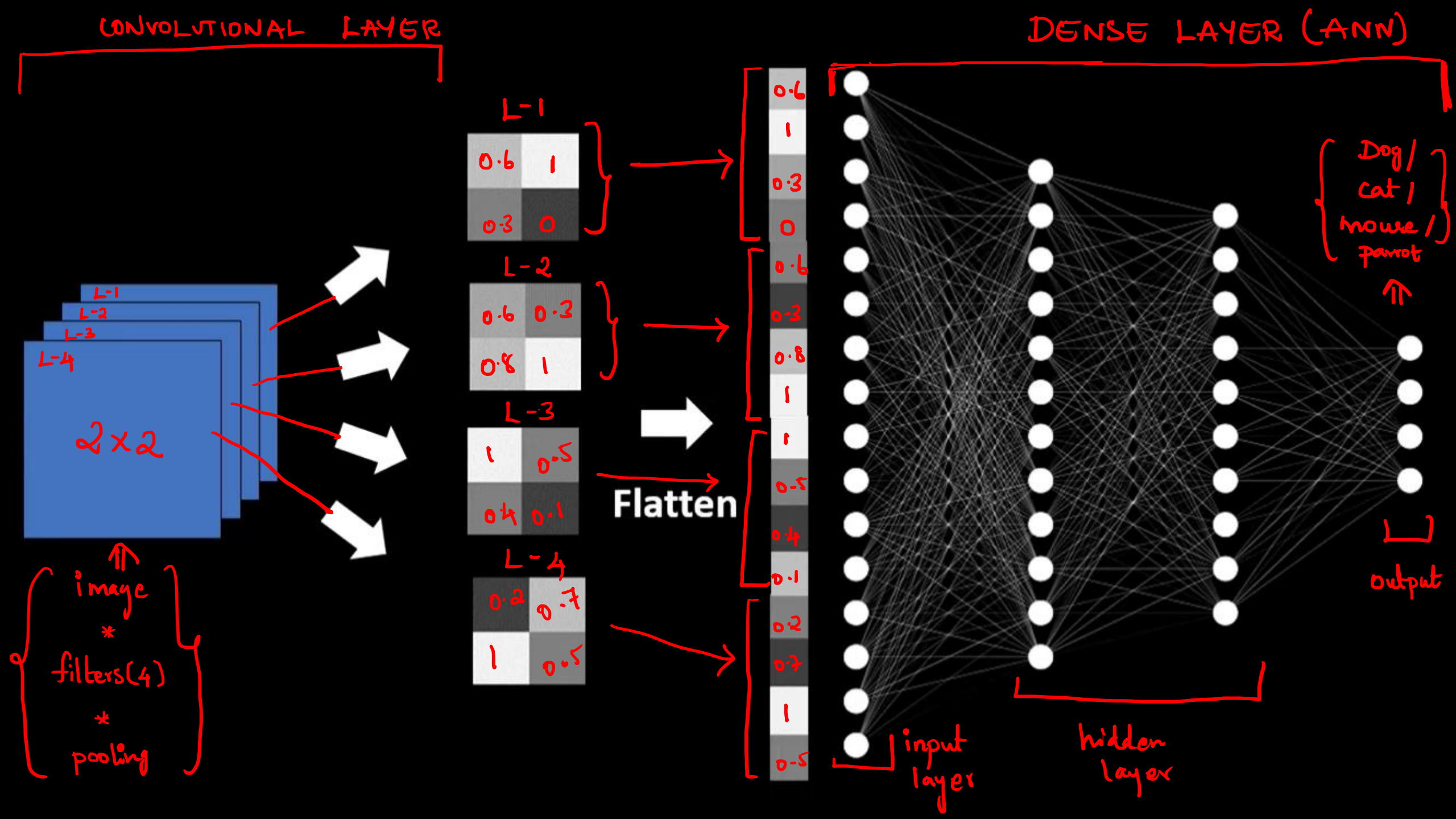
