

## IMLPR Homework #1

Let the discriminant functions for a three-class problem be

$$g_1(\underline{x}) = -x_1 + x_2$$

$$g_2(\underline{x}) = x_1 + x_2 - 1$$

$$g_3(\underline{x}) = -x_2$$

and the decision rule is the original one described in class:

Assign  $\underline{x}$  to  $S_k$  iff  $g_k(\underline{x}) > g_j(\underline{x})$  for all  $j \neq k$

- (a) Find the decision boundaries.
- (b) Plot the decision boundaries and label the classified regions.
- (c) Classify the test point  $\underline{x} = (1, 1)^T$  according to the decision boundaries.