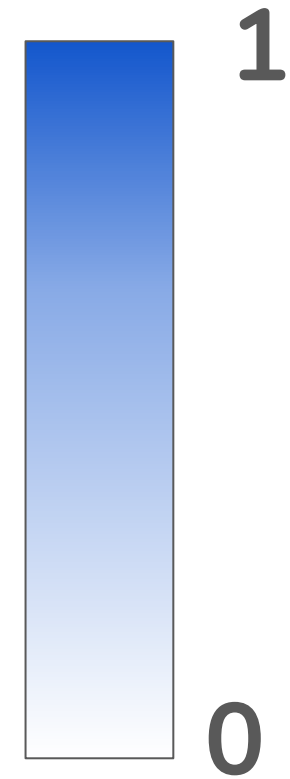
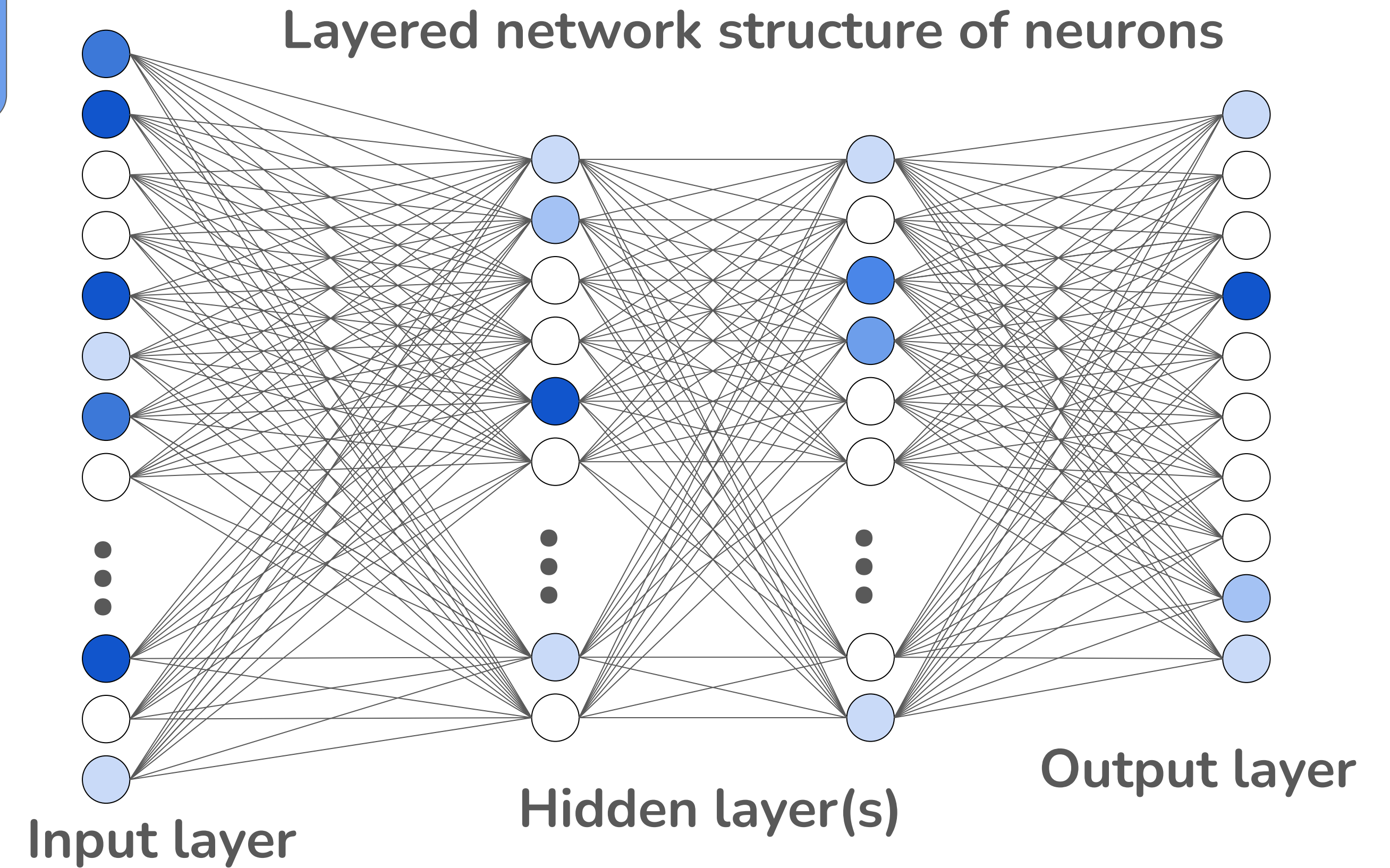
