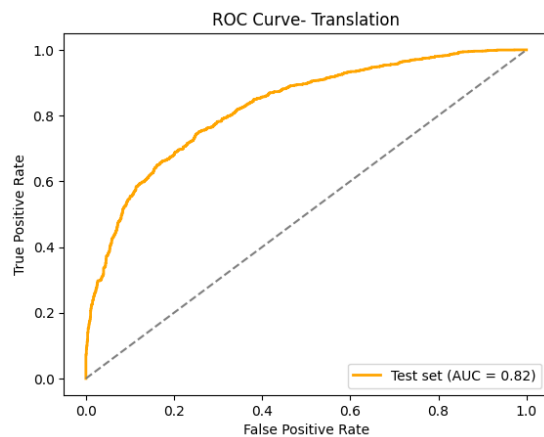*Figure 23: Confusion matrix from eleventh experiment-translation*

Figure 24: ROC Curve from eleventh experiment-translation
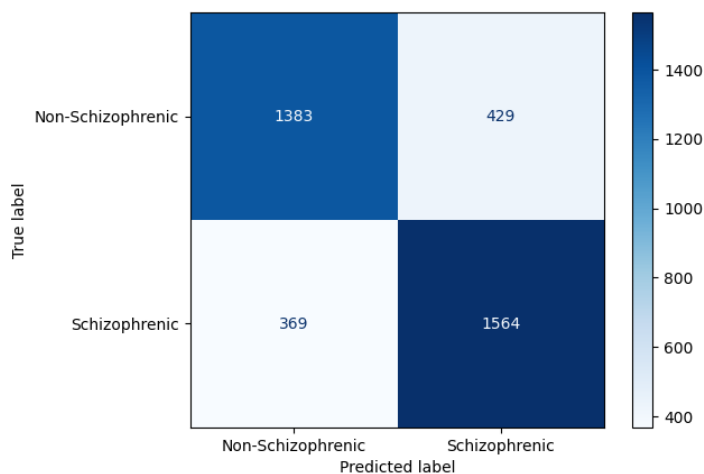

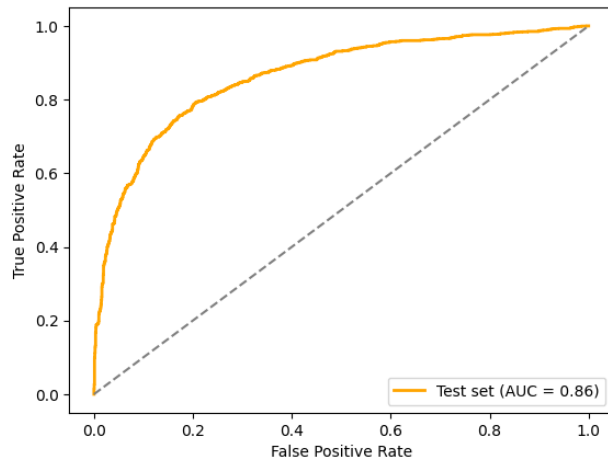*Figure 25: Confusion matrix from twelfth experiment-Rotation*

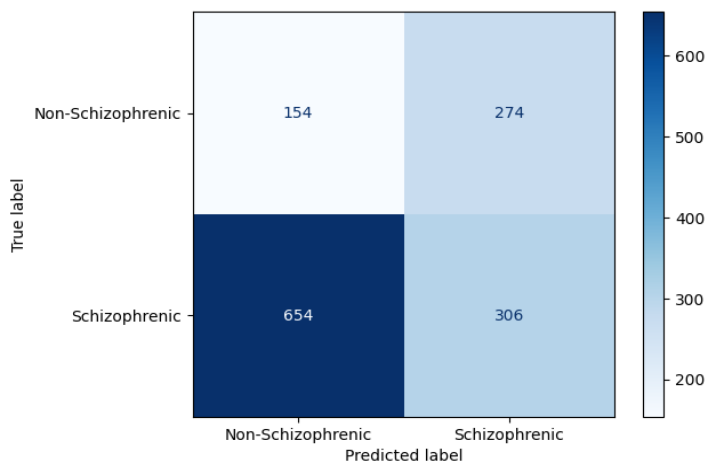*Figure 26: Confusion matrix from twelfth experiment-Rotation*

