

Perceptrons: An Overview

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March 30, 2018

"We expect the perceptron to be the embryo of an electronic computer that will be able to walk, talk, see, write, reproduce itself and be conscious of its existence." - The New York Times, 1958.

1 Introduction: What is a Perceptron?

The perceptron is an algorithm for learning a binary classifier: a function that maps its input x (a real-valued **vector**) to an output value $f(x)$ (a single binary value). Shown below is a mathematical definition:

$$f(x) = \begin{cases} 1 & wx + b > 0 \\ 0 & \text{otherwise} \end{cases}$$

2 Workings: What drives a Perceptron?

2.1 Mathematical Model

A perceptron is nothing more than a function that takes in several inputs and produces an output of either 0 or 1.

The input of perceptron is usually modeled as a column vector. Let $A(n \times 1)$ represent this column vector.

3 Applications: Why are Perceptrons useful?

4 Evolution: What has the idea of a Perceptron led to?