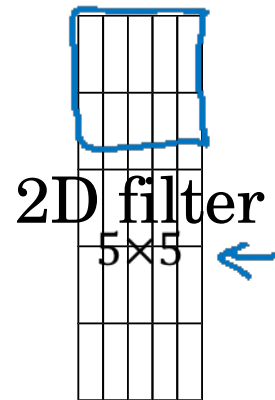


Convolutional Networks in 1D or 3D

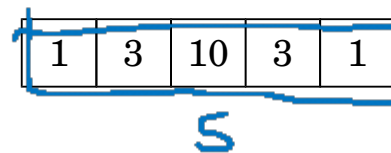
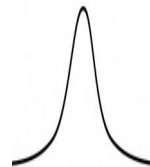


deeplearning.ai

1D and 3D
generalizations
of models



2D filter

 5×5 

$$14 \times 14 \times \underline{3} \quad \times \quad 5 \times 5 \times \underline{3}$$

$$\rightarrow \underline{10 \times 10 \times 16}$$

$$10 \times 10 \times \underline{16} \quad \star \quad 5 \times 5 \times \underline{16}$$

→ $6 \times 6 \times \underline{32}$

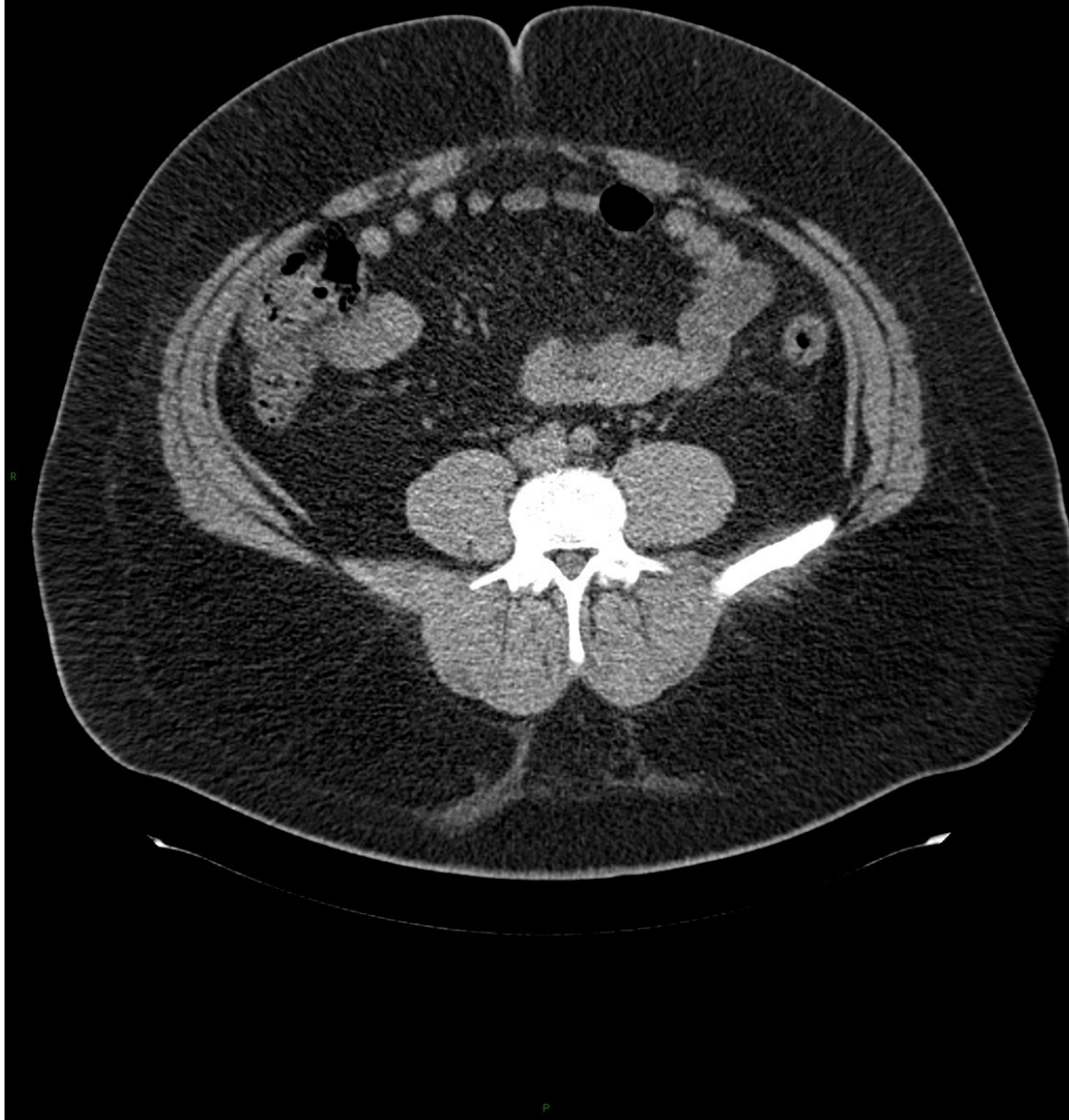
$$14 \times \underline{1} \quad * \quad 5 \times \underline{1}$$

