Notes, Mar 17th, 2021

neural networks

input   layer 1   layer 2

$$X = \begin{pmatrix} & d_{i+1} & d_{i+2} & \cdots \\ obs_1 & & & \\ obs_2 & & & \\ \vdots & & & \end{pmatrix}$$

$$Y = f(X \cdot w_1 + b_1) + b_2$$

f: activation

$$f(X \cdot w_1 + b_1) + b_2$$

adjust input   adjust output
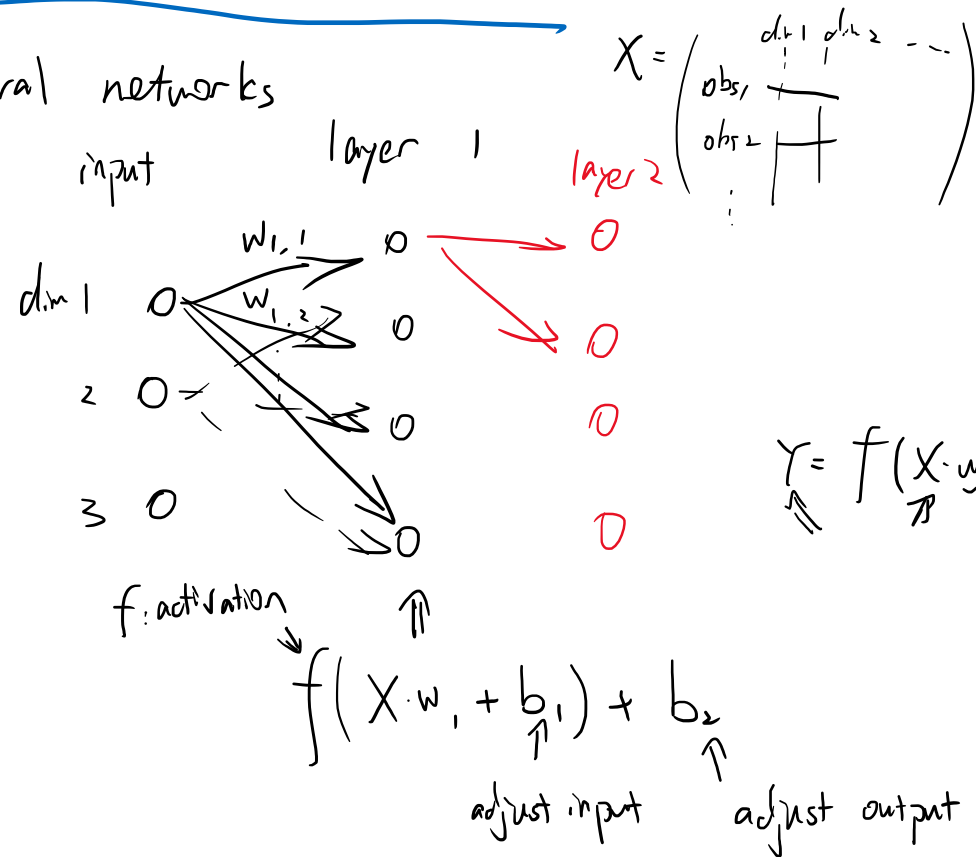
2-layer NN

$$f_2 \left[\left(f_1 (X \cdot w_1 + b_{1,1}) + b_{1,2} \right) \cdot w_2 + b_{2,1} \right] + b_{2,2}$$

$$Y = \alpha + \beta_1 X + \beta_2 X^2$$

$$\|$$

$$\alpha' + \beta_1' X + \beta_2' [X^2 - \mathbb{E}(X^2)]$$

$$Pr(\text{recidivism}) = \alpha + \Sigma Pr \cdot \text{categories} \quad\quad \text{Logrt rg.}$$

$$(\text{age, sex. race})$$