

ECE 532 Homework 7

Due Thursday March 3 at the beginning of class

1. Show that the Fisher linear discriminant dimensional reduction coincides with the “plug-in” likelihood ratio test if we assume that the class-conditional densities are d -dimensional Gaussians with unknown and *unequal* means and unknown and *equal* covariances.
2. Consider the Iris dataset. Convert it to a two-class problem by combining classes 1 and 2.
 - a. Find the Fisher linear discriminant function for distinguishing between class 0 and the combined class 1&2.
 - b. Evaluate the performance of this dimensional reduction as follows. Using only half of the data, compute the Fisher linear discriminant classifier and the “plug-in” likelihood ratio test. Compare the error performance of the two classifiers on the other remaining half of the dataset.