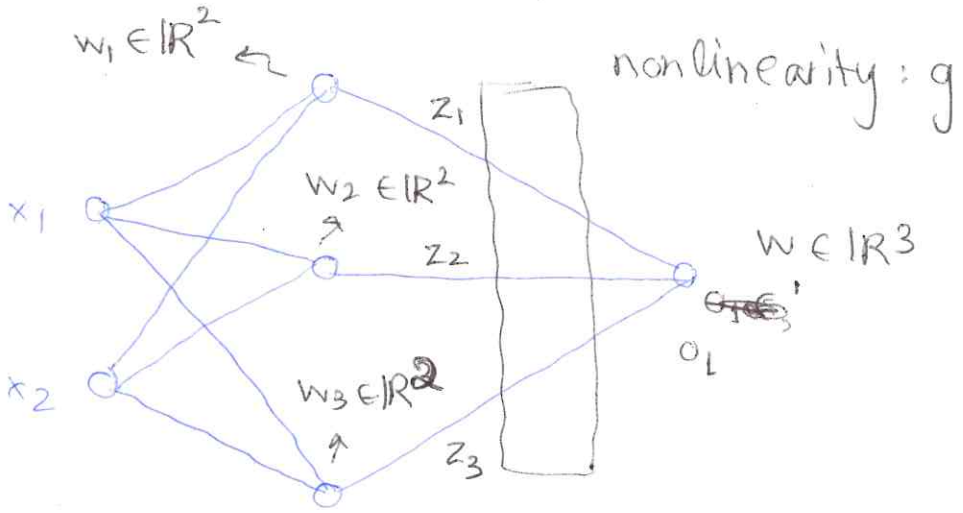
MLP Overview:

Input layer: $x \in \mathbb{R}^N$

Hidden layer: $W^h \in \mathbb{R}^{N \times M}$ → # hidden units (design choice)

Output layer: $W^o \in \mathbb{R}^{M \times O}$ → # outputs

e.g. $N = 2$, $M = 3$, $O = 1$



$$z_1 = w_1^T x + b_1$$
$$z_2 = w_2^T x + b_2$$
$$z_3 = w_3^T x + b_3$$

matrix → $z = W^T x + b$

$$\begin{bmatrix} — w_1 — \\ — w_2 — \\ — w_3 — \end{bmatrix} \cdot \begin{bmatrix} b_1 \\ b_2 \\ b_3 \end{bmatrix}$$