deeplearning.ai

Convolutional Networks in 1D or 3D

1D and 3D generalizations of models

# Convolutions in 2D and 1D

2D input image
14 × 14

*
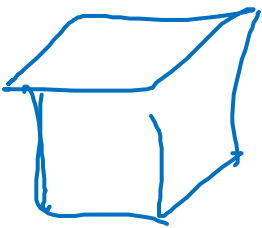
2D filter
5 × 5

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

$\rightarrow 10 \times 10 \times 16$

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

$\rightarrow 6 \times 6 \times \underline{32}$

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

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

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

$\rightarrow 6 \times \underline{32}$
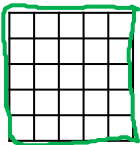
1	20	15	3	18	12	4	17

14

*

1	3	10	3	1

5

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3D data

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3D data

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3D data

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3D data

3D data

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3D data

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3D data

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3D data

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3D data

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3D data

Andrew Ng
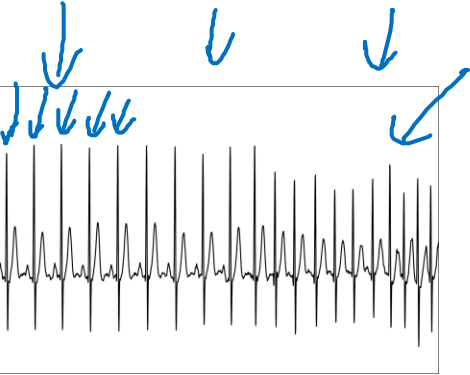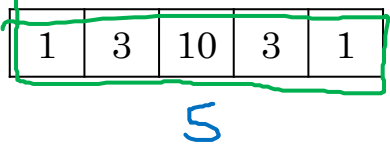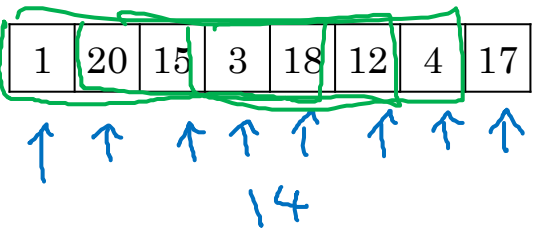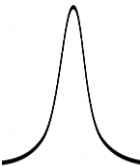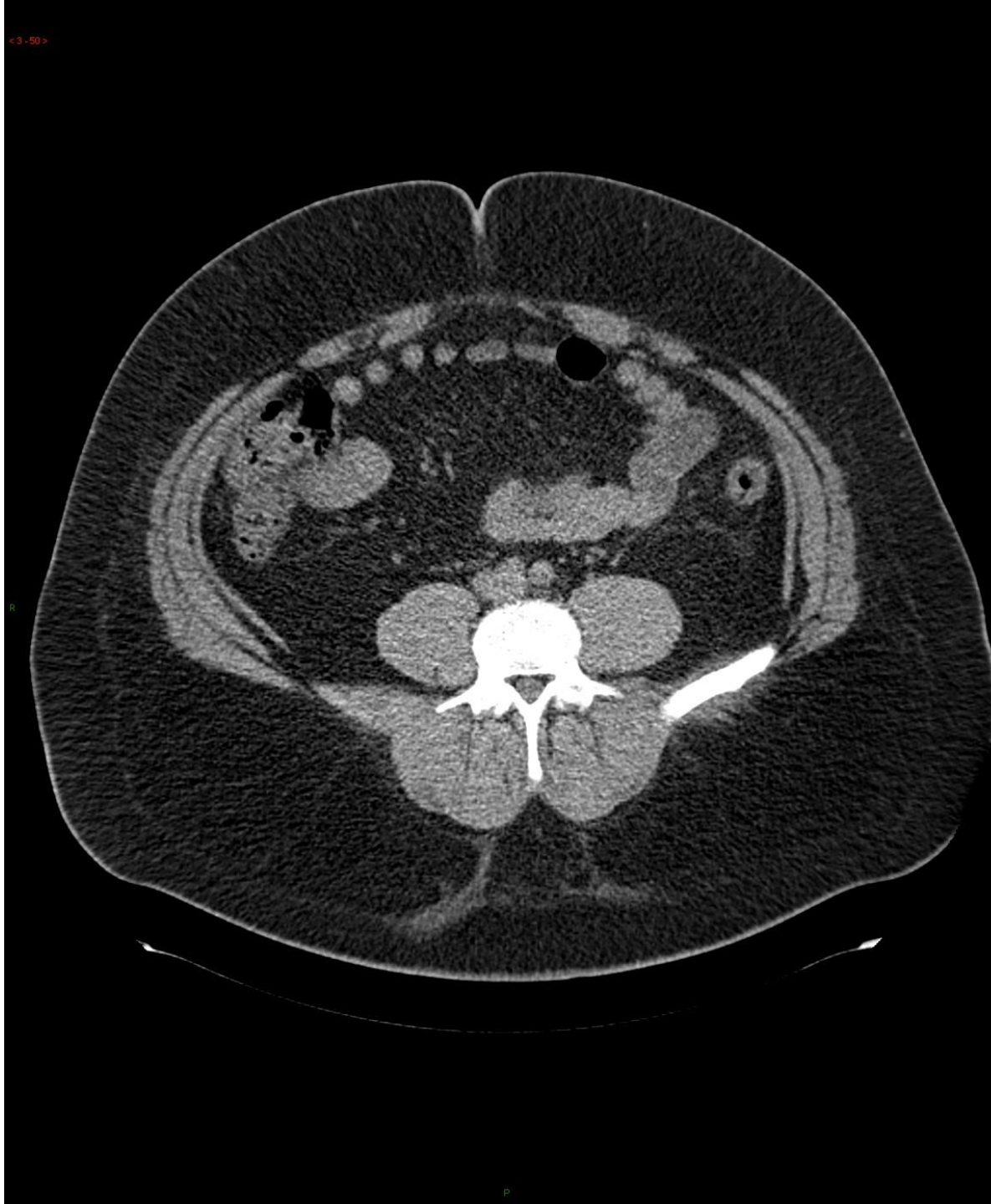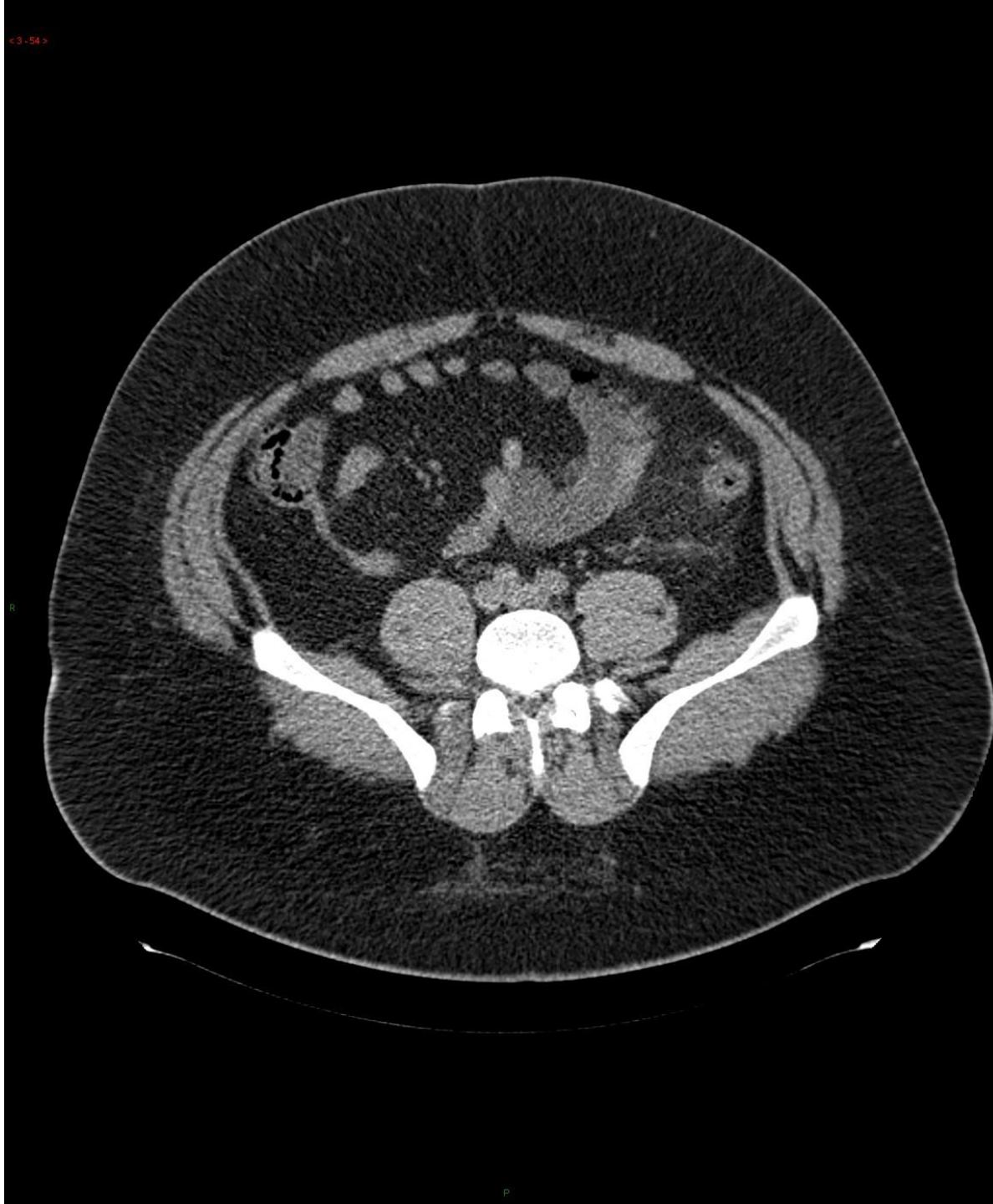