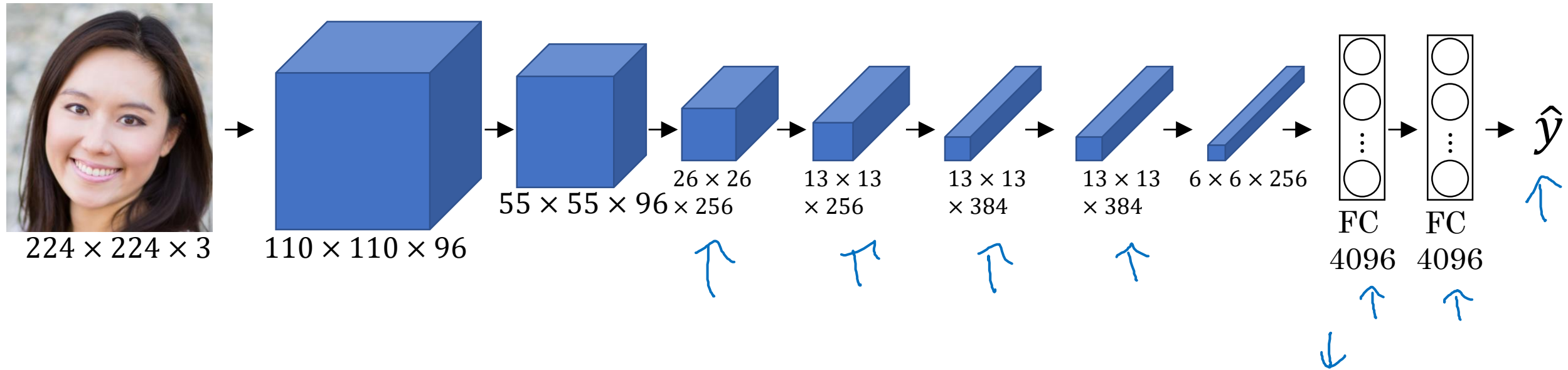deeplearning.ai

Neural Style Transfer
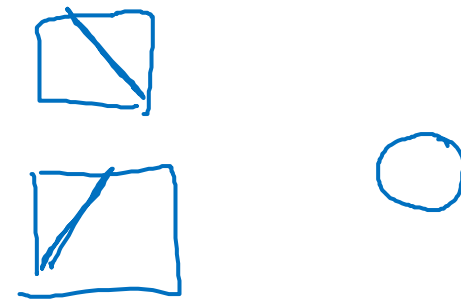
What are deep ConvNets learning?

Visualizing what a deep network is learning
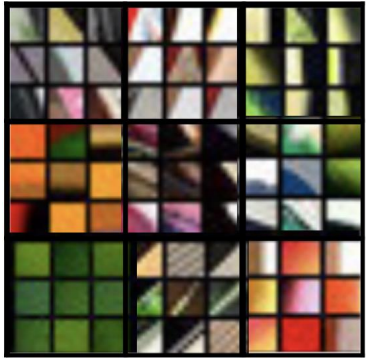

$224 \times 224 \times 3$ $110 \times 110 \times 96$ $55 \times 55 \times 96$ $26 \times 26 \times 256$ $13 \times 13 \times 256$ $13 \times 13 \times 384$ $13 \times 13 \times 384$ $6 \times 6 \times 256$ FC 4096   FC 4096 $\hat{y}$

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]
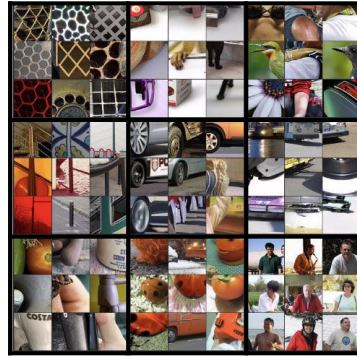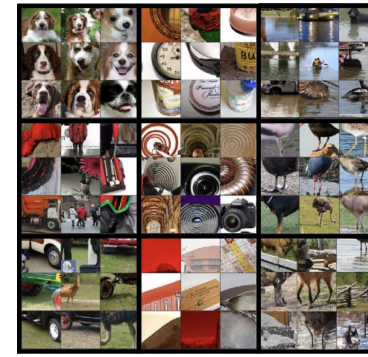
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Visualizing deep layers
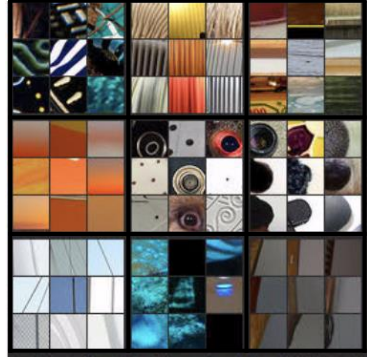

