

Chapter - 2

Theory of Learning

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1 Introduction

Hoeffding Inequality

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 :

$$(\mathbf{x}_1, y_1), (\mathbf{x}_2, y_2), (\mathbf{x}_3, y_3) \dots (\mathbf{x}_N, y_N)$$

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 n^{th} customer, which is represented by a column matrix as shown below :

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

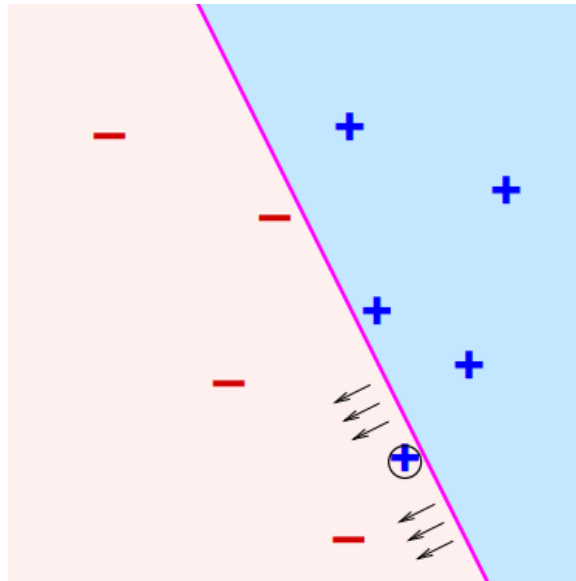


Figure 1: Perceptron

3 References

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