

# EE675/EE684

## RESEARCH PROBLEM 2

### REQUIREMENTS

#### Basic Requirements (70%)

Repeat all the experiments in the sample code and report the results in one OneNote file (or just a Word file with your code listed after each part) along with your comments on each.

#### Additional Requirements (30%)

1. Add a random feature to the set of features generated from the ROI and show that it deteriorates the performance of the system.
2. Propose and implement a new feature computed from the ROI and discuss its performance.
3. Use the CADx data set instead of the CADe data set and modify the code to discriminate between benign and malignant cases instead of the current normal vs. abnormal.
4. Starting from 4 features of your choice, manually implement (a) sequential forward search, and (b) sequential backward search feature selection methods.
5. Generate the results for the performance measures of 3 classifiers of your choice and compare them to decide which is the best. Justify your answers with a discussion of how you reached this decision.
6. Compare the performance of the system when the size of the ROI is changed to 16x16 and 8x8.

Note: It is necessary to include your comments on the results in each requirement.