$$\rightarrow 10 \times \underline{16}$$

$$10 \times \underline{16} \quad * \quad 5 * \underline{16}$$

→ 6×32

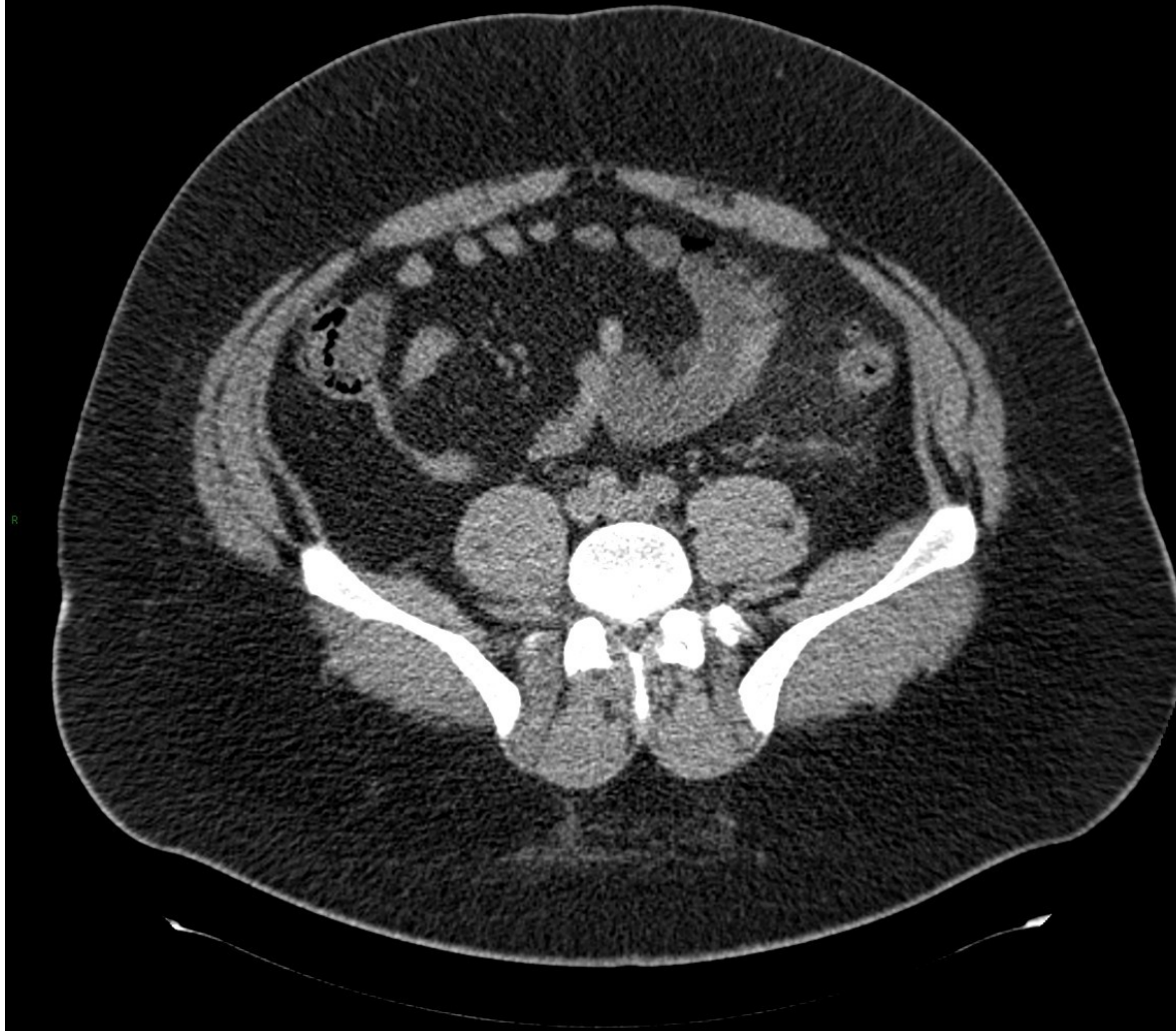
3D data



3D data



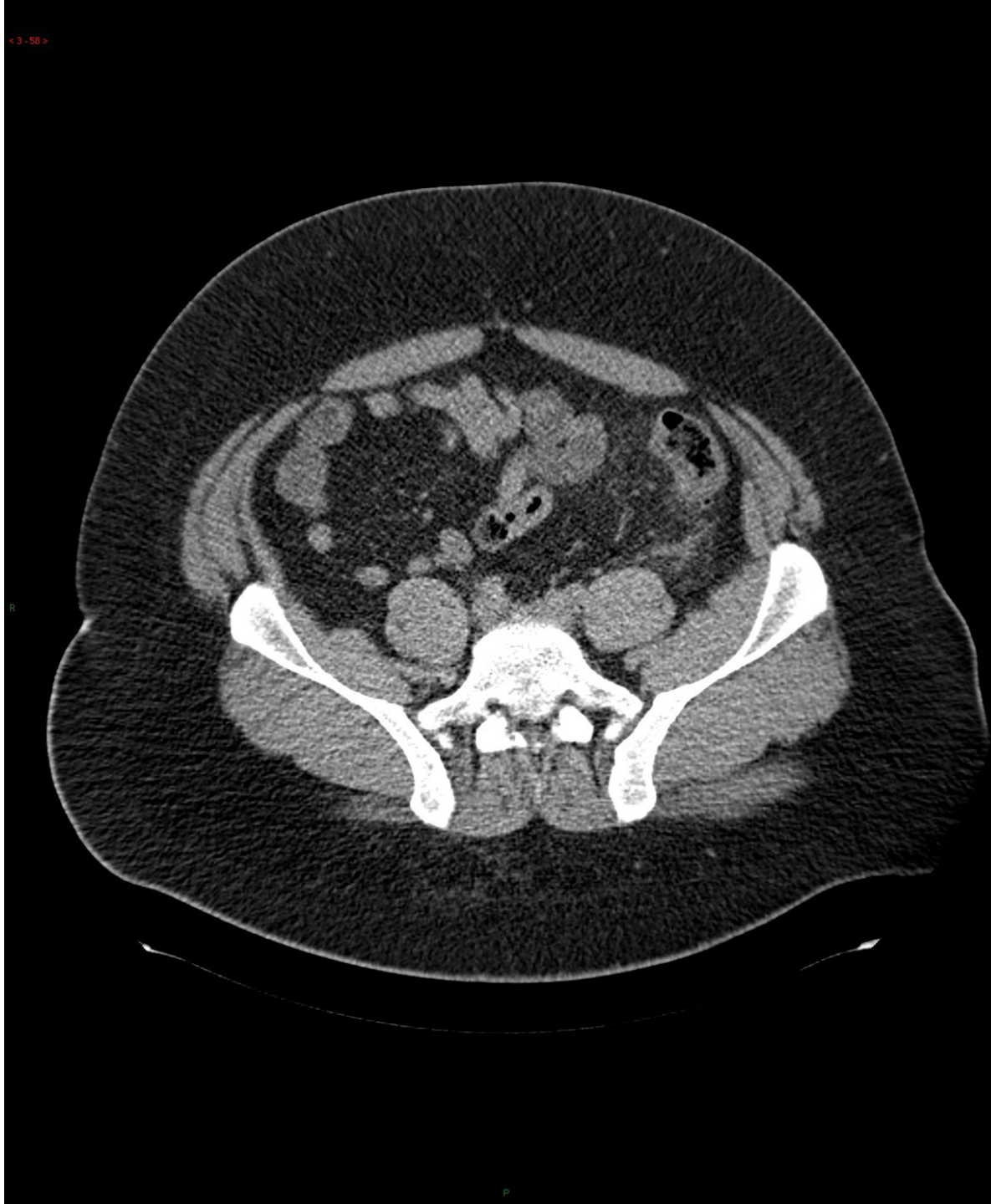
3D data



3D data