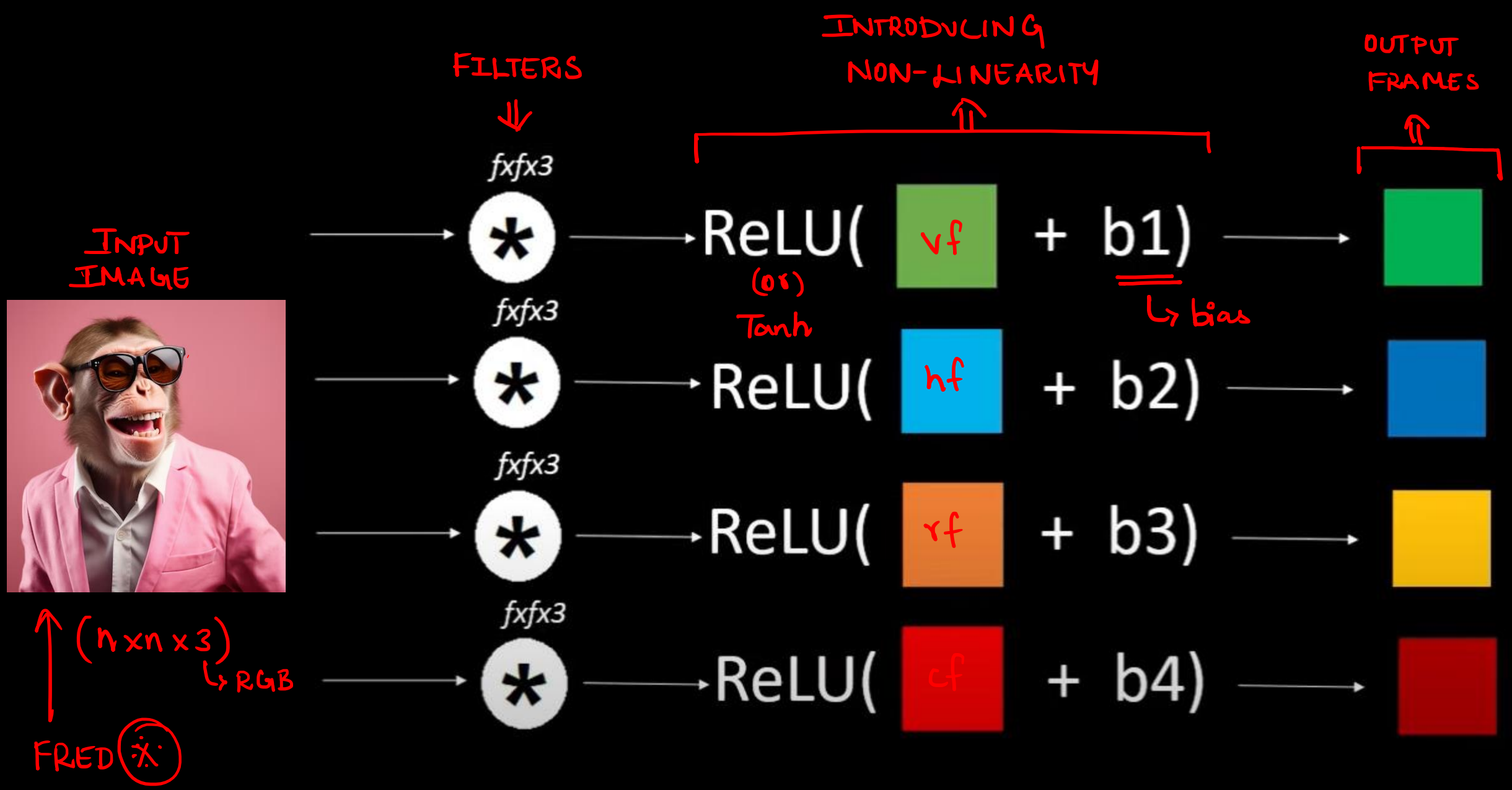