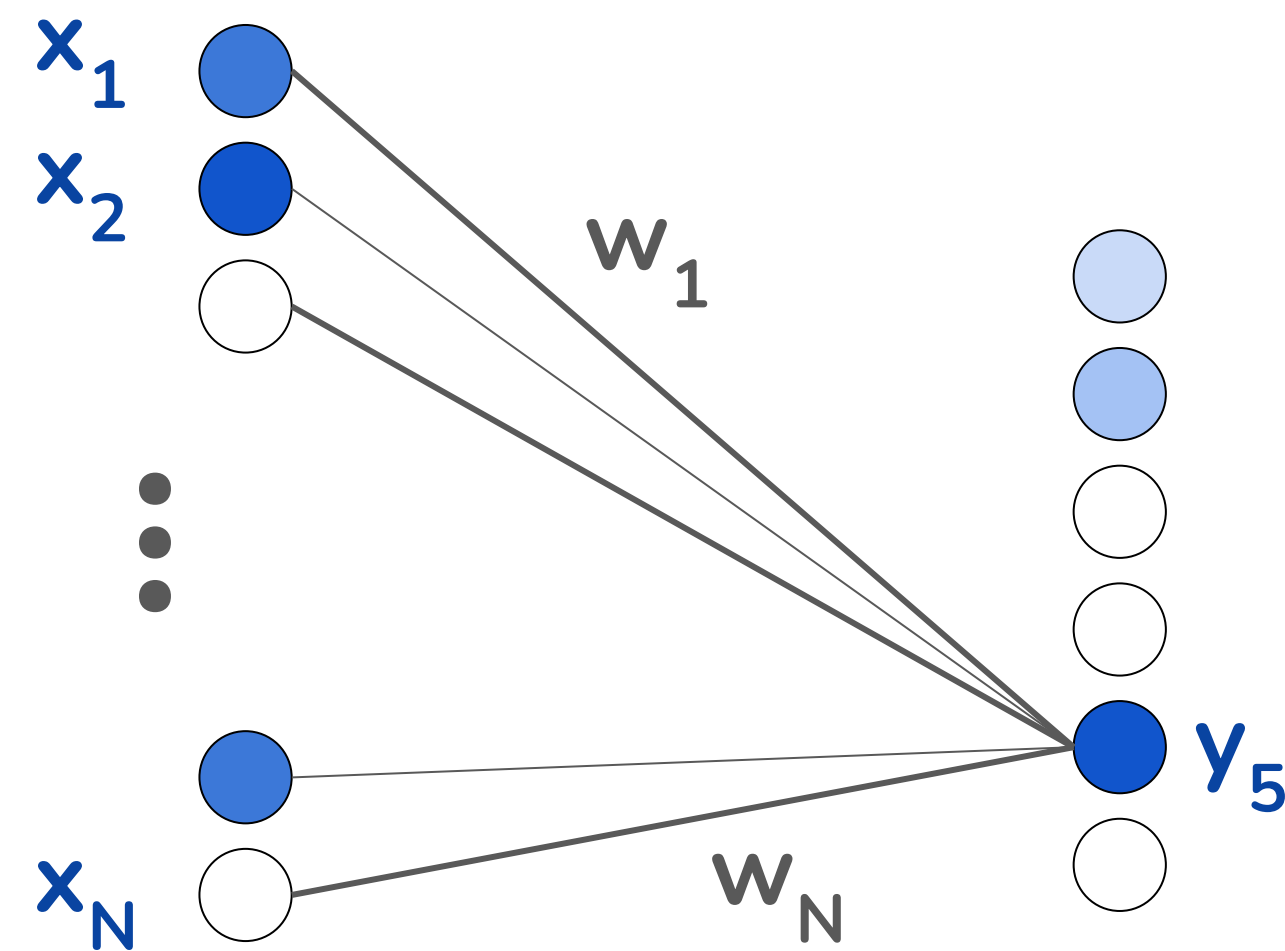


