

Sigmoid Neuron

Sigmoid Model

Model Part 4

How does the function behave if we change w and b

1. **w:** (controls the slope)
 - a. Negative w , negative slope, mirrored s-shape, becomes more harsh(vertical/less smooth) the more negative it goes
 - b. Positive w , positive slope, normal s-shape, becomes more harsh(vertical/less smooth) the more positive it goes
2. **b:** (controls the midpoint)
 - a. $y = 1/(1 + \exp(-(wx + b))) = 1/2$ (for $w=1.00$, $b = -5$)
 - b. $\exp(-(wx + b)) = 1$
 - c. $wx + b = 0$
 - d. $x = -b/w$ (As b becomes more -ve, boundary moves more to the right +ve, and vice versa)