image/audio video, pdf,

Data

{ F1 f2 f3 f4 Sales

LR() f( )

Dx → DTrain (Xtrain, Ytrain) →

DTest

simple

But complex

ML

imp

f( )

text → vectorization

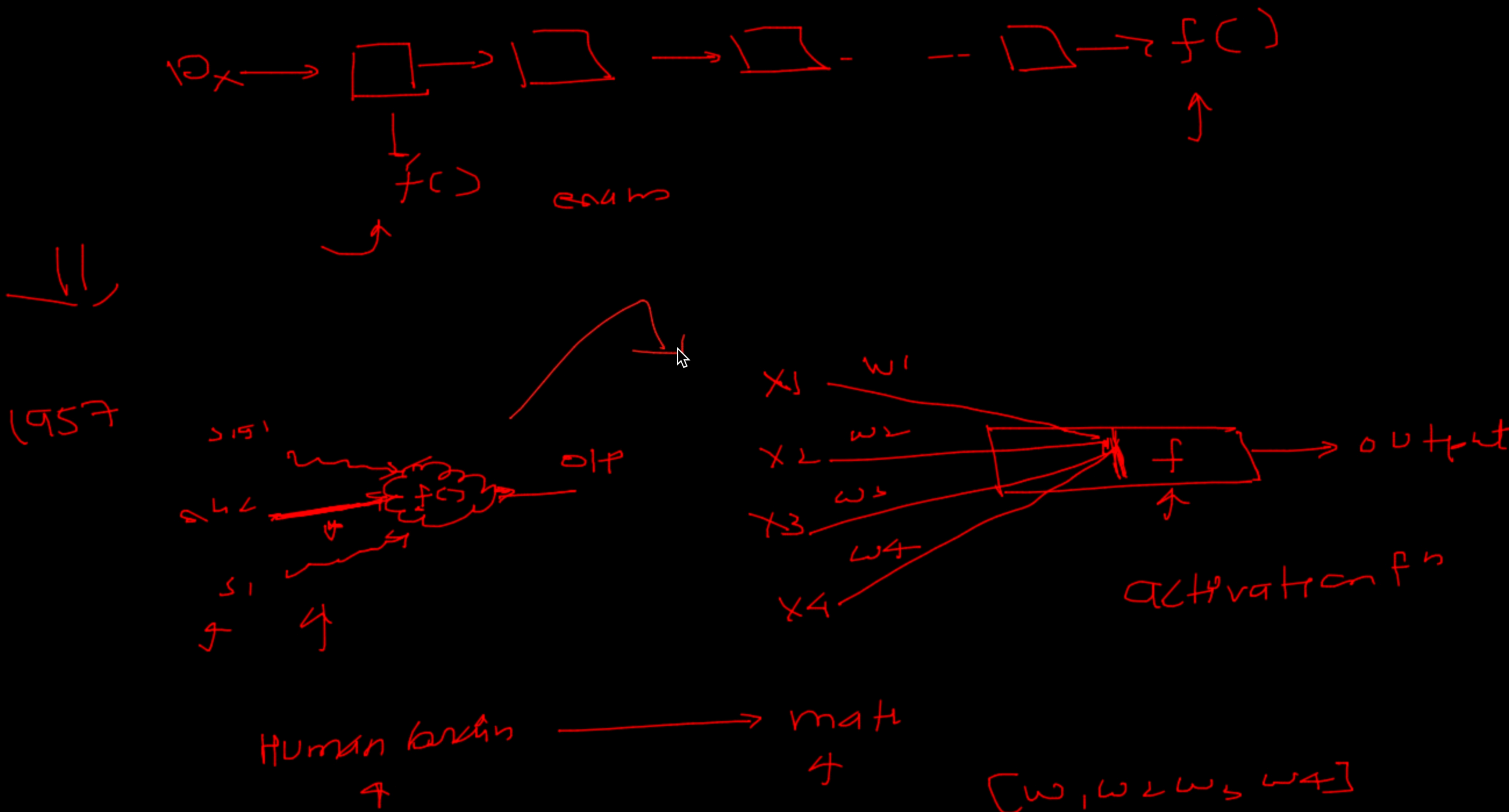
audio/video

image → [- - - - -]

