

# Basic Concepts of Classification

Chih-You Hsu tccnhsu@gmail.com

April 2018

## 1 Basic Concept of Artificial Neural Network

A line is a set of points  $\{\mathbf{x}|y(\mathbf{x}) = 0\}$  and it separates a plan into two half plan. If we assign one set  $C_0 = \{\mathbf{x}|y(\mathbf{x}) > 0\}$  as a class  $C_0$  and the other set is  $C_1 = \{\mathbf{x}|y(\mathbf{x}) < 0\}$ . If the points on the line  $\{\mathbf{x}|y(\mathbf{x}) = 0\}$  are assigned as the sub set of the set  $C_0$ , then it becomes  $C_0 = \{\mathbf{x}|y(\mathbf{x}) \geq 0\}$ . A line  $y(\mathbf{x}) = 0$  can be regard as a Linear Decision Boundary and  $y(\mathbf{x})$  is a Discriminant Function in a two dimensional space.

