Neural Style Transfer

What are deep ConvNets learning?

deeplearning.ai

Visualizing what a deep network is learning

$224 \times 224 \times 3$

$110 \times 110 \times 96$

$55 \times 55 \times 96$

$26 \times 26 \times 256$

$13 \times 13 \times 256$

$13 \times 13 \times 384$

$13 \times 13 \times 384$

$6 \times 6 \times 256$

FC 4096

FC 4096

$\hat{y}$
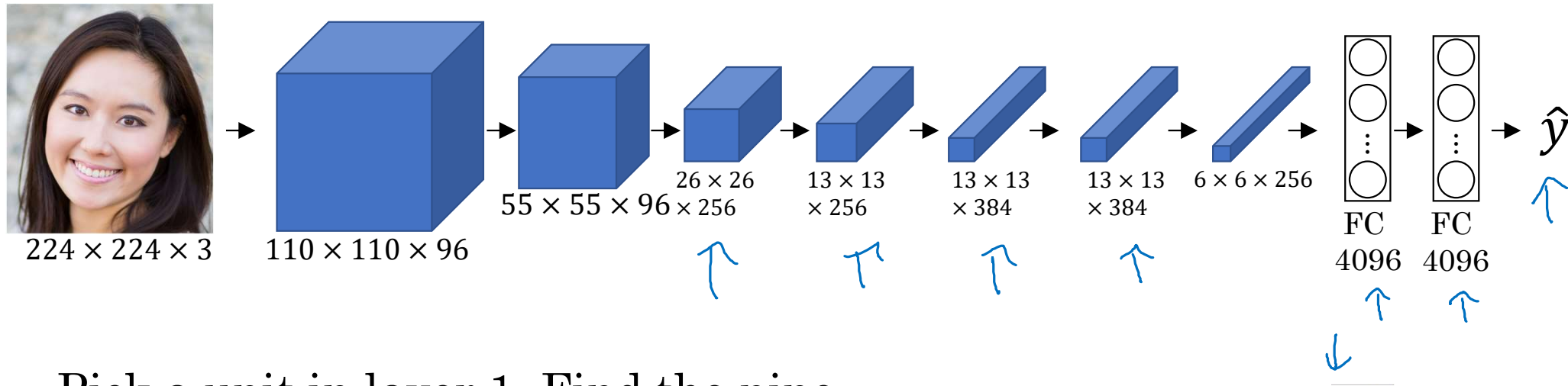
Pick a unit in layer 1. Find the nine image patches that maximize the unit's activation.

Repeat for other units.

[Zeiler and Fergus., 2013, Visualizing and understanding convolutional networks]

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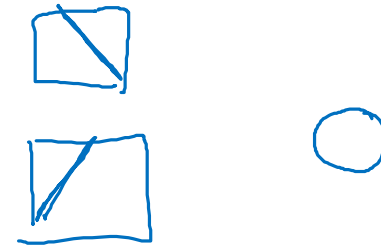
Visualizing deep layers

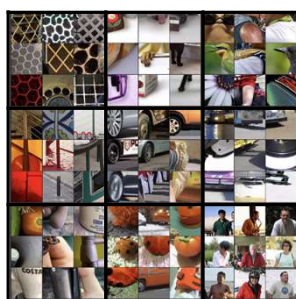| Layer 1 | Layer 2 | Layer 3 | Layer 4 | Layer 5 |

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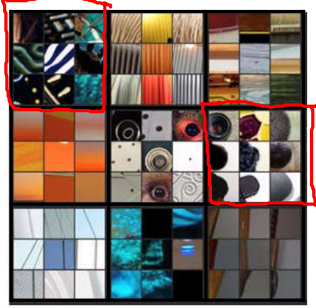
Visualizing deep layers: Layer 1
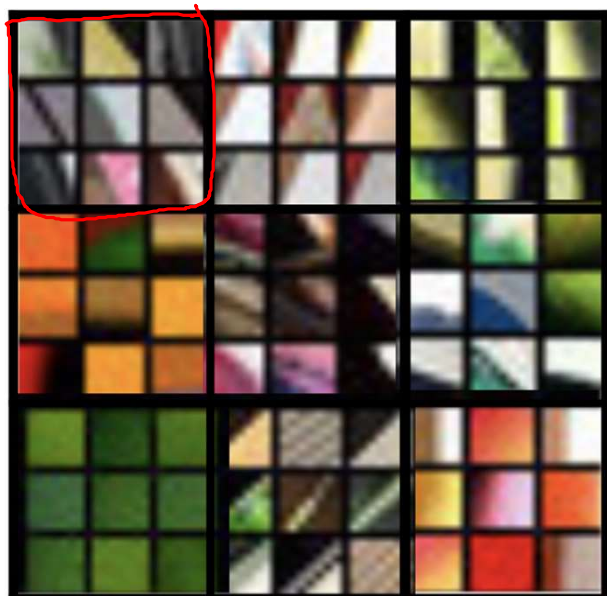
Layer 1