Introduction to Neural Networks

Neuron activity:

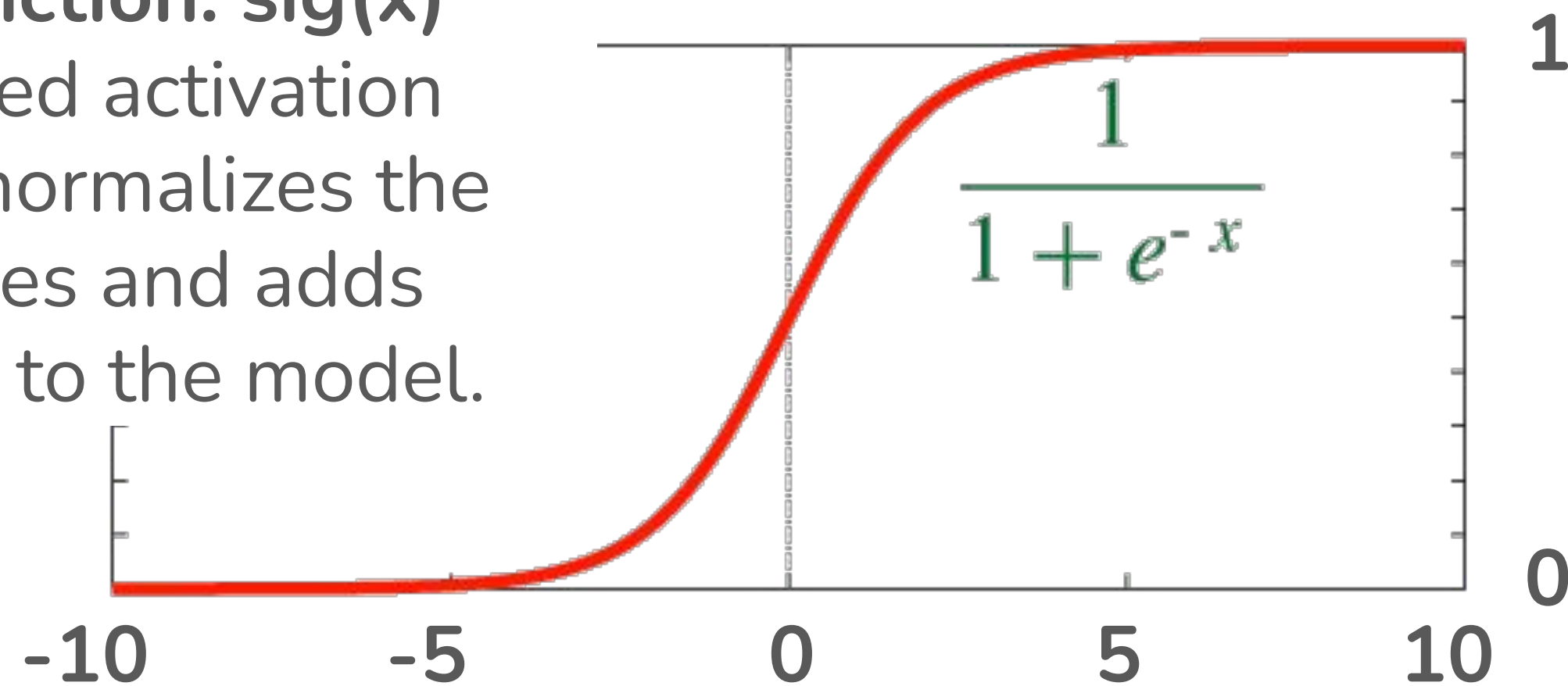


Weighted connections:



Sigmoid function: sig(x)

A widely used activation function. It normalizes the activity values and adds nonlinearity to the model.



Activity calculation (forward propagation)

In the formula we use the activities of the previous layer, the corresponding weights and a bias constant:

$$y_5 = sig(x_1 w_1 + x_2 w_2 + \dots + x_N w_N + b_5)$$

Teaching (backward propagation)

- **Strengthening parameters** lead to good answers
- **Weakening parameters** lead to bad answers