

Introduction to Sigmoid Function

Definition:

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



Maps any real number to (0,1) range



Perfect for probability interpretation



S-shaped curve: Smooth transition between 0 and 1

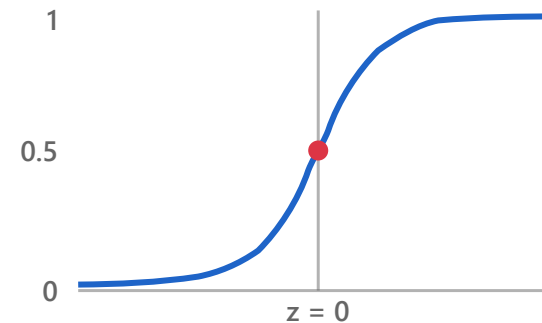


Solves the "prediction outside [0,1]" problem

Output:

$$P(y=1|x) = \sigma(w^T x + b)$$

S-Shaped Curve



Input $z=0 \rightarrow$ Output $\sigma=0.5$ (decision threshold)