Layer 2

Layer 3

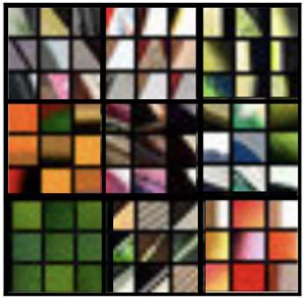Layer 4
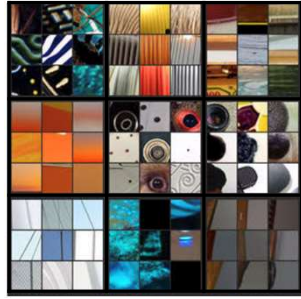
Layer 5

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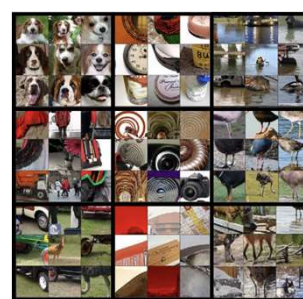
Visualizing deep layers: Layer 2

Layer 1   Layer 2   Layer 3   Layer 4   Layer 5
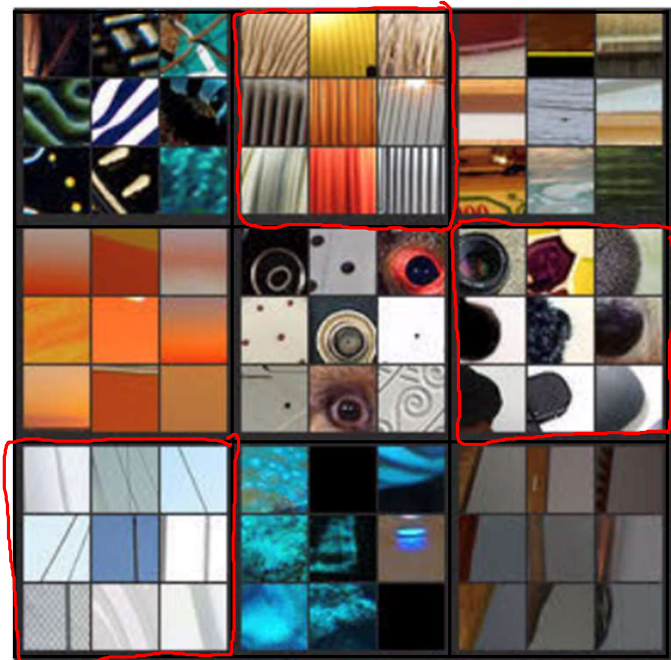

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Visualizing deep layers: Layer 3

