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Intake & Sec — 44/03

Given that,

$$stride = 1$$
$$Padding = 1$$
$$Max-pooling = (2.2)$$

Input :-

0	1	1	0	1
0	1	1	0	1
0	1	1	0	1
0	1	1	0	1
0	1	1	0	1

Filter — 1 :-

1	0	1
1	1	1
0	0	1

Apply padding = 1 :-

0	0	0	0	0	0	0
0	0	1	1	0	1	0
0	0	1	1	0	1	0
0	0	1	1	0	1	0
0	0	1	1	0	1	0
0	0	1	1	0	1	0
0	0	0	0	0	0	0

Dot multiplication between padding, & filter 1 :-

2	3	2	3	1
3	4	3	5	1
3	4	3	5	1
3	4	3	5	1
2	3	3	4	1

CamScanner

Now, Filter-2 and padding dot multiplication:-

```
0  0  0  0  0  0  0              0  0  1
0  0  1  1  0  1  0              1  0  0
0  0  1  1  0  1  0              0  1  1
0  0  1  1  0  1  0          .
0  0  1  1  0  1  0
0  0  1  1  0  1  0
0  0  0  0  0  0  0
```

$$
=
\begin{matrix}
1 & 2 & 2 & 2 & 1 \\
2 & 3 & 2 & 3 & 1 \\
2 & 3 & 2 & 3 & 1 \\
2 & 3 & 2 & 3 & 1 \\
1 & 1 & 1 & 2 & 0
\end{matrix}
$$

Now, filter-1 + filter-2 :-

$$
\begin{matrix}
2 & 3 & 2 & 3 & 1 \\
3 & 4 & 3 & 5 & 1 \\
3 & 4 & 3 & 5 & 1 \\
3 & 4 & 3 & 5 & 1 \\
2 & 3 & 3 & 4 & 1
\end{matrix}
\;+\;
\begin{matrix}
1 & 2 & 2 & 2 & 1 \\
2 & 3 & 2 & 3 & 1 \\
2 & 3 & 2 & 3 & 1 \\
2 & 3 & 2 & 3 & 1 \\
1 & 1 & 1 & 2 & 0
\end{matrix}
$$

$$
=
\begin{matrix}
3 & 5 & 4 & 5 & 2 \\
5 & 7 & 5 & 8 & 2 \\
5 & 8 & 5 & 8 & 2 \\
5 & 7 & 5 & 8 & 2 \\
3 & 4 & 4 & 6 & 1
\end{matrix}
$$

Apply max pooling (2x2) and stride = 1:-

$$
\begin{array}{cccc}
7 & 7 & 8 & 8 \\
7 & 7 & 8 & 8 \\
7 & 7 & 8 & 8 \\
7 & 7 & 8 & 8 \\
\end{array}
$$