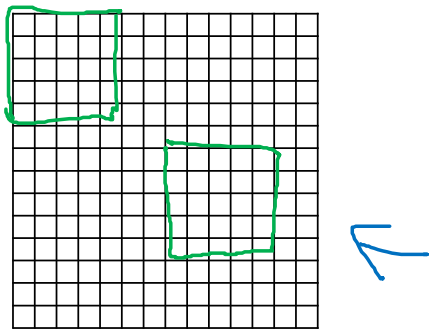
deeplearning.ai

Convolutional Networks in 1D or 3D

1D and 3D generalizations of models

Convolutions in 2D and 1D



2D input image
14 × 14

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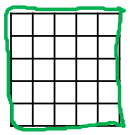
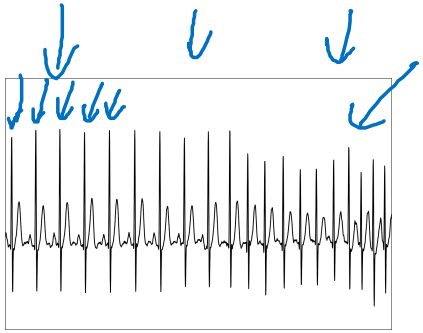


2D filter
5 × 5



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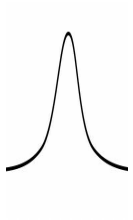