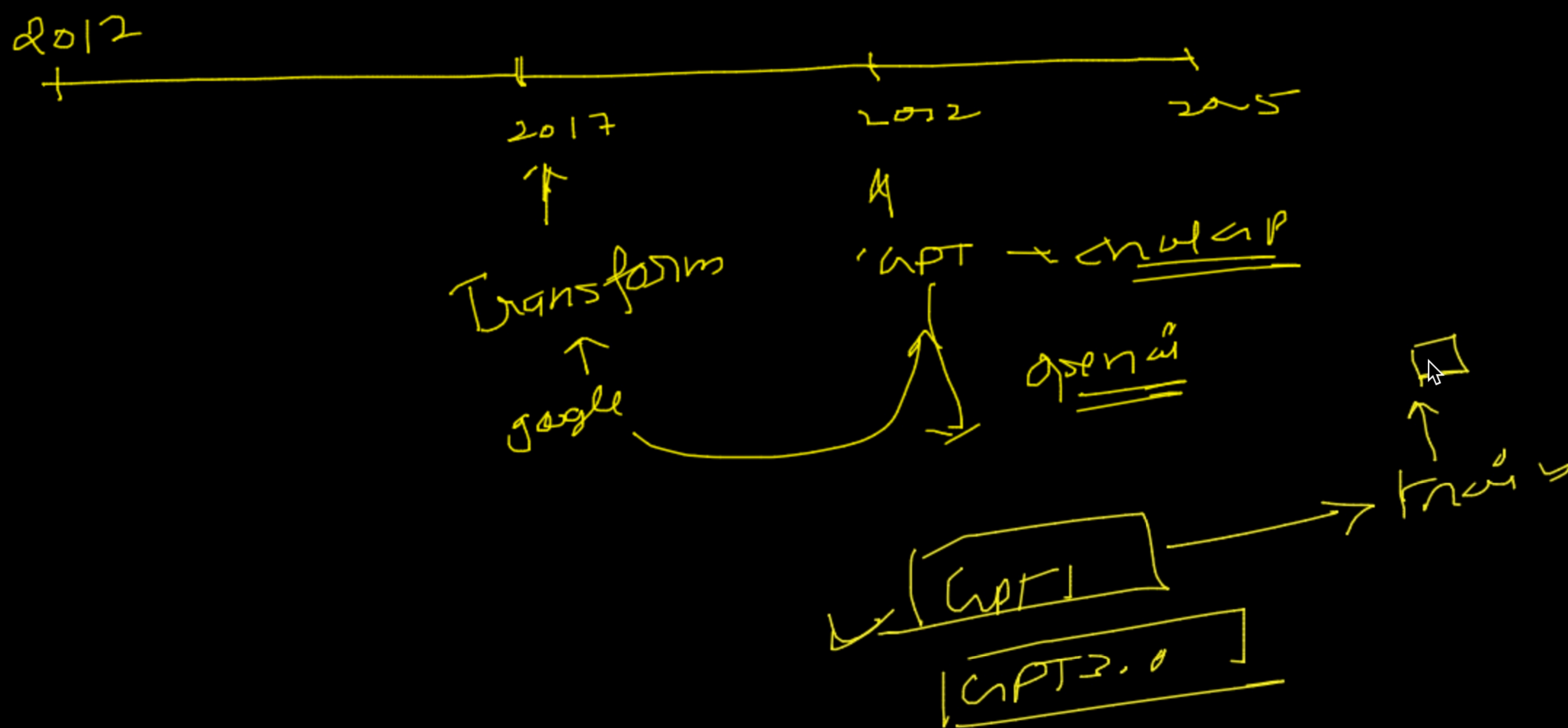
vectorization

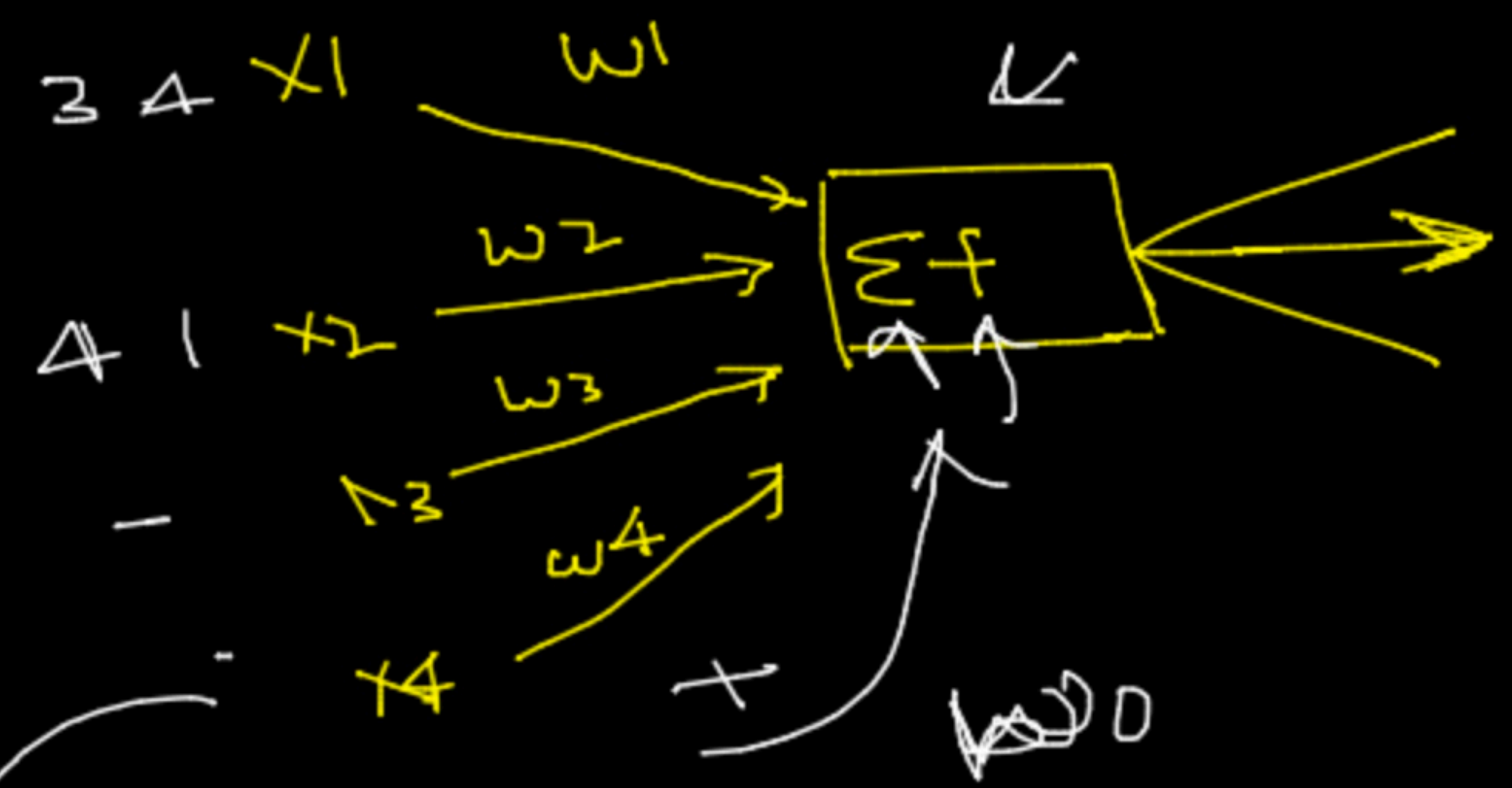
Real / Fake

10 rows


10x
f( )
f( )
exams
1957
o/p
x1
w1
x2
w2
x3
w3
x4
w4
f
output
activation fn
Human brain
math
[w1, w2 w3 w4]


