

Discriminant functions?

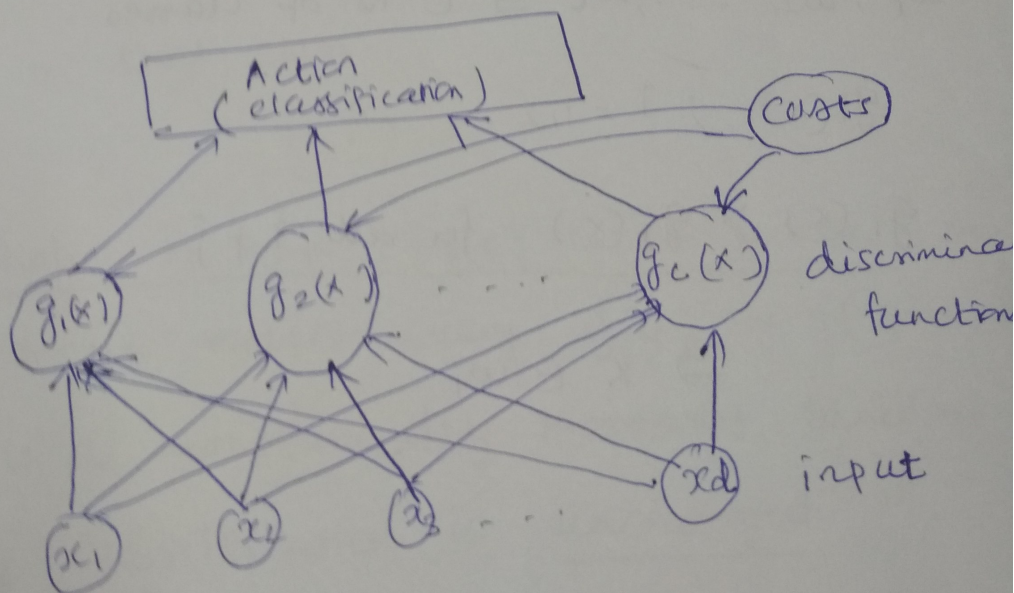
1) The Multi-category case?

There are many different ways to represent pattern classifiers. One of the most useful is in terms of a set of discriminant functions $g_i(x)$, $i=1, \dots, c$. The classifier is said to assign a feature vector x to class w_i if

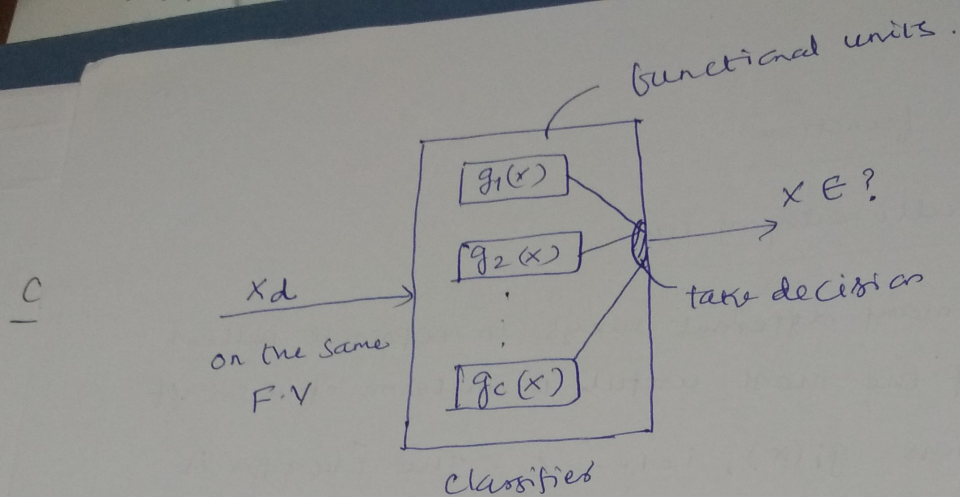
$$g_i(x) > g_j(x) \quad \forall i \neq j.$$

Thus, the classifier is viewed as a network (or) machine that computes 'c' discriminant functions and selects the category corresponding to the maximum discriminant.

A network representation of a classifier is shown



* Useful way to represent classifiers



\Rightarrow I have to compute the no. of functions = no. of classes
no. of actions that I have
in my classifier.

\Rightarrow so many functions have to be computed,

the nature of Discriminant function class

$w_1, w_2, \dots, w_c \Rightarrow c$ no. of classes

$g_i(x)$; $i = 1, 2, \dots, c$

$g_i(x) > g_j(x)$ for all $i \neq j$

$\Rightarrow x \in w_i$