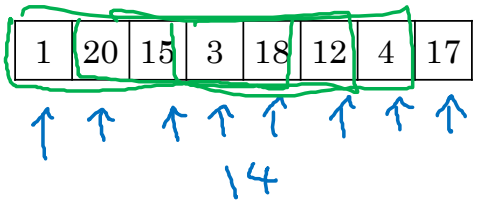

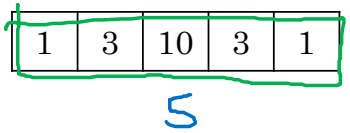

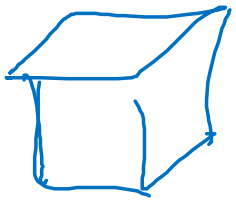

$14 \times 14 \times 3 \quad * \quad 5 \times 5 \times 3$

$\rightarrow 10 \times 10 \times 16$

$10 \times 10 \times 16 \quad * \quad 5 \times 5 \times 16$

$\rightarrow 6 \times 6 \times 32$

$14 \times 1 \quad * \quad 5 \times 1$

$\rightarrow 10 \times 16$

$10 \times 16 \quad * \quad 5 \times 16$

$\rightarrow 6 * 32$

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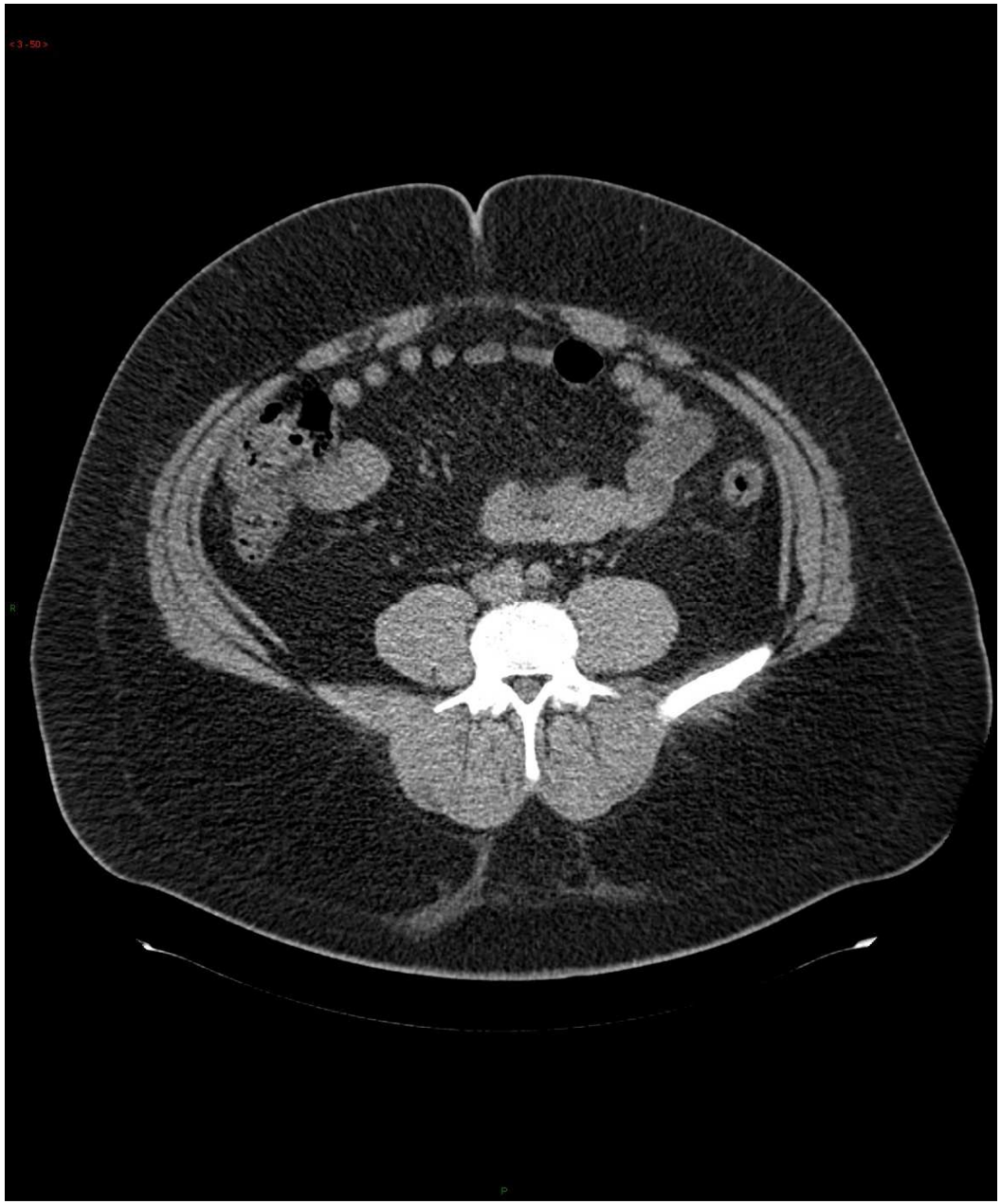
3D data



