

In The Name of God, The Compassionate, The Merciful

Name:

Student ID#:

Statistical Pattern Recognition (CE-725)
Department of Computer Engineering
Quiz #3 - Spring 2010

1. (2 points) When the results of data projection on Fisher direction and data projection on first component of PCA are the same?

2. (6 points) Which of the following would be a good objective function to use instead of fisher's one and which of them not? Give 1 sentence explanations.

$$J(v) = \frac{(\mu_1 - \mu_2)^2}{\sigma_1^2} + \frac{(\mu_1 - \mu_2)^2}{\sigma_2^2}$$

$$J(v) = \frac{(\mu_1 - \mu_2)^2}{\sigma_1^2 / \sigma_2^2}$$

$$J(v) = \frac{\sigma_1^2 * \sigma_2^2}{(\mu_1 - \mu_2)^2}$$

3. (2 points) Consider a 1000-dimensional data and 10-classes classification problem. How many dimensions will be obtained after using Multiple Discriminant Analysis (MDA)?