

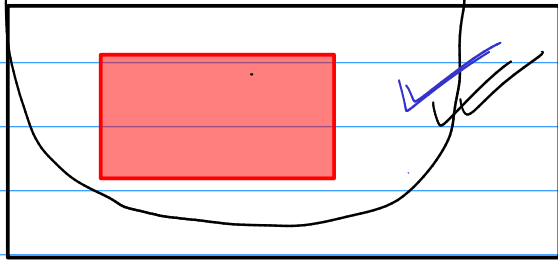
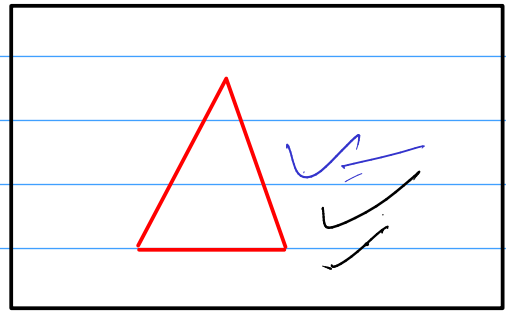
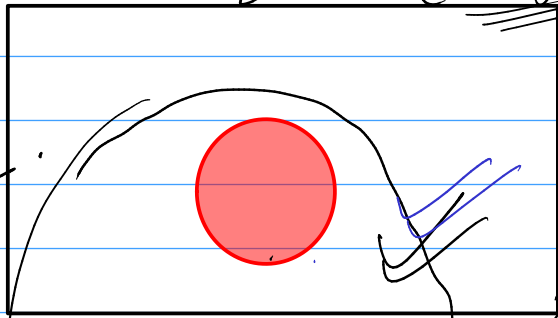
classification

more than 2 class

Scikit - Image / Scikit - Learn

2-class

binary



$\begin{cases} 100 \Rightarrow \text{Circles.} \\ 100 \Rightarrow \text{Rectangles} \\ 100 \Rightarrow \text{Triangles} \end{cases}$

numpy array  $\Rightarrow$

[ ]

50, 50

Training

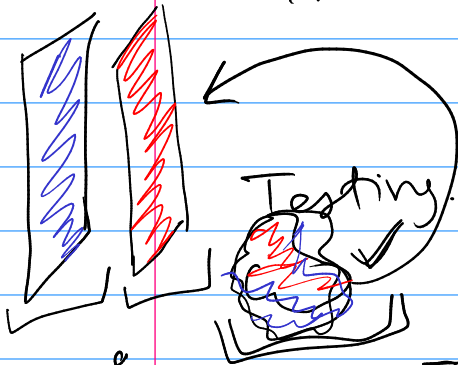
$\begin{cases} 300, n, w \end{cases}$

$\begin{cases} 300, 50, 50 \end{cases}$

✓

$\begin{cases} 100, 50, 50 \end{cases}$

33% ✓



(i)

$x_1$

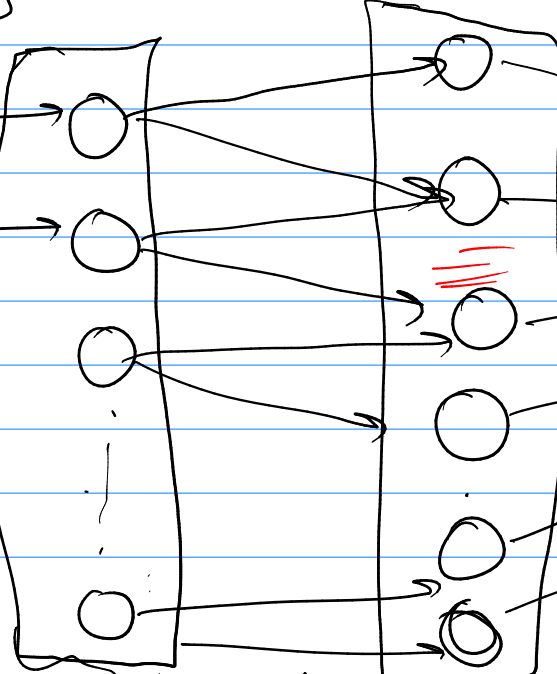
$x_2$

activation

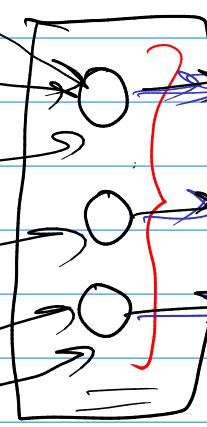
relu

$50 \times 50$

$x_n =$



99  $\Rightarrow$  rect



$y_1$

$y_2$

$y_3$

$y_4$

softmax

3

1000

$n = 50 \times 50$

→ loss function  $\frac{1}{n} \sum_{i=1}^n y_i$

$\frac{1}{n} \sum_{i=1}^n y_i = \frac{e^{y_i}}{\sum_{i=1}^n e^{y_i}} \Rightarrow 1$

Coin  $\Rightarrow P(H) = \frac{1}{2}$ ,  $P(T) = \frac{1}{2}$

activation  $\Rightarrow$  relu, softmax.

→ loss  $\Rightarrow$  Categorical\_crossentropy

→ metric  $\Rightarrow$  ["accuracy"].

(i) Data: skit-image.

→ (i) skimage  $\rightarrow$  draw  $\rightarrow$  random.S

(ii) skimage  $\rightarrow$  color  $\rightarrow$  rgb2gray

(iii) 3 x shapes  $\rightarrow$  [ ]

(iv) labels

→ to\_categorical  $\Rightarrow$  keras.utils.to\_categorical

$[0, 1, 2, 0, 1, 2, \dots]$  in

$$\begin{bmatrix} 1 & 0 & 0 \\ 0 & 1 & 0 \\ 0 & 0 & 1 \end{bmatrix}$$