Layer 1 Layer 2 Layer 3 Layer 4 Layer 5

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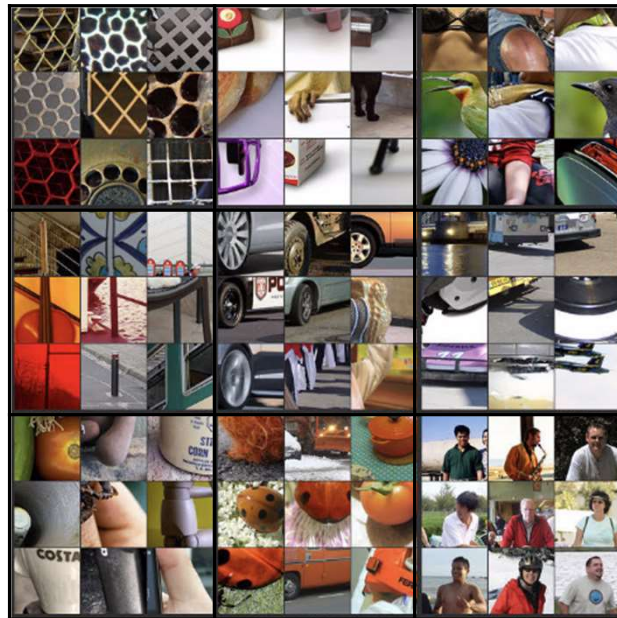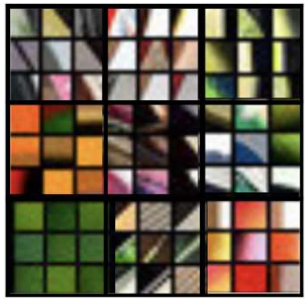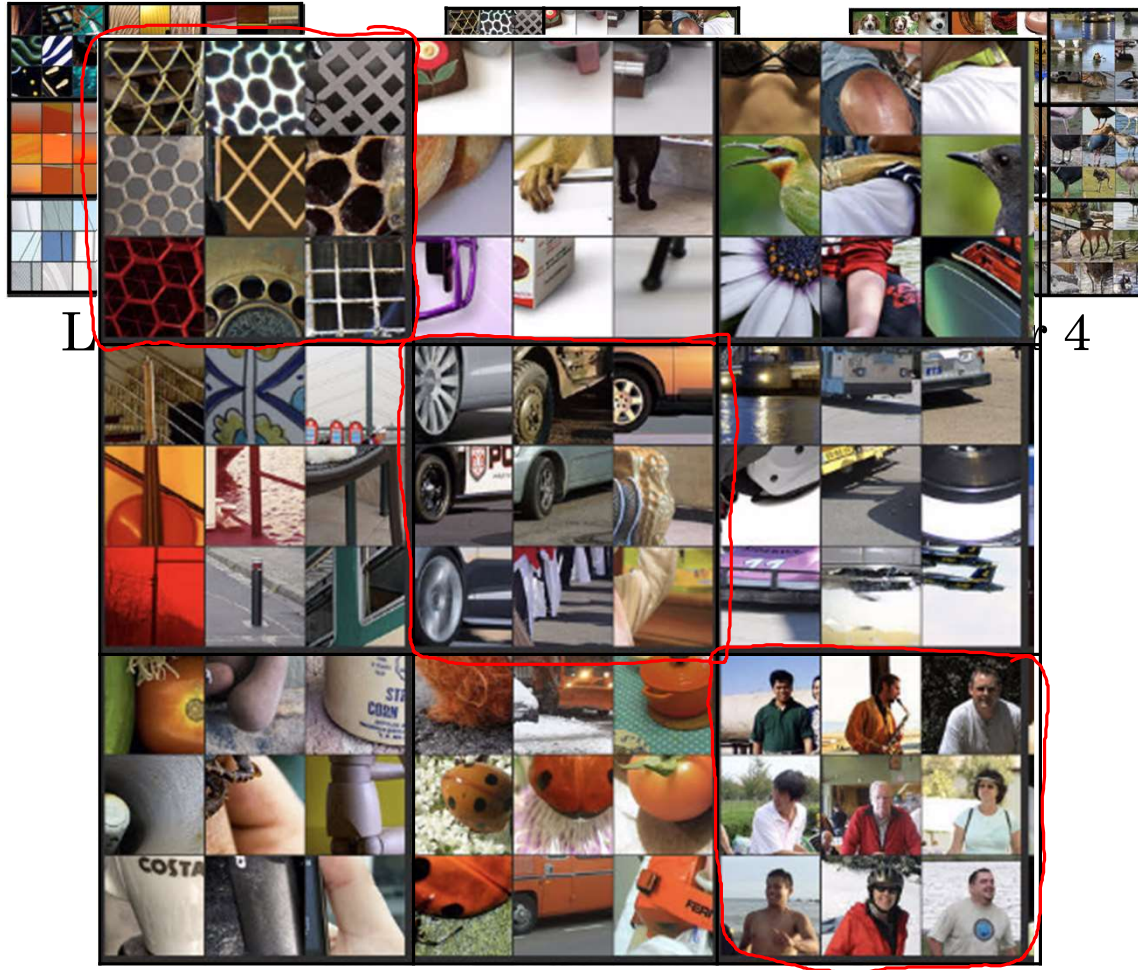# Visualizing deep layers: Layer 3

