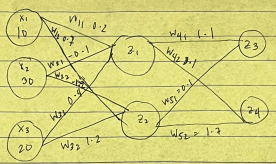
Olympia, Francheska L. BSCS - ML Comp232



$x_1 = 10$ $w_{31} = 0.4$ $z_1 = 7$

$x_2 = 30$ $w_{32} = 0.2$ $z_3 = -5$

$x_3 = 20$ $w_{41} = 1.1$ $z_2 = 1.0997$

$w_{11} = 0.2$ $w_{42} = 3.1$ $z_4 = 3.1086$

$w_{12} = 0.7$ $w_{51} = 0.1$ $h_1 = 0.9991$

$w_{21} = 0.1$ $w_{52} = 1.7$ $h_2 = 0.0067$

$w_{33} = -1.2$ $\hat{p}_1 = 0.7502$

$\hat{p}_2 = 0.9572$

- $z_1 = w_{11}x_1 + w_{21}x_2 + w_{31}x_3 + b$
  $= 0.2(10) + -0.1(30) + 0.4(20) + 5$
  $= 2 + (-3) + 8 + 0$
  $z_1 = 7$

- $z_2 = w_{12}x_1 + w_{22}x_2 + w_{32}x_3 + b$
  $= 0.7(10) + -1.2(30) + 1.2(20) + 0$
  $= 7 - 36 + 24$
  $z_2 = -5$

- $z_3 = h_1 w_{41} + h_2 w_{51} + b$
  $= 0.9991(1.1) + 0.0067(0.1) + 0$
  $= 1.0989 + 7.84 + 6.9285 \times 10^{-4}$
  $z_3 = 1.6996 \approx 1.0997$

- $z_4 = h_1 w_{41} + h_2 w_{52} + b$
  $= 0.9991(3.1) + 0.0067(1.7) + 0$
  $= 3.0971 + 0.0118$
  $z_4 = 3.1085 \approx 3.1086$

- $h_1 = \frac{1}{1+e^{-x}}$ // z_1
  $= \frac{1}{1+e^{-7}}$
  $h_1 = 0.9990 \approx 0.9991$

- $h_2 = \frac{1}{1+e^{-x}}$ // z_2
  $= \frac{1}{1+e^{5}}$
  $h_2 = 0.0066 \approx 0.0067$

- $\hat{p}_1 = \frac{1}{1+e^{-x}}$ // z_3
  $= \frac{1}{1+e^{-1.0997}}$
  $\hat{p}_1 = 0.7502$

- $\hat{p}_2 = \frac{1}{1+e^{-x}}$ // z_4
  $= \frac{1}{1+e^{-3.1086}}$
  $\hat{p}_2 = 0.9572$