CONVOLUTIONAL LAYER
DENSE LAYER (ANN)
L-1
L-2
L-3
L-4
2x2
image
*
filters(4)
*
pooling
0.6
1
0.3
0
0.6
0.3
0.8
1
1
0.5
0.4
0.1
0.2
0.7
1
0.5
Flatten
0.6
1
0.3
0
0.6
0.3
0.8
1
1
0.5
0.4
0.1
0.2
0.7
1
0.5
Dog/
cat/
mouse/
parrot
output
input
layer
hidden
layer


INTRODUCING NON-LINEARITY
FILTERS
OUTPUT FRAMES
INPUT IMAGE
fxfx3
fxfx3
fxfx3
fxfx3
ReLU(vf + b1)
(or) Tanh
↳ bias
ReLU(hf + b2)
ReLU(rf + b3)
ReLU(cf + b4)
(n x n x 3)
↳ RGB
FRED

SINGLE CONVOLUTION

$(n \times n \times 3)$

filter dimension

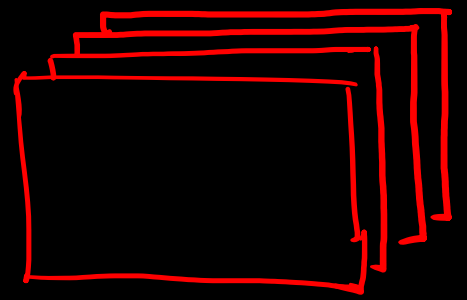
$(f \times f \times 3, \times 4)$

layers

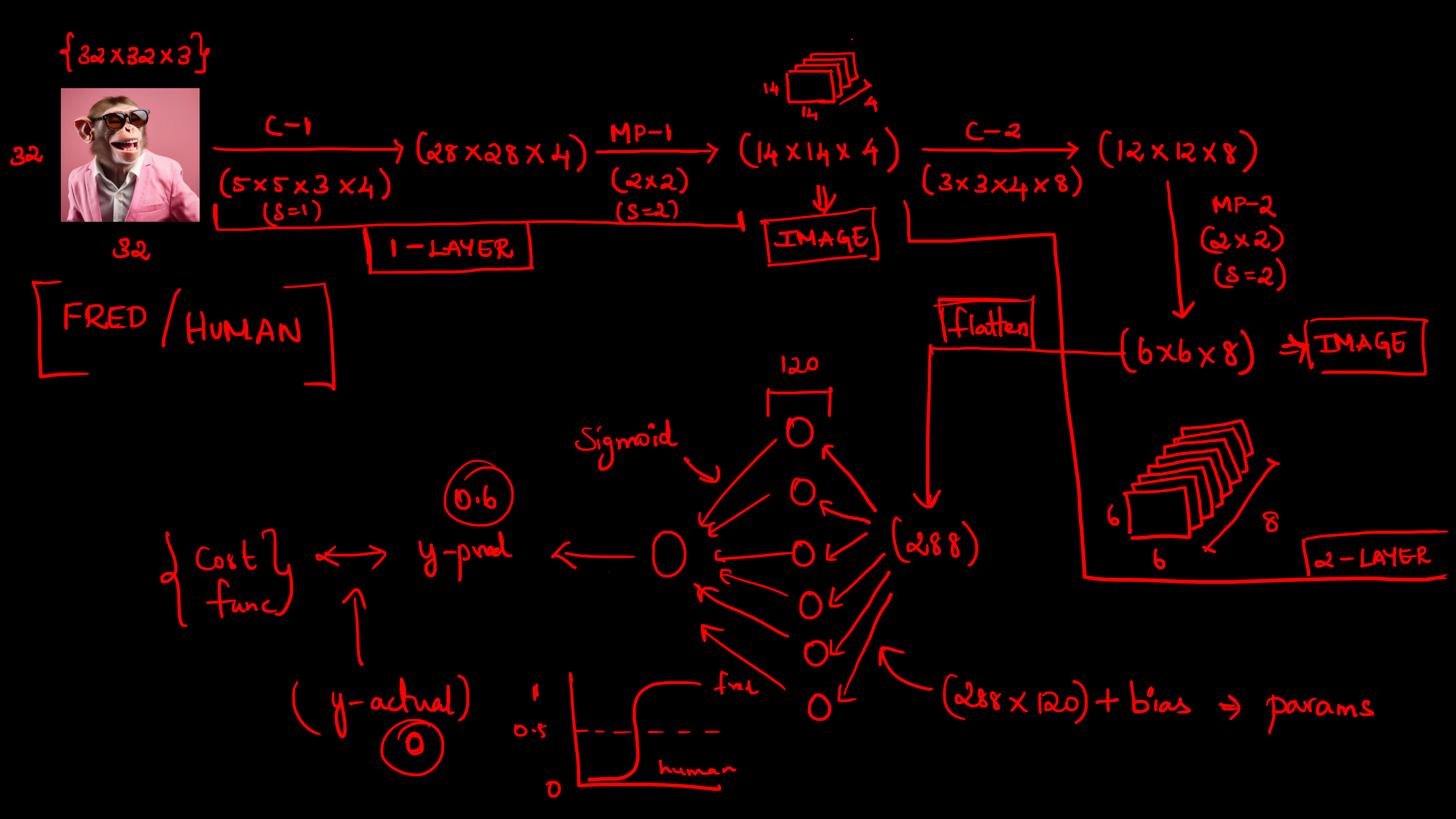
filters

Convolution

C-1



$(n-f+1)(n-f+1) \times 4$


{32 x 32 x 3}
32
32
C-1
(5 x 5 x 3 x 4)
(S=1)
(28 x 28 x 4)
MP-1
(2 x 2)
(S=2)
(14 x 14 x 4)
14
14
4
C-2
(3 x 3 x 4 x 8)
(12 x 12 x 8)
MP-2
(2 x 2)
(S=2)
1-LAYER
IMAGE
FRED / HUMAN
Flatten
(6 x 6 x 8)
IMAGE
6
6
8
2-LAYER
120
Sigmoid
0.6
{Cost func}
y-pred
(288)
(y-actual)
0
1
0.5
0
pred
human
(288 x 120) + bias ⇒ params

CNN ARCHITECTURE

32

32

(32x32x3)

(28x28x4)

(14x14x4)

(12x12x8)

(6x6x8)

288

Dense layer

Conv1

MaxPool1

Conv2

MaxPool2

y_pred

ANN

(32x32x3)

3072

I/P

300-H1

200-H2

100-H3

y_pred

921000

18420000

1.842e10