Layer 1   Layer 2   Layer 4   Layer 5

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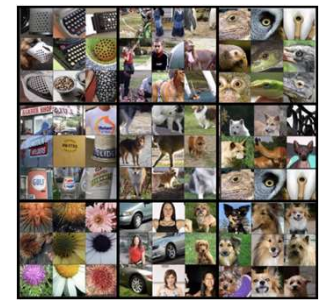
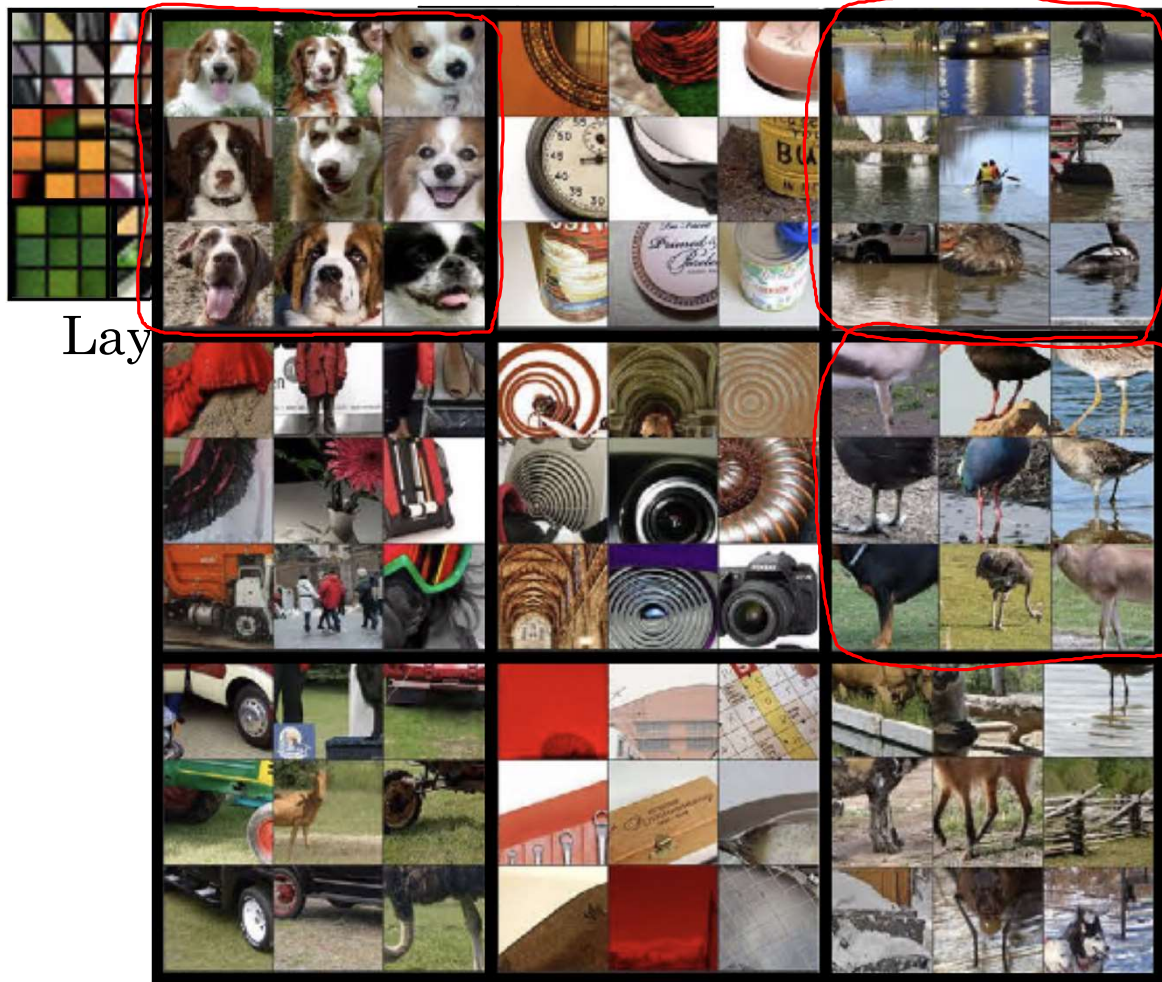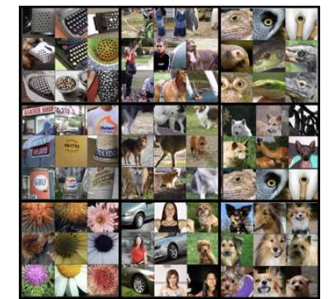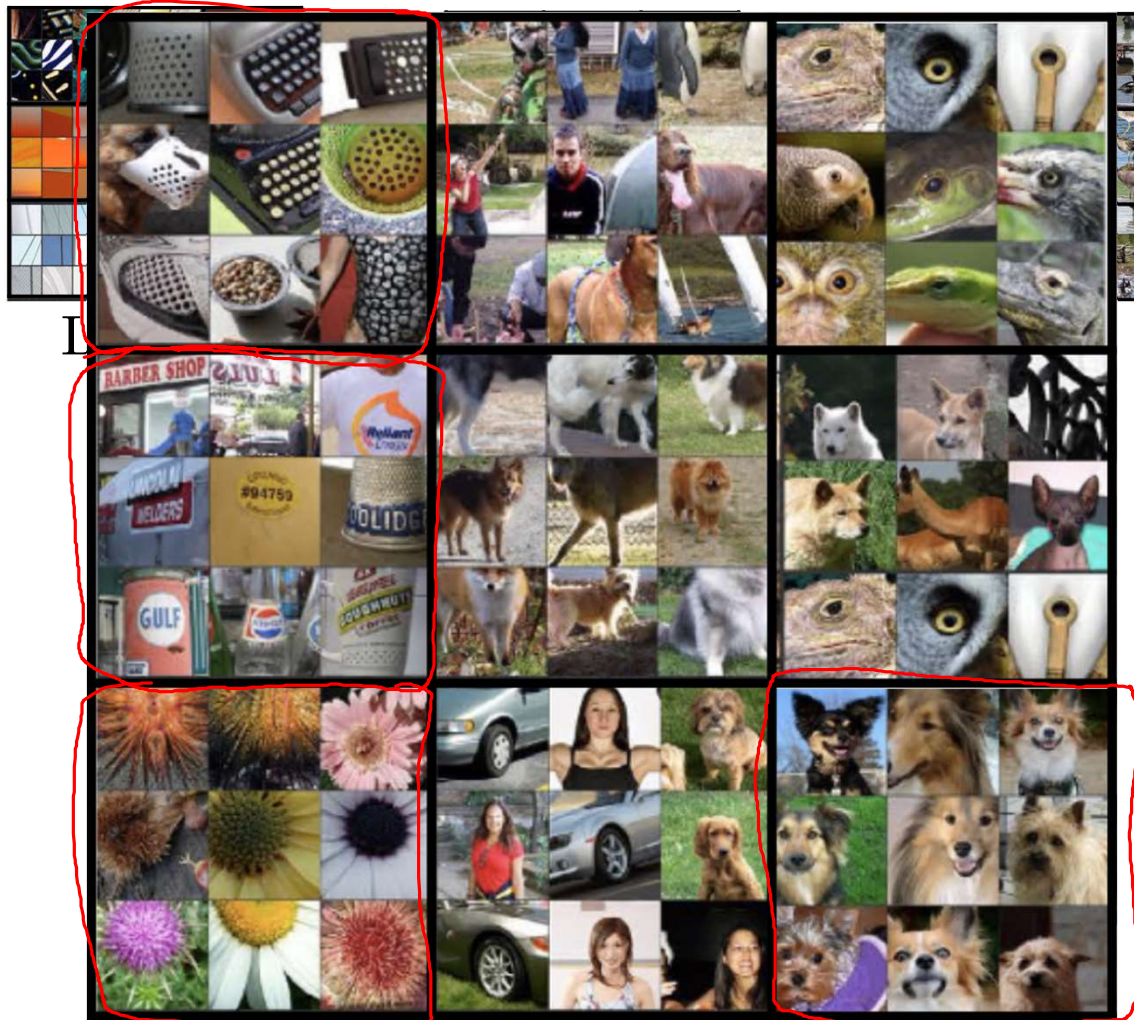# Visualizing deep layers: Layer 4

Lay...

Layer 4

Layer 5

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Visualizing deep layers: Layer 5

Layer 1

Layer 5

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