Number of parameters in Feed Forward Networks

i, input size

h, size of hidden layer

o, output size

For one hidden layer, num_params

= connections between layers + biases in every layer

= (i×h + h×o) + (h+o)

Example 1

Input size 3, hidden layer size 5, output size 2

https://towardsdatascience.com/counting-no-of-parameters-in-deep-learning-models-by-hand-8f1716241889

i = 3

h = 5

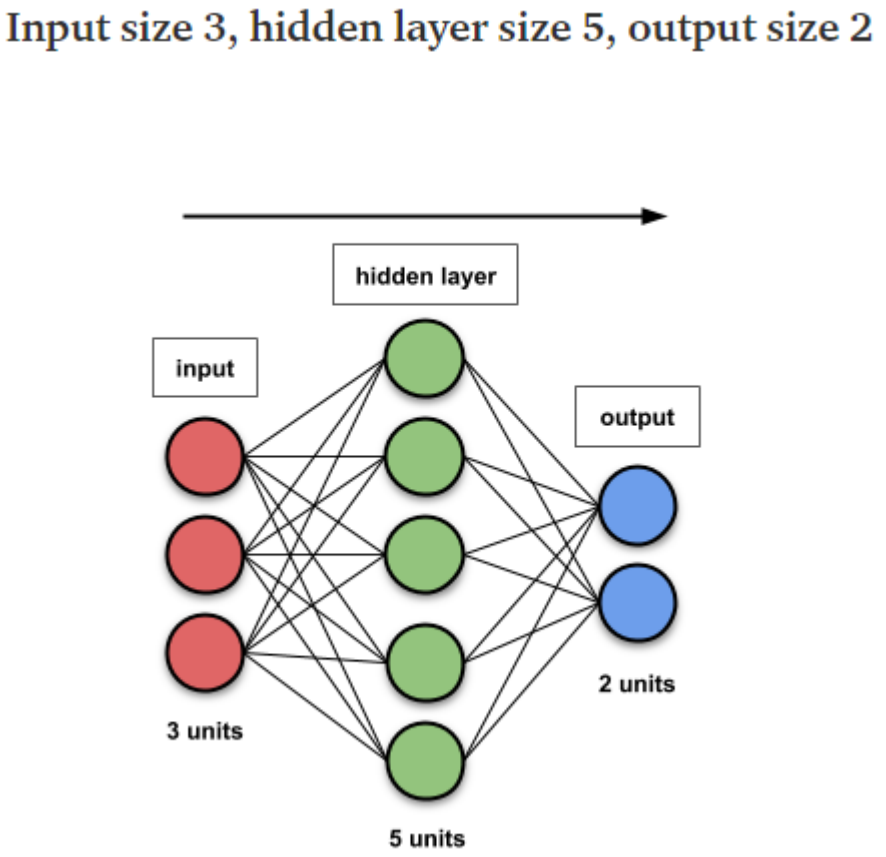
o = 2

num_params

= connections between layers +

= (3×5 + 5×2) + (5+2)

= 32



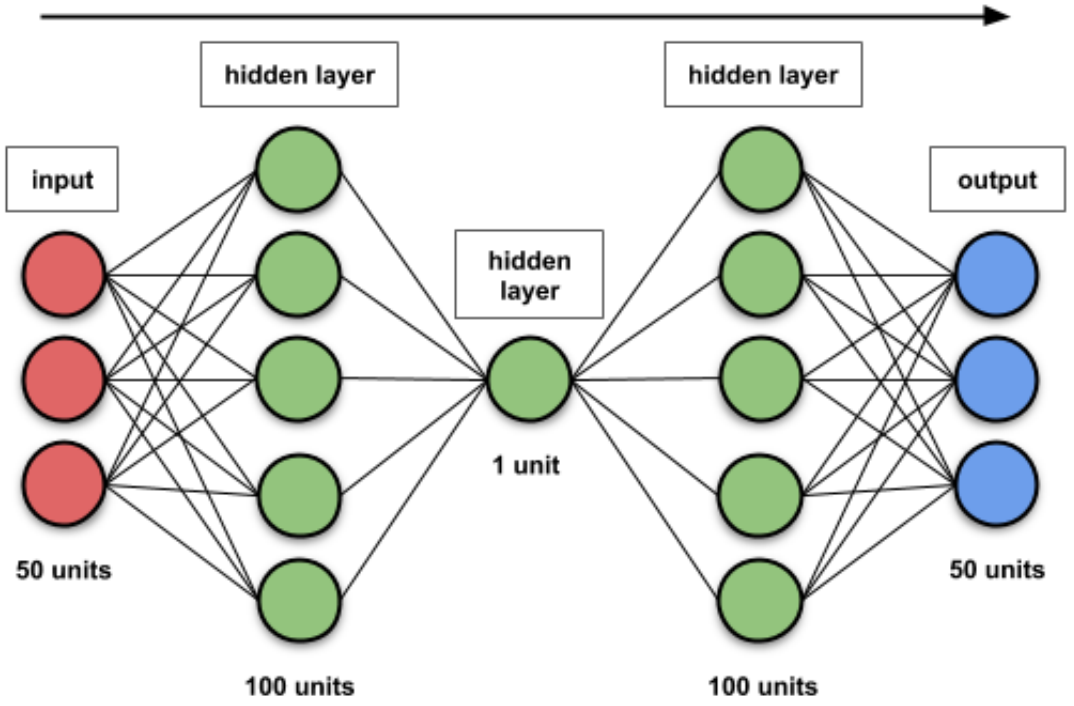
Example2

Input size 50, hidden layers size [100,1,100], output size 50

i = 50

h = 100, 1, 100

o = 50



num_params

= connections between layers + biases in every layer

= (50×100 + 100×1 + 1×100 + 100×50) + (100+1+100+50) = 10,451