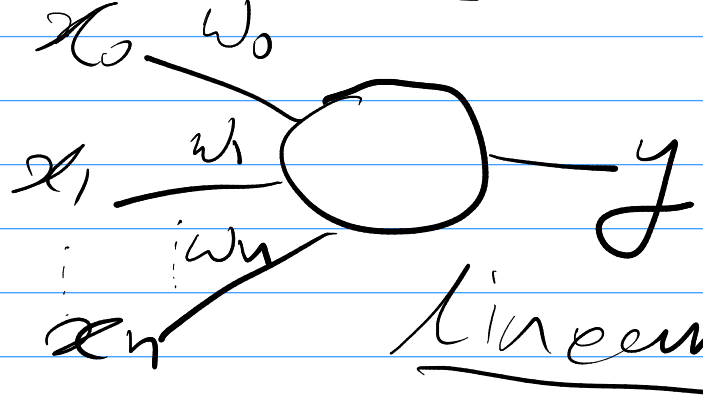
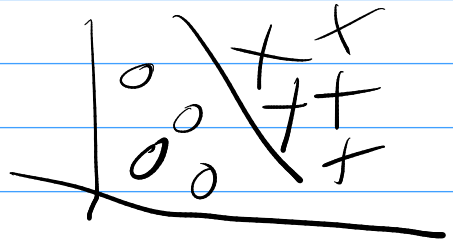
CSCI 4130 U

