

Basic Feedforward Network

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Linear Classifier and the Perceptron Algorithm

$$f(x) = \sigma(w^T x + b)$$

σ : Sigmoid function : $\sigma(x) = \frac{1}{1 + e^{-x}}$

The connection to logistic regression:

Assume binomial distribution with parameter \hat{p}

Assume the logit transform is linear:

$$\log \frac{\hat{p}}{1-\hat{p}} = w^T x + b$$

$$\Rightarrow \hat{p} = \sigma(f(x))$$

Thank you!