Chapter - 2
Theory of Learning

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1   Introduction

Hoeffding Inequality In sample connected to out of sample through probability.

2   Perceptron

Continuing with our example from the finance domain, let us begin by looking at the given data. The data is available to us in the form of N input-output pairs :

$$(\mathbf{x_1}, y_1), (\mathbf{x_2}, y_2), (\mathbf{x_3}, y_3)...(\mathbf{x_N}, y_N)$$

Here $y_n \in \{+1, -1\}$ represents the binary decision of approving or rejecting the loan request and $\mathbf{x}_n$ is the application information of the nth customer, which is represented by a column matrix as shown below :

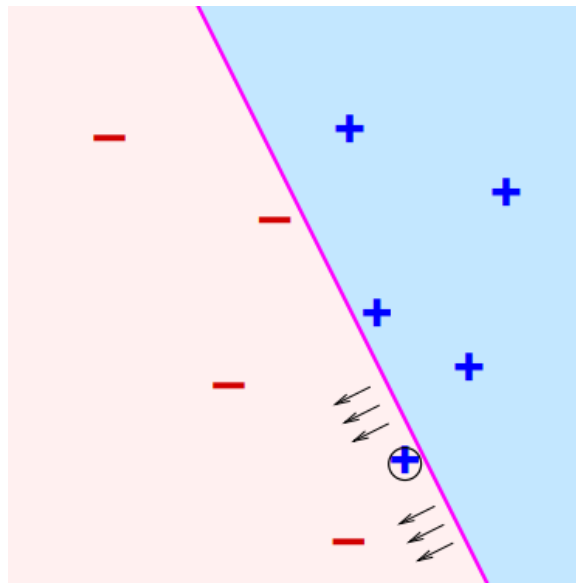$$\mathbf{x}_n = \begin{bmatrix} x_1 \\ x_2 \\ . \\ . \\ x_d \end{bmatrix}$$

Figure 1: Perceptron

3 References

1. CalTech Machine Learning Course - CS156, Lecture 2.