

Face Generative Modeling

Dataset used: Fddb

Testing data: 100 images of face and non-face regions respectively

Training data: 1000 images of face and non –face regions respectively

Models Trained: Gaussian, Mixture of Gaussian, T distribution, Factor Analyzer

THE RECEIVER OPERATING CHARACTERISTIC(ROC) CURVE AND RESULTS OBTAINED FOR DIFFERENT MODELS :

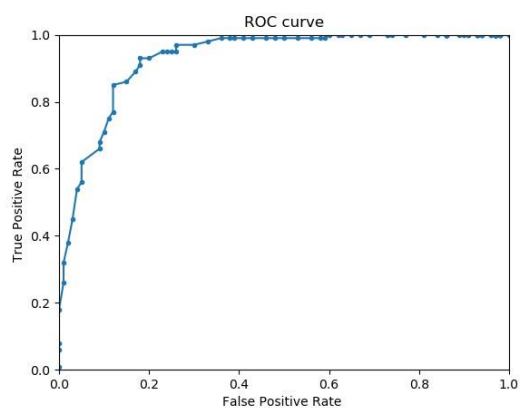
(Images:20X20 RGB)

Single Gaussian Model:

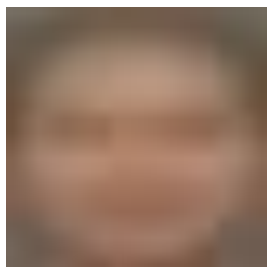
False Positive Rate : 0.05

False Negative Rate : 0.41

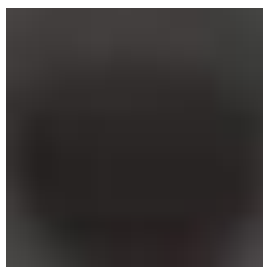
Misclassification Rate : 0.22999999999999998



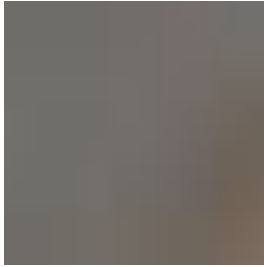
Mean Face:



Covariance Face:



Mean Non-Face:



Covariance Non-Face:



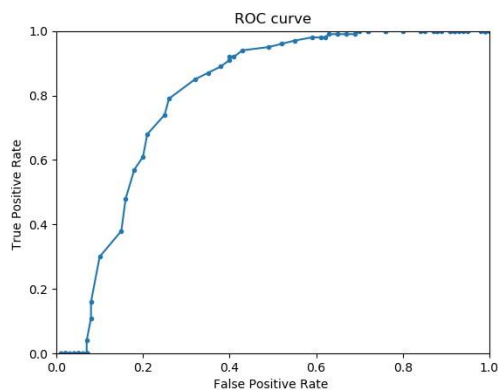
Mixture Of Gaussians Model:

(for this model 10X10 grayscale images were used considering system configurations)

False Positive Rate : 0.38

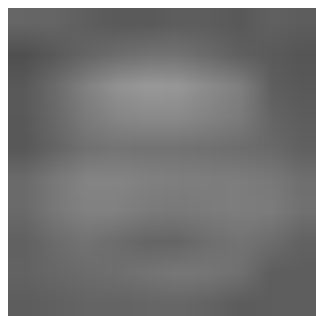
False Negative Rate : 0.11

Misclassification Rate : 0.245

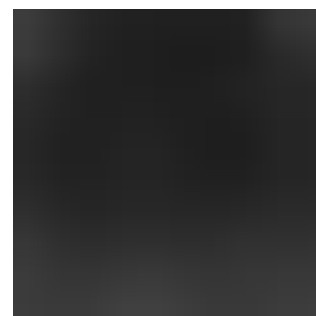


(Below are the mean and covariance visualizations for K=1 hidden variable for 1st iteration)

Mean Face:



Covariance Face:



Mean Non-Face:



Covariance Non-Face:



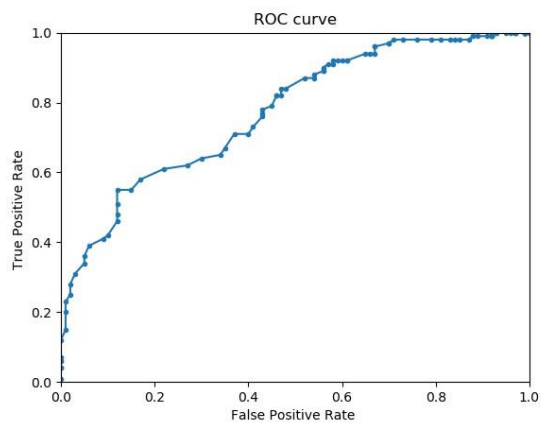
T distribution model:

(for this model 10X10 grayscale images were used considering system configurations)

False Positive Rate : 0.23

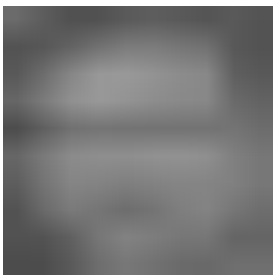
False Negative Rate : 0.39

Misclassification Rate : 0.31

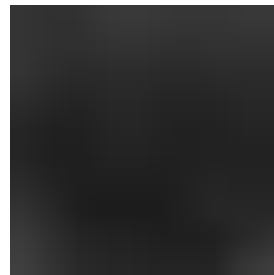


(Below are the mean and covariance visualizations for 1st iteration)

Mean Face:



Covariance Face:



Mean Non-Face:



Covariance Non-Face:



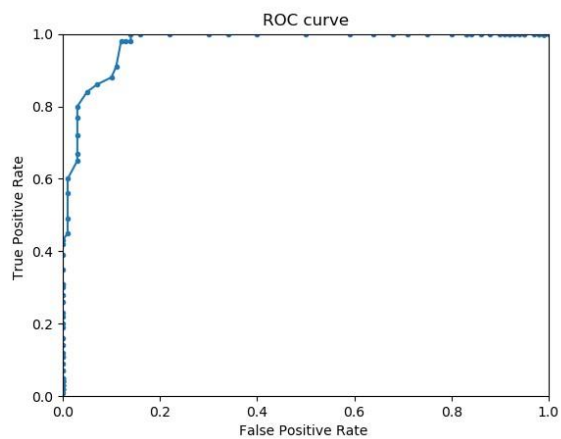
Factor Analyzer:

(for this model 10X10 grayscale images were used considering system configurations)

False Positive Rate : 0.13

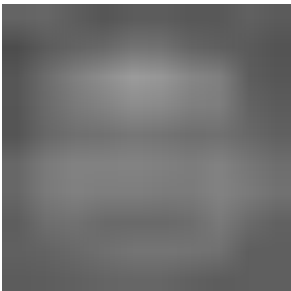
False Negative Rate : 0.02

Misclassification Rate : 0.075

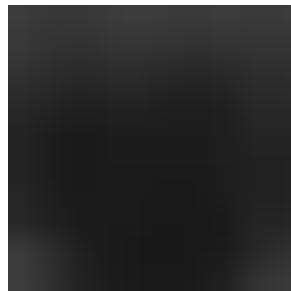


(Below are the mean and covariance visualizations for 1st iteration)

Mean Face:



Covariance Face:



Mean Non-Face:



Covariance Non-Face:

