

Machine Learning In Action — Chapter 5

5.1 — Sigmoid

The sigmoid, $\sigma(z)$, is given by the equation

$$\sigma(z) = \frac{1}{1 + e^{-z}}$$

where the input, z , is

$$\begin{aligned} z &= W^T \cdot X \\ &= \begin{pmatrix} w_0 \\ w_1 \\ \vdots \\ w_n \end{pmatrix} \cdot (x_0 \quad x_1 \quad \cdots \quad x_n) \\ &= w_0x_0 + w_1x_1 + \cdots + w_nx_n \end{aligned}$$

The vector X is the input data and we want to find the best set of coefficients, W so that this classifier is as successful as possible.