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3D data

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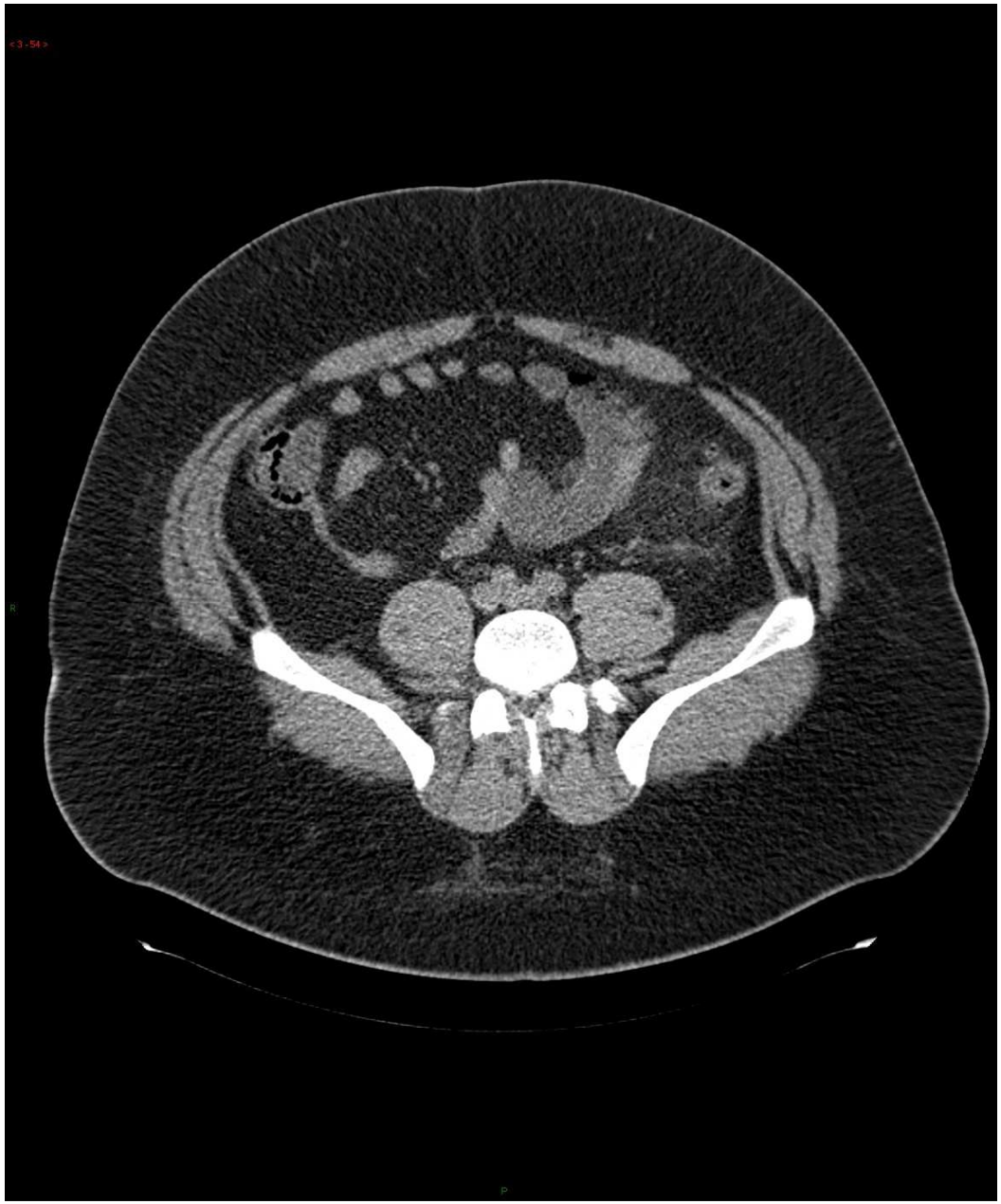
3D data



