

# (nn 1.

$$H_{out} = \left\lceil \frac{H_{in} + 2 \times padding[0] - dilation[0] \times (kernel\_size[0] - 1) - 1}{Stride[0]} + 1 \right\rceil.$$

Goal:

$H_{out} = H_{in} \Rightarrow$  only changing channel.

padding = 2

kernel size = 5

Stride = 2

↓

$$H_{in} / 2 - 1 + 1 = H_{in} / 2$$

$$W_{out} = \left\lceil \frac{W_{in} + 2 \times padding[1] - dilation[1] \times (kernel\_size[1] - 1) - 1}{Stride[1]} + 1 \right\rceil.$$