ML NN

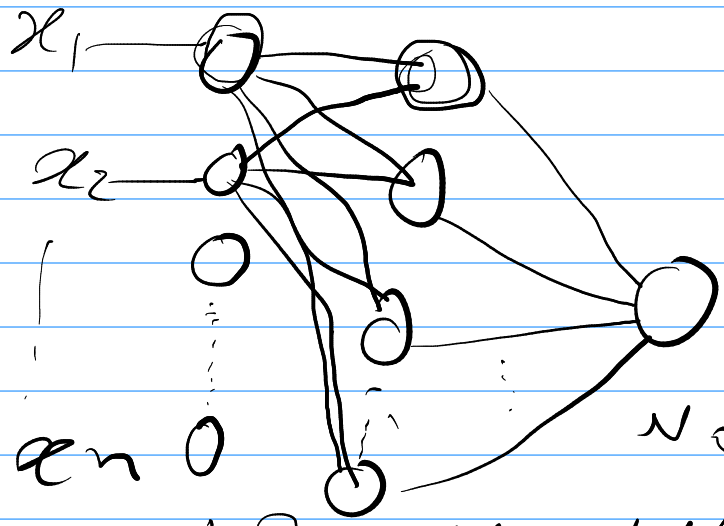
Perceptron





Linear Problems

MLP / ML NN / FC

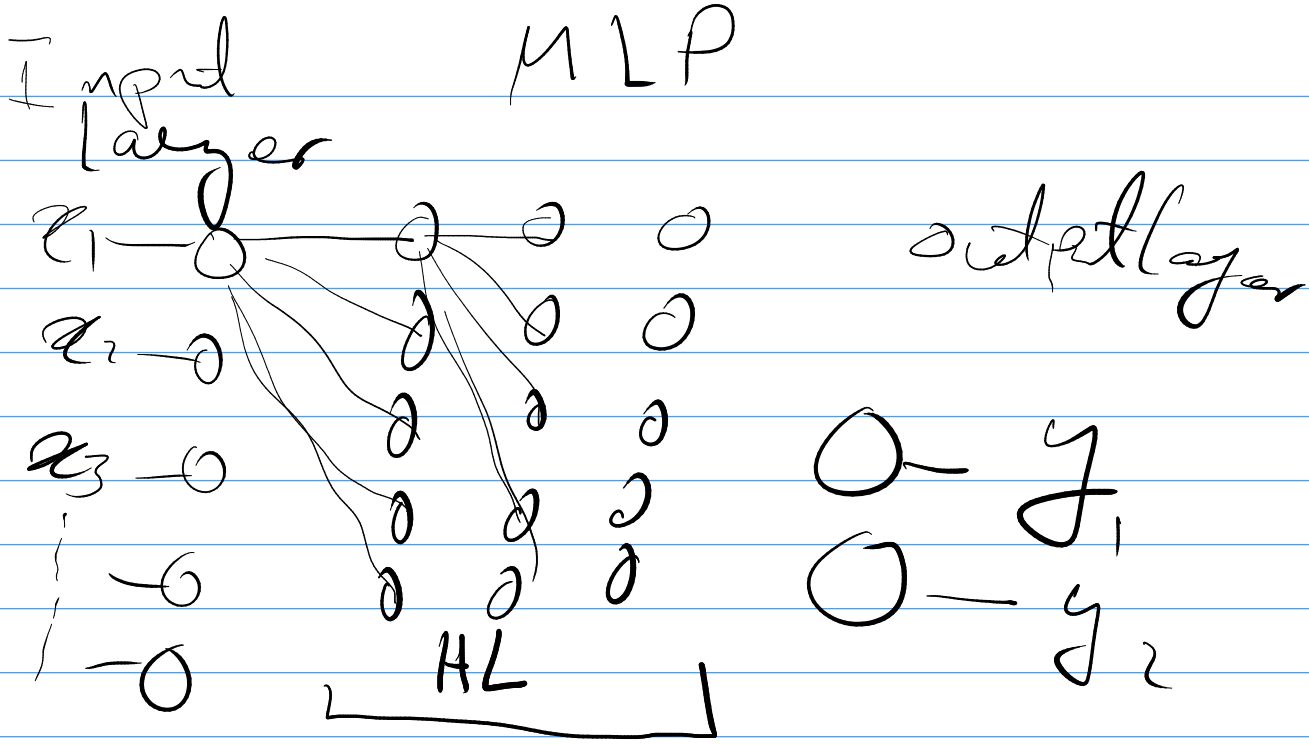


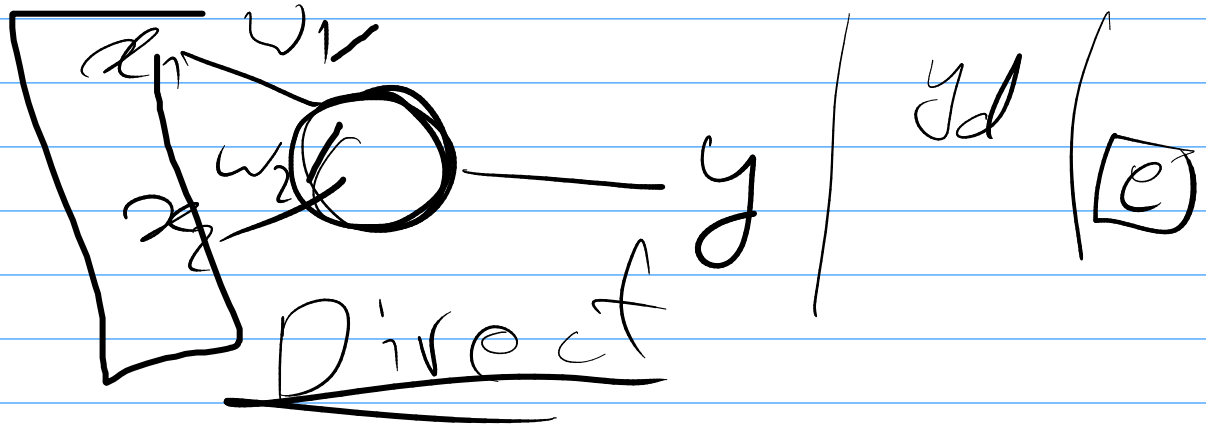
Fully Connected

Non linear Model

FC, MLP, ML NN, EFNN

MLP





And

x_1	x_2	y
0	0	0
0	1	0
1	0	0
1	1	1

input = 2
examples = 4

Iris

x_1	x_2	x_3	x_4	y
				1
				2
				1
				3

p_1 p_2 ... p_{150}

training

learning

supervised learning

Provid I/O

test / prediction

x_1	x_2	x_3	x_4	y
				? ? ?