Andrew Ng

3D data

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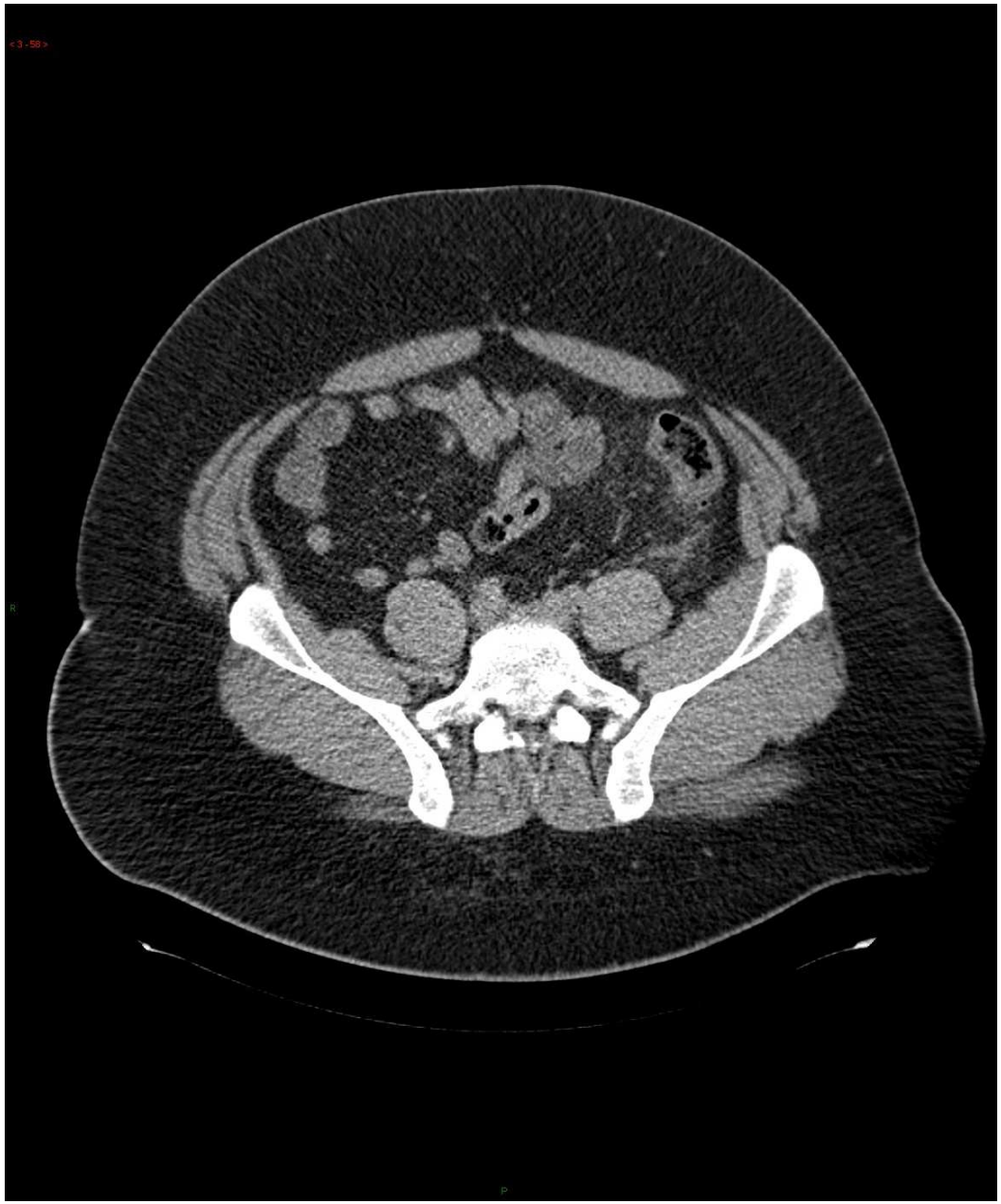
3D data



Andrew Ng

3D data

Andrew Ng

3D data

Andrew Ng

3D data

Andrew Ng

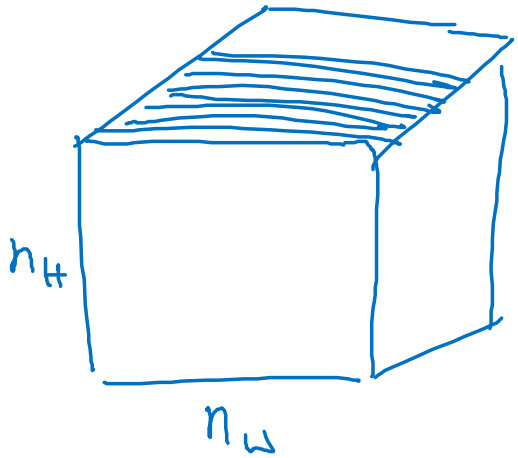
3D data

Andrew Ng

3D data

Andrew Ng

3D data



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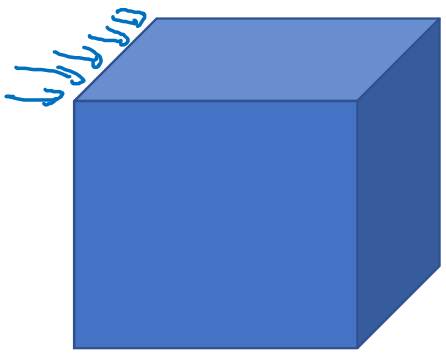
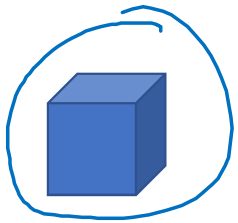
3D convolution



3D volume

*



3D filter

n_c

$14 \times 14 \times 14 \times 1$

$* \quad 5 \times 5 \times 5 \times 1$ 16 filters.

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

$* \; 5 \times 5 \times 5 \times 16$ 32 filters

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