O/P
layer
Backpropagation
1986
1986
1990
2006
2012
AI winter
f( )
dog
85 %


2012
2017
2022
2025
Transform
google
GPT → chatgp
openai
trains
GPT1
GPT3.0




1) $f(w1 * X1 + w2 * X2 + w3 * X3 + w4 * X4)$

$y = mx + c$

Activation

1457

w0

mathematically

$$O = f\left(\sum_{i=1}^{n} W_i \cdot X^T + b\right)$$

same

{ perceptrons
LR → sigmoid

output

activation

weight

input

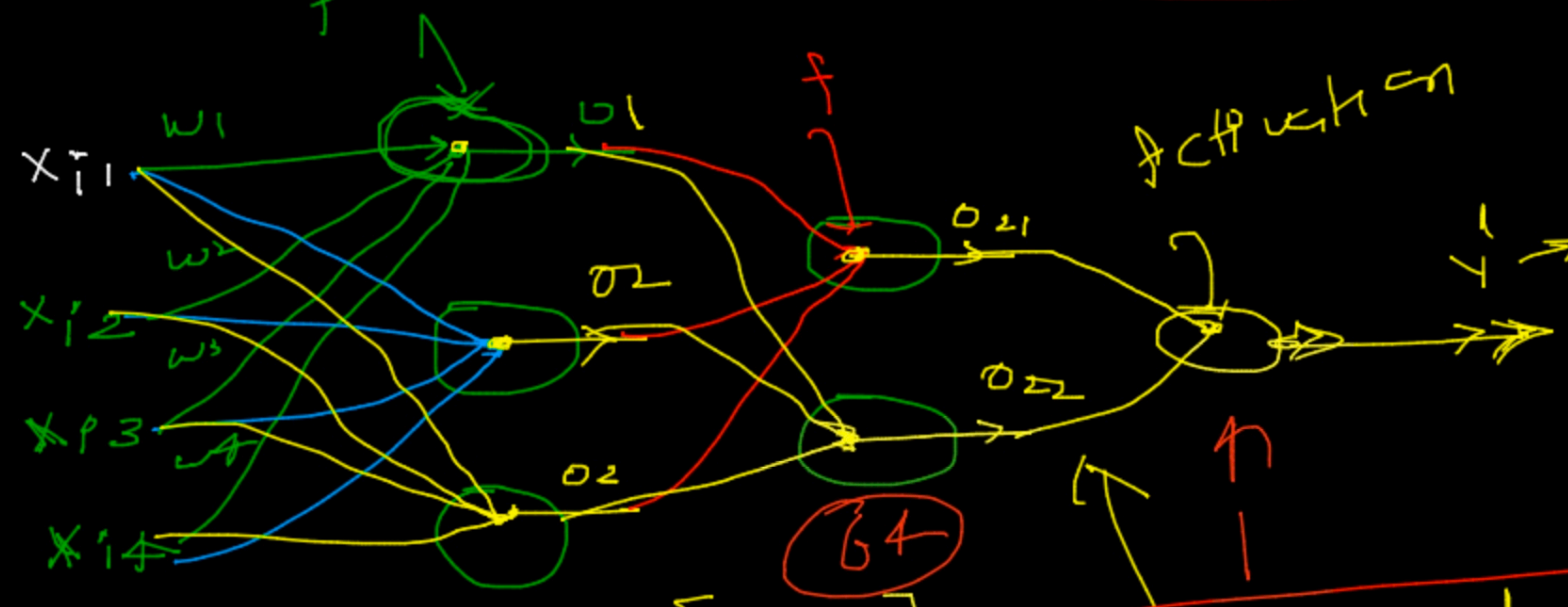
$f$

$$f(x) = 1 \quad \{ W^T x + b > 0$$
$$= 0 \quad \text{otherwise}$$

identity $f^n$

# MLP

Backpropagation




Activation

$\hat{y}$ → Real

feed Forward

sigmoid → (0 - 1)

[3 x 2]

Layers

[4, 3] → 10

(128)

2x1

6

initially

12 weights → $\begin{bmatrix} w_1 & w_2 & w_3 & w_4 \\ w_5 & w_6 & \dots & w_8 \\ w_9 & w_{10} & w_{11} & w_{12} \end{bmatrix}$

