

Lab 3 part 4 Assessment

1).

$$O = (I - F + 2P) / (S + 1)$$

$$I = 100$$

$$F = 2$$

$$O = (100 - 2 + 0) / 1 + 1$$

$$S = 1$$

$$(98) / 1 + 1$$

$$P = 0$$

$$98 + 1$$

$$99$$

2). You would have 48 weights

3). It is better to use multiple small kernels than one large kernel.

$$4). P = \frac{O \cdot S - I + F}{2}$$

Archi:

I: input value

F: filter

S: stride

P: zero padding

$$O = (I - F + 2P) / S + 1$$

$$\text{Ex: } I = 7 \times 7 \quad F = 3 \times 3 \quad S = 1 \quad P = 0$$

$$\begin{pmatrix} 7 & 3 \\ 7 & 3 \end{pmatrix} / 1 + 1$$

$$\begin{bmatrix} 4 \\ 4 \end{bmatrix} / 1 + 1$$

$$\begin{bmatrix} 4 \\ 4 \end{bmatrix} + 1$$

$$\begin{bmatrix} 5 \\ 5 \end{bmatrix}$$

Strides: distance between the successive windows.

$(1,1) \quad (1,2) \rightarrow S=1 \quad (3,3)$

$(1,1) \quad (1,3) \rightarrow S=2 \quad (2,2)$

Stride size = amount down sampled.

Max Pooling = aggressive down sampling

out = max

1	3	2
4	5	6
8	2	1

$P = (2,2)$
 $\Rightarrow P = 5 \quad 6 \quad 8 \quad 6$
 $S = 1$

$3 \times 3 = 4$ boxes



5	6
8	6

input:

$P = (2,2)$
 $S = 2$

x	x	x	x	x	x
x	x	x	x	x	x
x	x	x	x	x	x
x	x	x	x	x	x
x	x	x	x	x	x
x	x	x	x	x	x

6x6 array



3x3 array