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## Summary of Project 2:

# **Face Recognition using Linear Discriminant Analysis**

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Fig: ROC for PCA Fig: ROC for LDA

Both Principle Component Analysis (PCA) and Linear Discriminant Analysis (LDA) are well known algorithms for face recognition problem, PCA is well known for dimensionality reduction but LDA maximizes the discriminatory power of the classes in the dataset. But LDA alone faces the difficulty to process the high dimensionality image dataset. Hence first projecting the image dataset to lower dimension using PCA and then applying LDA to maximize the interclass projection simplifies and maximize the processing ability.

We have used 5 images of 40 persons as training set and trained both PCA and PCA+LDA , compared the test results by using rest 5 images of 40 persons by calculating the genuine and impostor scores. The above two plots shows ROC curve of PCA and LDA respectively. Area for PCA is 0.39 and for LDA is 0.88, it is clear that LDA outperforms well than PCA alone.

Mean values for LDA ,

FAR - 0.01

FRR - 0.23

GAR - 0.76

GRR - 0.98