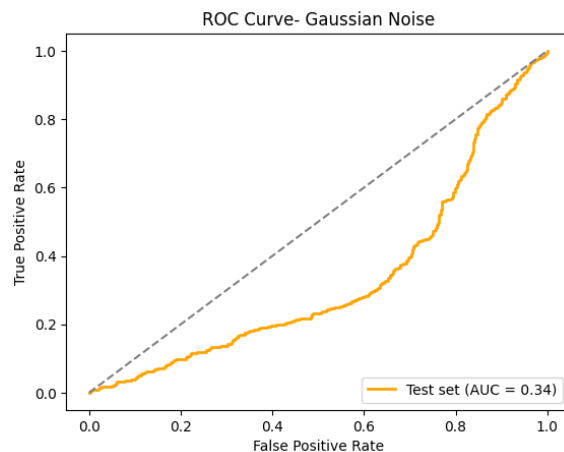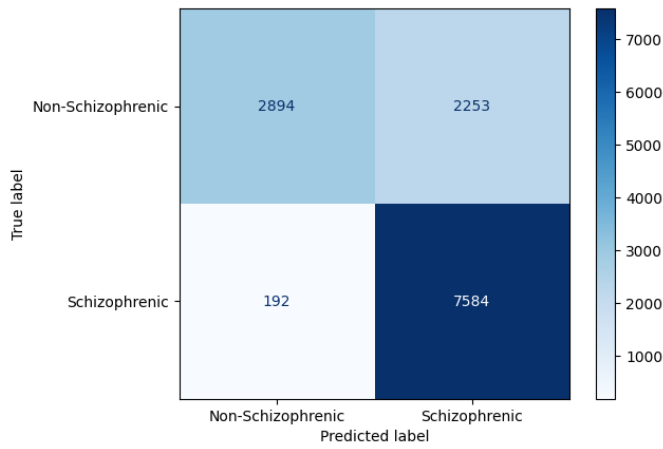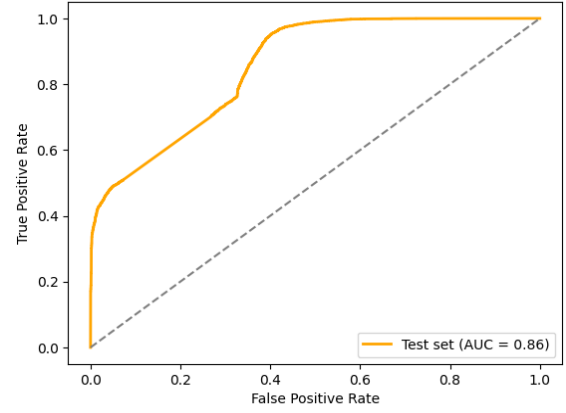*Figure 27: Confusion matrix from thirteenth experiment-Gaussian noise*

Figure 28: Confusion matrix from thirteenth experiment-Gaussian noise

Figure 29: Confusion matrix from final training- Resampling + Normalization + Brain Extraction + Translation + Rotation

Figure 30: ROC CURVE from final training- Resampling + Normalization + Brain Extraction + Translation + Rotation
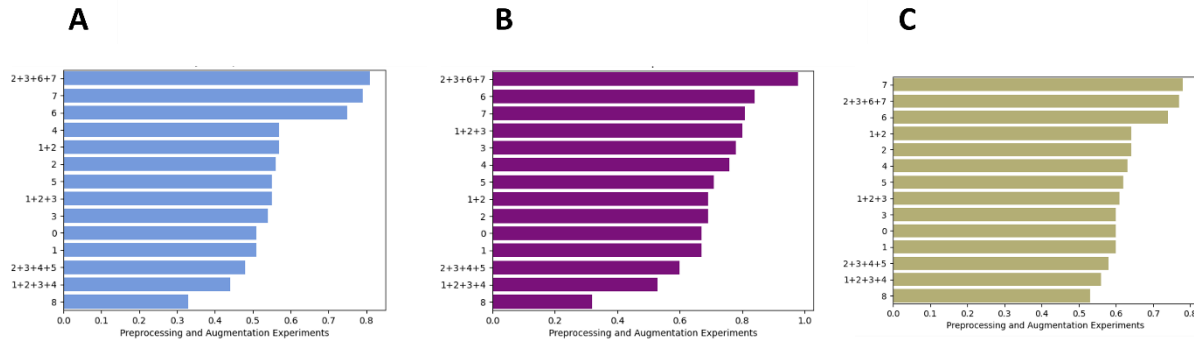
Figure 31: Comparison of metrics across training experiments.
Summary of the metrics for each preprocessing experiment (see Tables 3 and 4). (A) Comparison of accuracies across experiments. The highest accuracy is recorded in the final training combining resampling, normalization, brain extraction, translation, and rotation. (B) Comparison of recall scores. The final training also produces the highest recall score. (C) Comparison of precision scores. The rotation experiment produced the highest score, probably due to an increase in instances of the negative class after augmentation. The numbers represent preprocessing and augmentation techniques: 0- raw images, 1- resampling, 2- normalization, 3- brain extraction, 4- cropping, 5- smoothing, 6- translation, 7-rotation, 8- gaussian noise
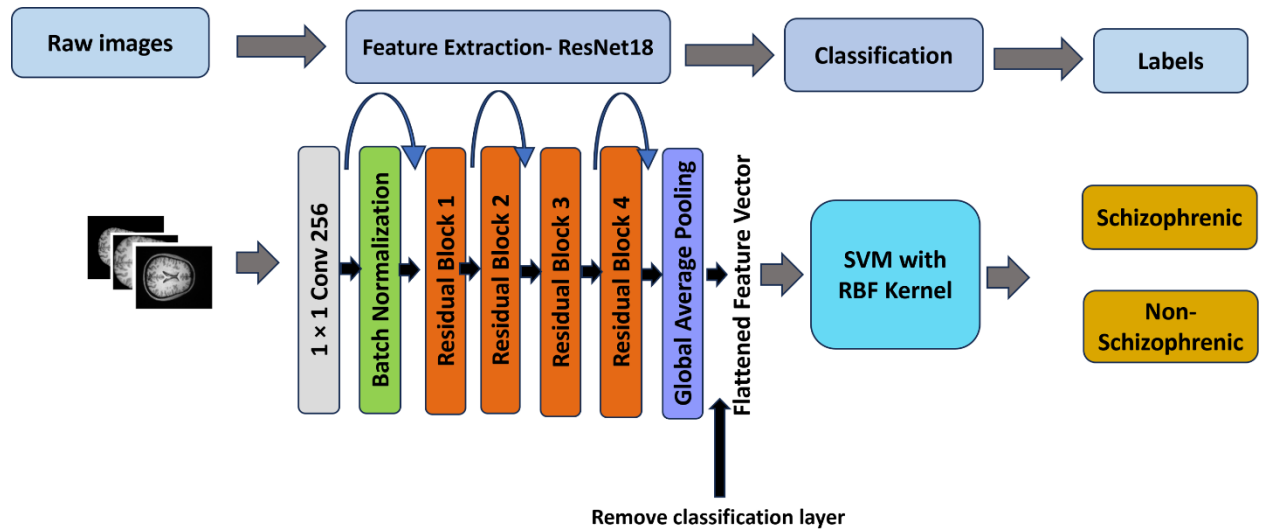
Figure 32: Training workflow and model architecture