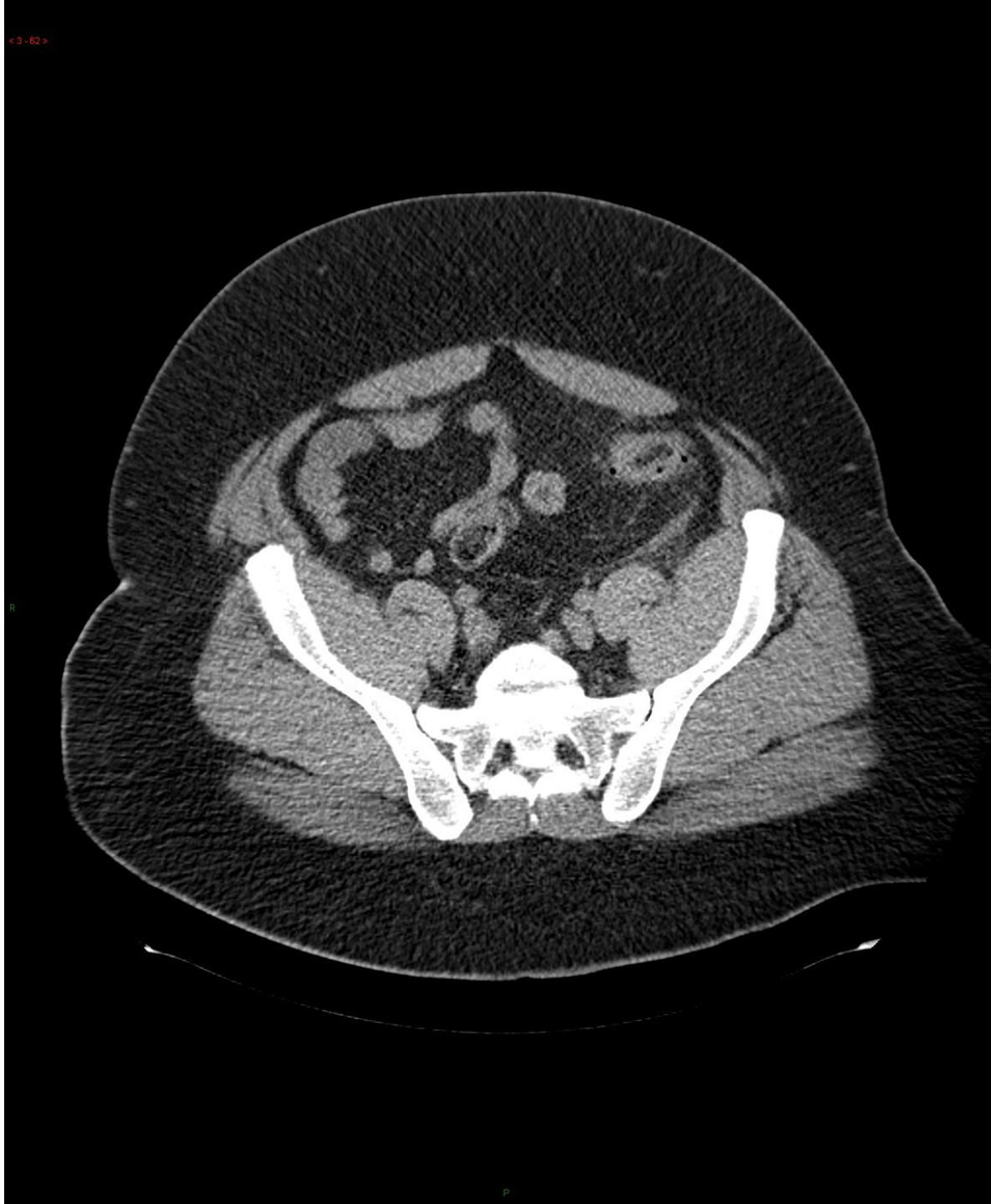
3D data



3D data



3D data



3D data



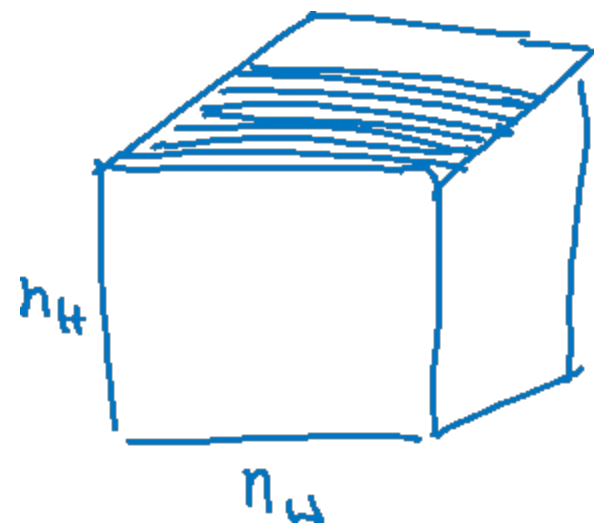
3D data



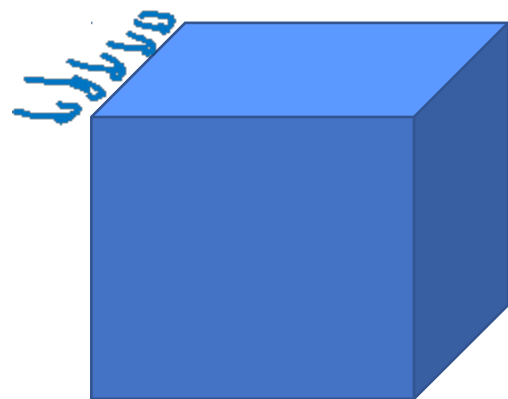
3D data



3D data



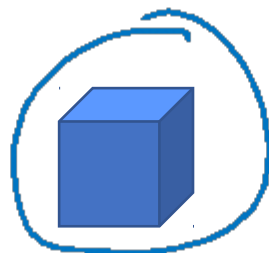
3D convolution



3D volume



*



3D filter

$$\begin{array}{l} \downarrow \quad \downarrow \quad \downarrow \quad \downarrow^{n_c} \\ \underline{14 \times 14 \times 14} \times \underline{1} \\ * \quad \underline{5 \times 5 \times 5} \times \underline{1} \quad 16 \text{ filters} \\ \rightarrow 10 \times 10 \times 10 \times \underline{16} \\ * \quad \underline{5 \times 5 \times 5} \times \underline{16} \quad 32 \text{ filters} \\ \rightarrow 6 \times 6 \times 6 \times 32 \end{array}$$