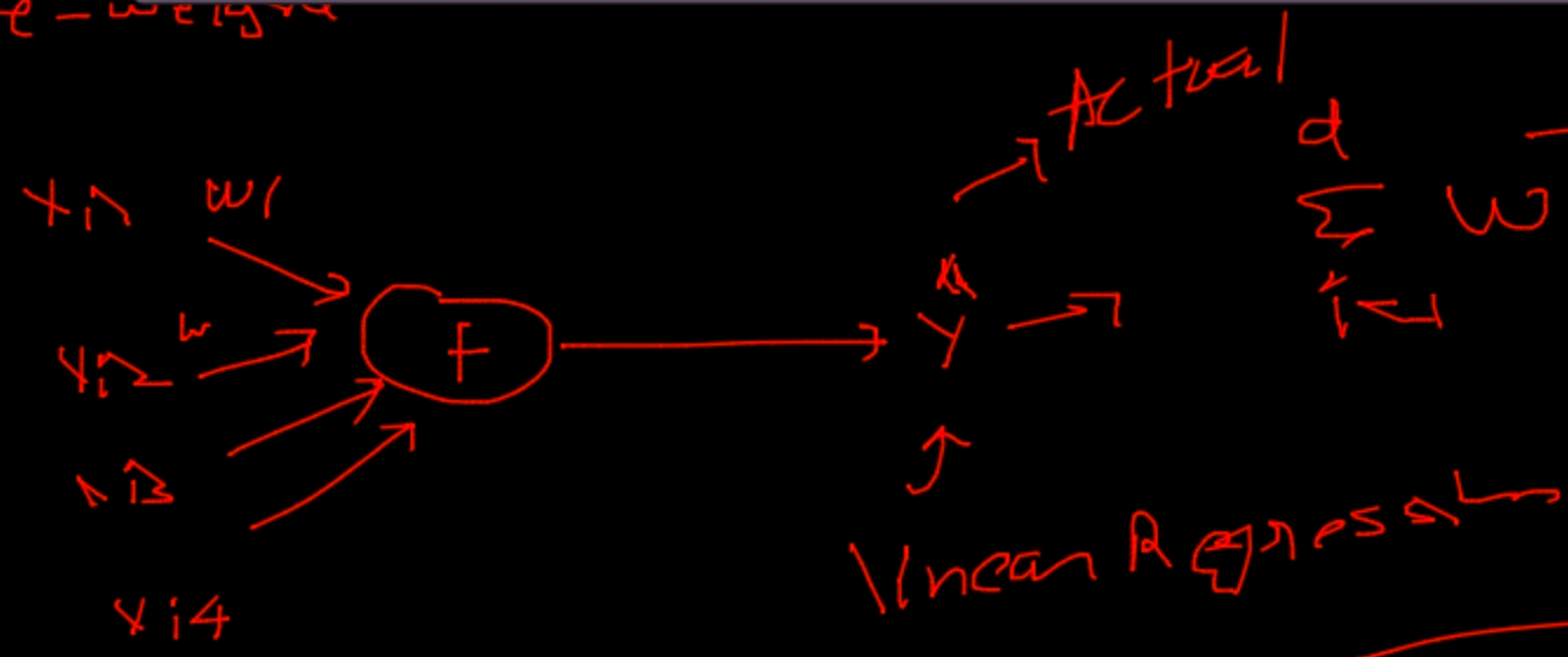
$\begin{bmatrix} o_1, & o_2 & \dots \\ \_ & \_ & \_ \\ \_ & & \_ \\ \_ & & \end{bmatrix}$