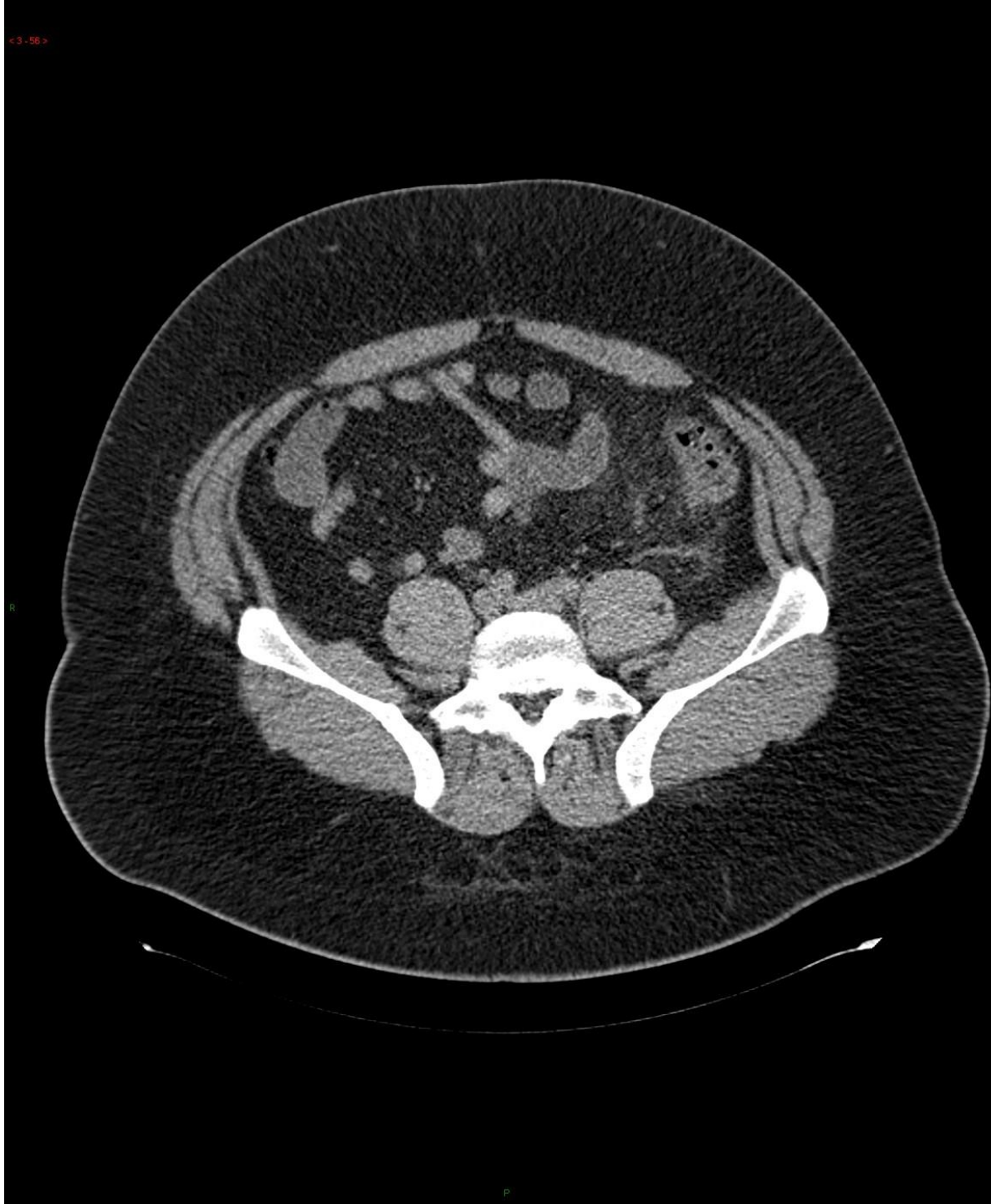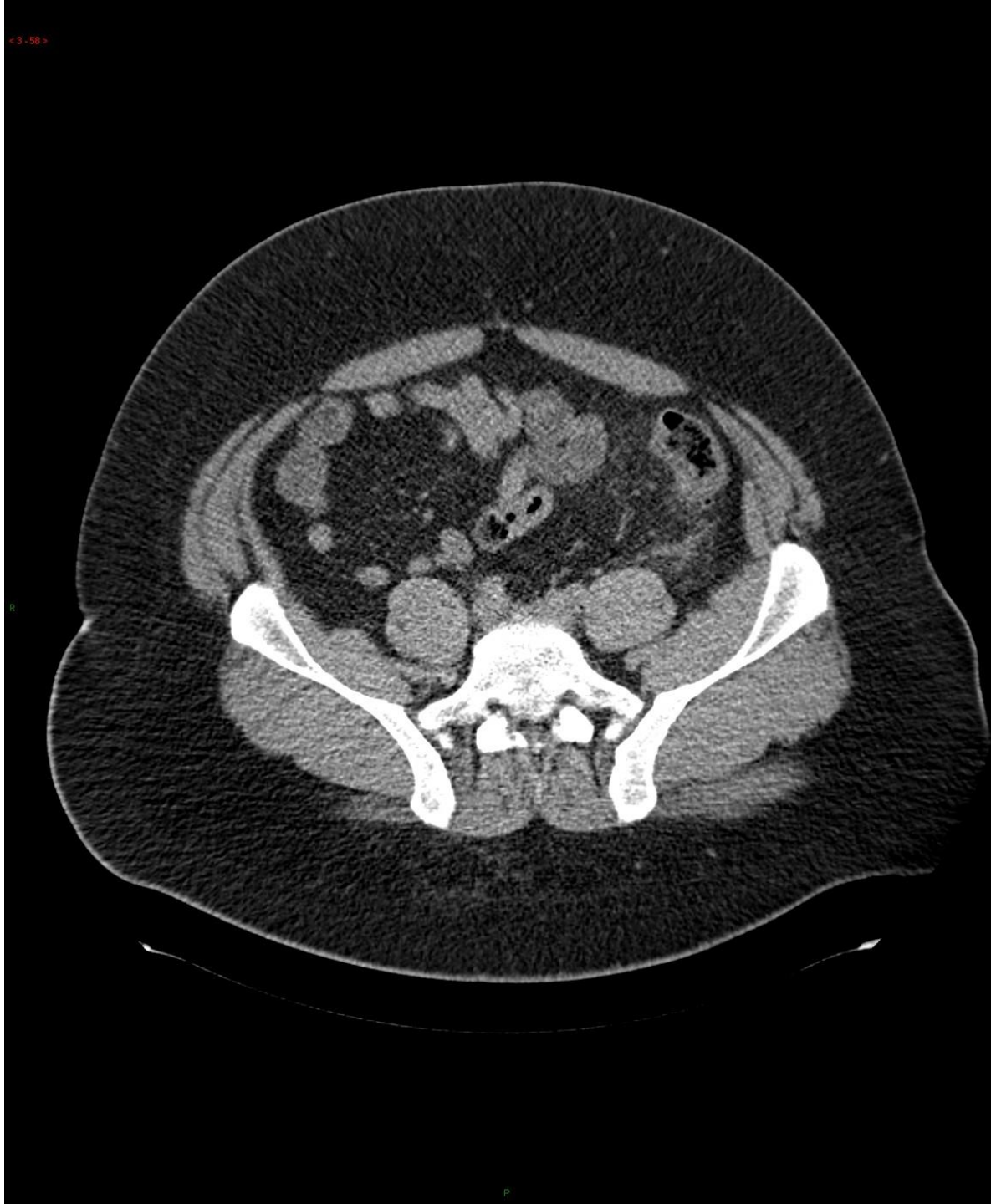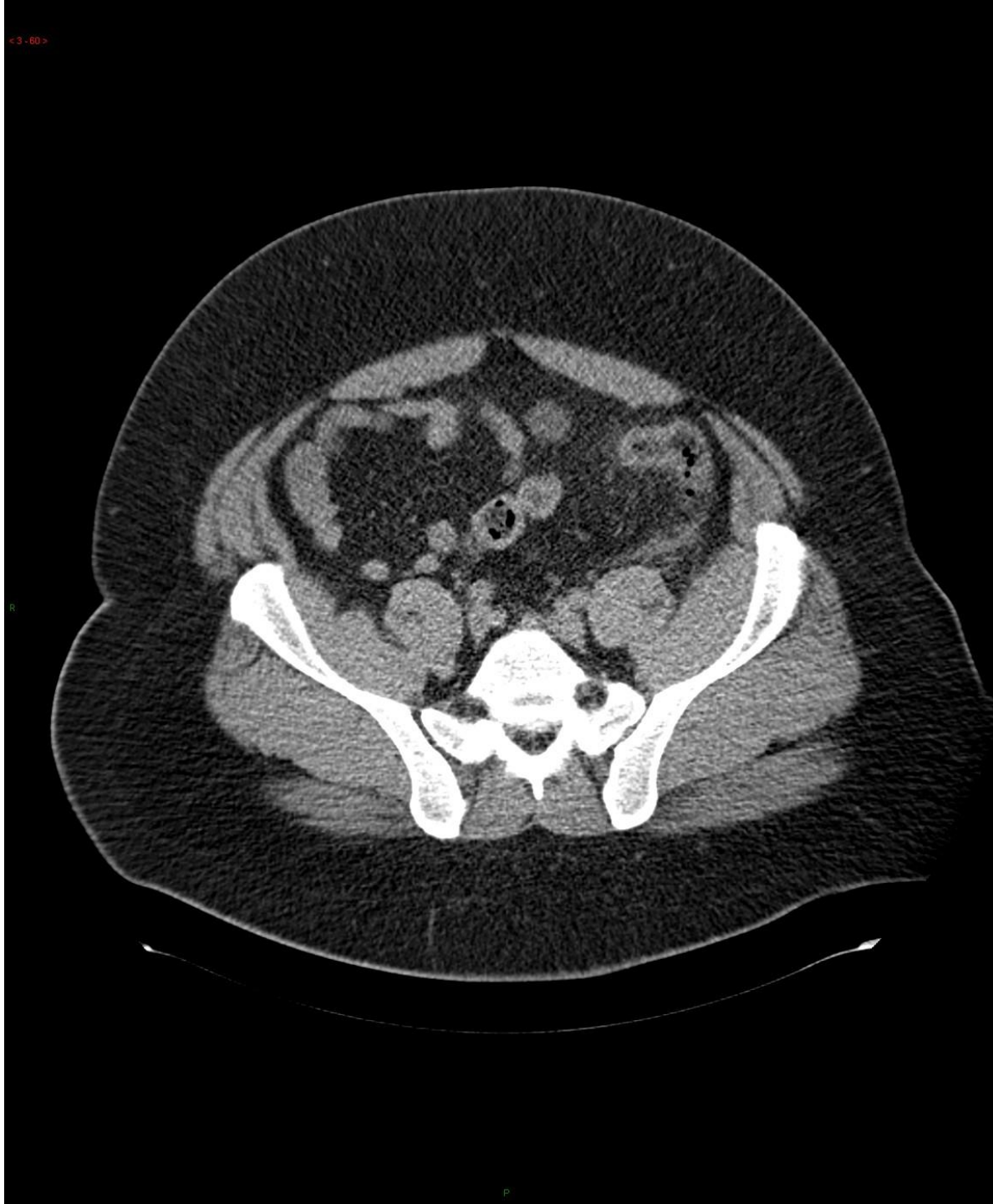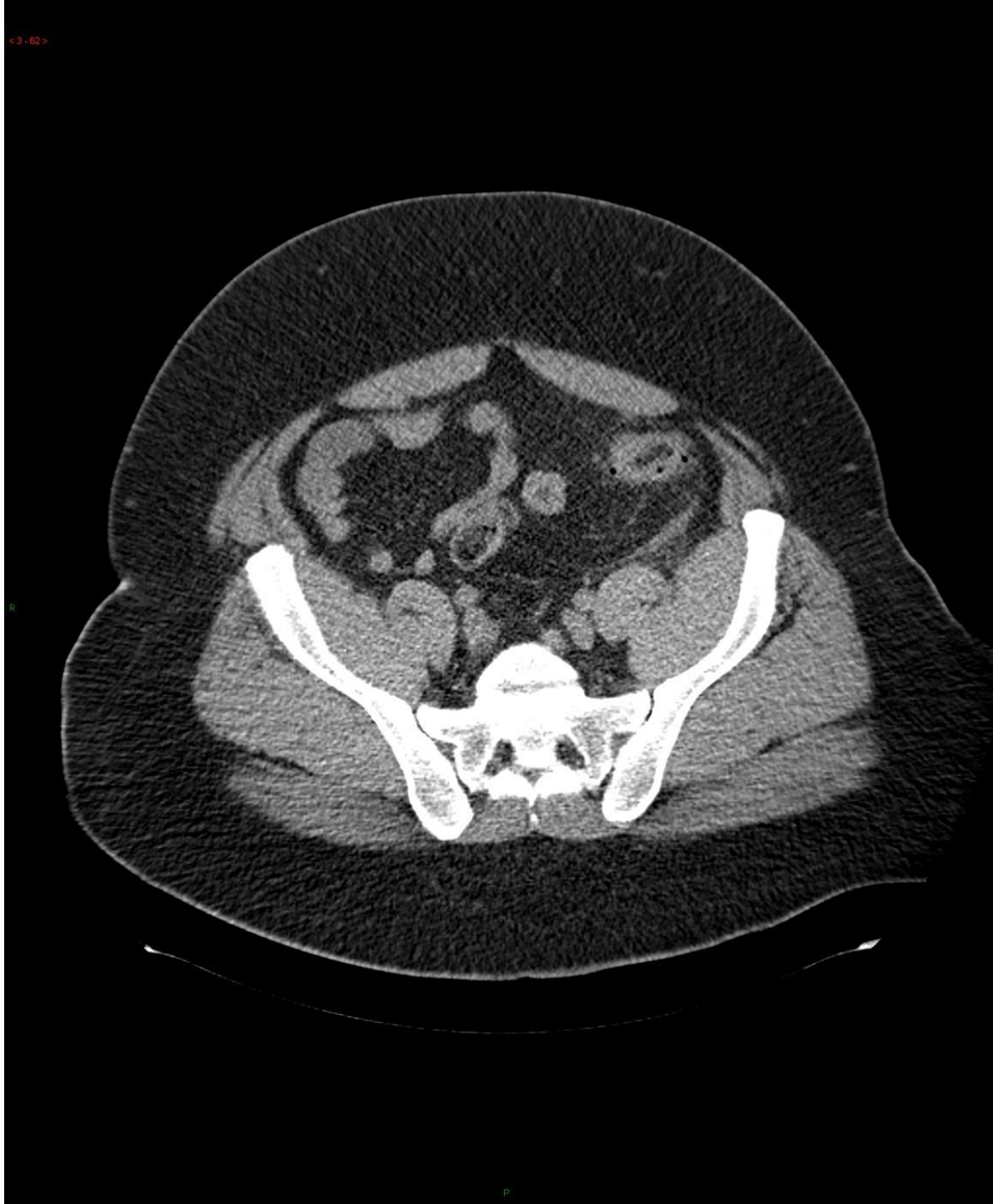
3D data
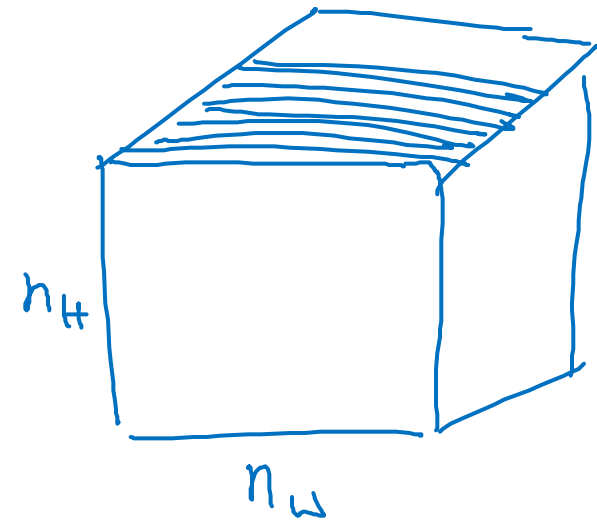
3D convolution
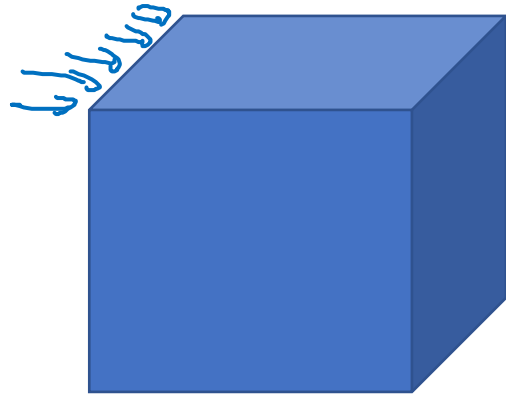
3D volume   *   3D filter

$$14 \times 14 \times 14 \times 1 \qquad n_c$$

$$* \quad 5 \times 5 \times 5 \times 1 \qquad \text{16 filte.}$$

$$\rightarrow 10 \times 10 \times 10 \times 16$$

$$* \quad 5 \times 5 \times 5 \times 16 \qquad \text{32 filtes}$$

$$\rightarrow 6 \times 6 \times 6 \times 32$$

Andrew Ng