1 K_2 3

Img

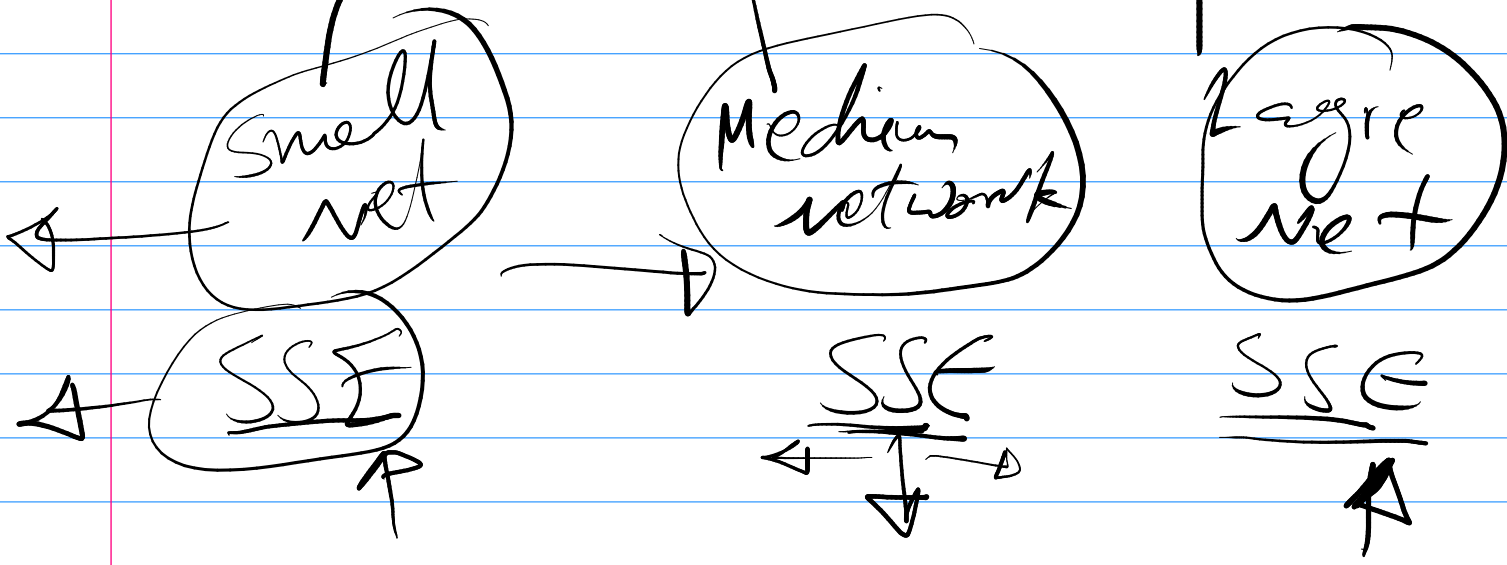
cat

dog

NN Parameters

1. Activation function
2. Random weights initialized
3. α, β
4. Size of the Network

#HL + # of Neurons



Back propagation Algorithm

1. اعطاء قيم ابتدائية للاوزان
2. حساب y_j ثم y_k
3. حساب الخطأ δ_k ثم δ_j
4. تعديل الاوزان
5. الذهاب لخطوة 2 (تكرار) حتى تحقق شرط التوقف

$$SS \in < th$$

$$w_{jk}(p+1) = w_{jk} + \Delta w_{jk}$$

$$w_{ij}(p+1) = w_{ij} + \Delta w_{ij}$$