Q&A

- What is the common feature of statistical pattern classification?
- What is supervised pattern classification? How is it different from unsupervised classification?
- When performing classification, what is the general rule that Bayesian decision methods follow? (MPP, Discriminant function)
- What are the differences between the three cases of discriminant function?
- What is the difference between Euclidean distance and Mahalanobis distance?
- What is the difference between parametric classification and non-parametric classification?
- Understand behavior characteristics of m-D Gaussian
- What is maximum likelihood estimation?
- Both FLD and PCA reduce the dimension of a dataset. However, different projection directions are generated from the two approaches. Comment on the fundamental differences.
- How to quantify error in representation in PCA?
Q&A

- Can you verbally describe kNN? And possible improvements?
- Performance evaluation
  - Learn to plot and use and explain an ROC curve
  - Be familiar with the relationship between TP, FP, TN, FN, precision, recall, specificity, sensitivity, and accuracy
  - What is cross validation?

Forming Objective Functions

- Maximum a-posteriori probability
- Maximum likelihood estimate
- Fisher’s linear discriminant
- Principal component analysis
- kNN
- ROC curve

Distance Metrics

- Euclidean distance
- Mahalanobis distance
- Minkowski distance
  - Manhattan distance (city-block distance)
  - Euclidean distance
Review Materials

- HW1, 2
- Proj 1, 2
- Lectures 1-10