20 → find out · random

20 parameters → 78 param

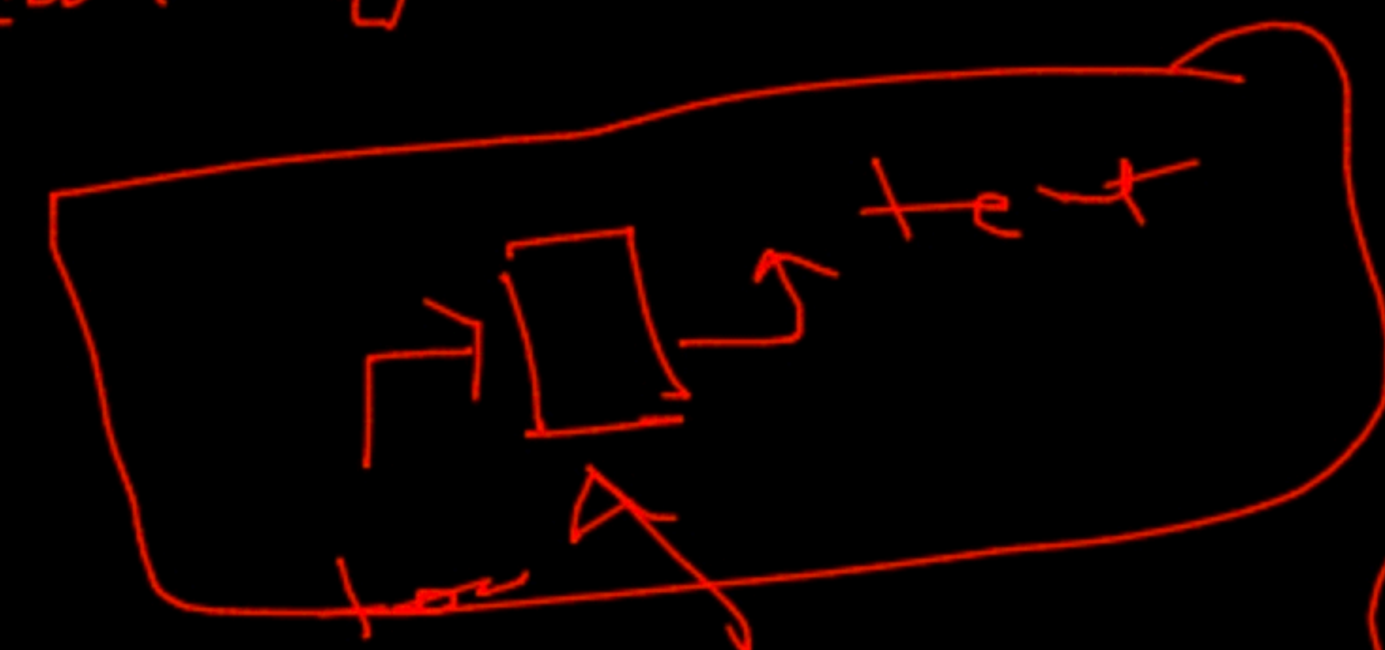
Train a single Neuron model

↳ edge-weight




$\sum_{i=1}^{d} w^T \cdot x$

$(y - \hat{y})$ → loss




(NN) → ML (NN)

video →

Linear Regression

$L \quad \min_{w_i} \sum_{i=1}^{n} (y - \hat{y})^2 + reg$

ie- (Step 1) Define loss fn

$L_i = \sum_{i=1}^{m} (y_i - \hat{y}_i)^2 + reg$

$(y - y_i)^2$

$w^* = \arg\min_{w} \sum_{i=1}^{n} (y - \hat{y})^2 \rightarrow$ reg

Step3 → using SGD algorithm

↑

'NN'

↑

'sequential'

↑

$f(x)$

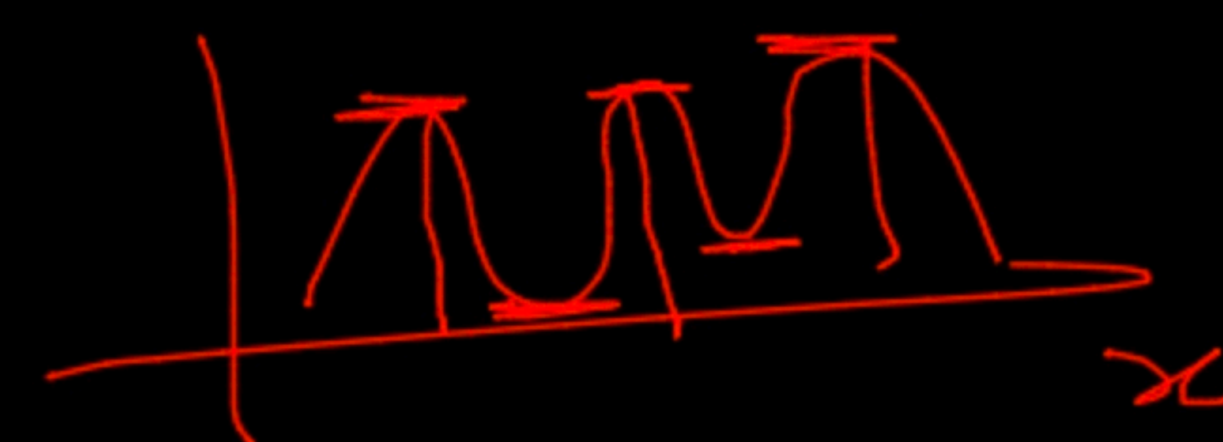
$f = \overline{\sin x}$

max

↑

$\boxed{x =}$

$\boxed{x =}$




maxima ?
minima } → ~~xyz~~

↓

derivative