Layer 1   Layer 2   Layer 3   Layer 4   Layer 5
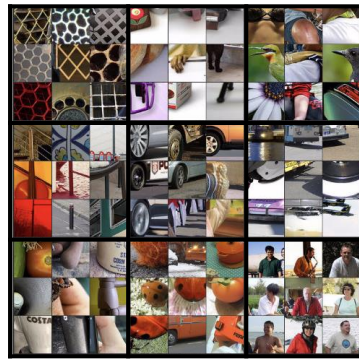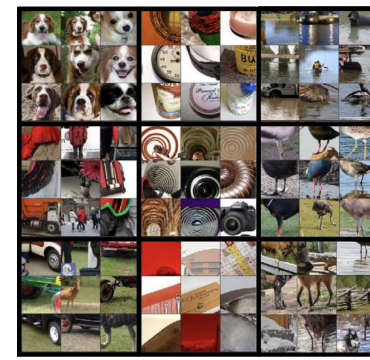
Andrew Ng
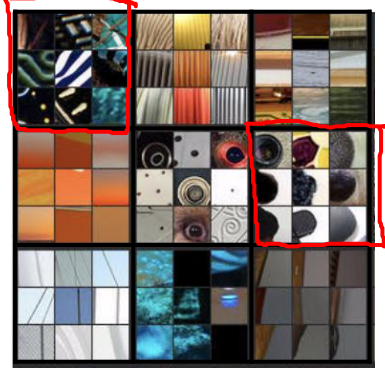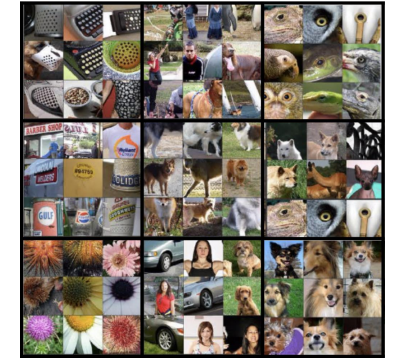
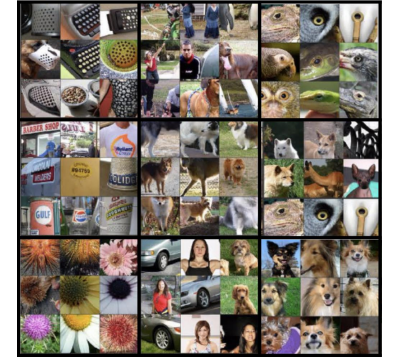# Visualizing deep layers: Layer 1
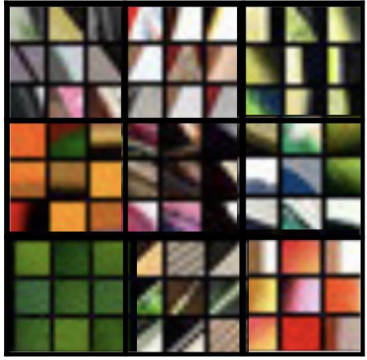
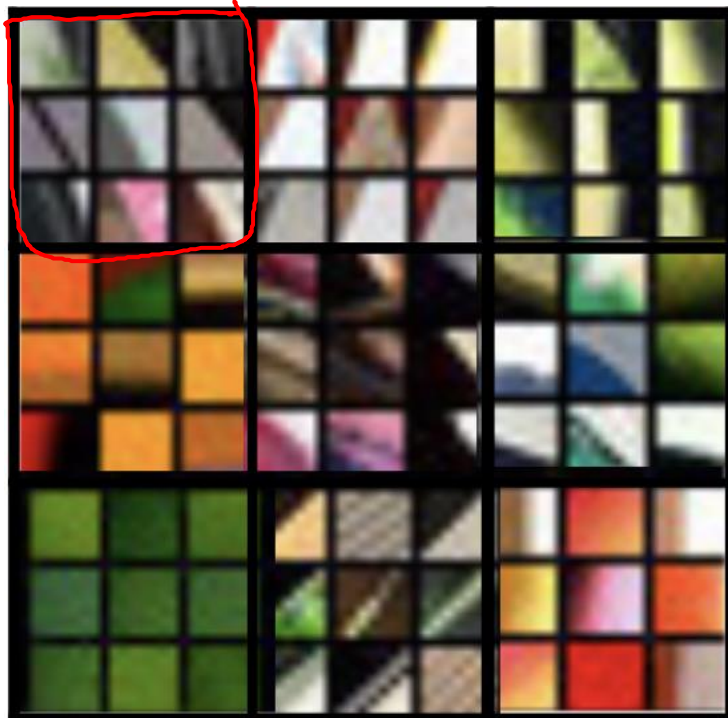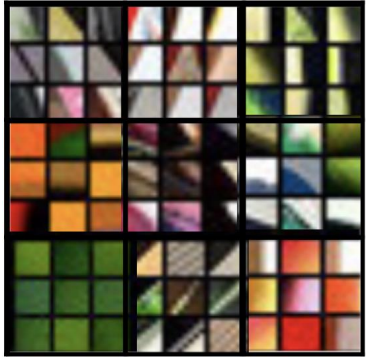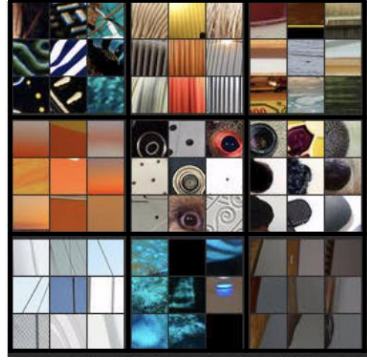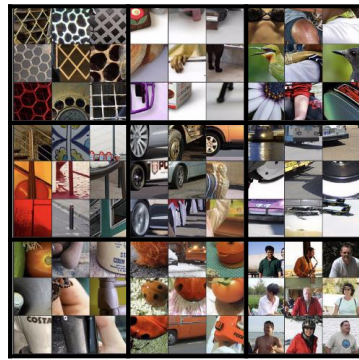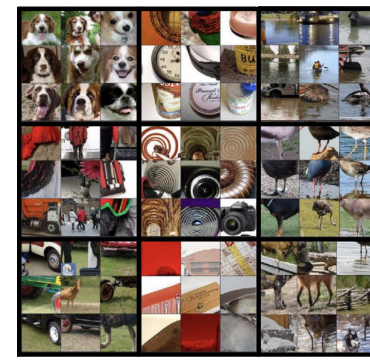Layer 1   Layer 2   Layer 3   Layer 4   Layer 5

detecting edges, colours
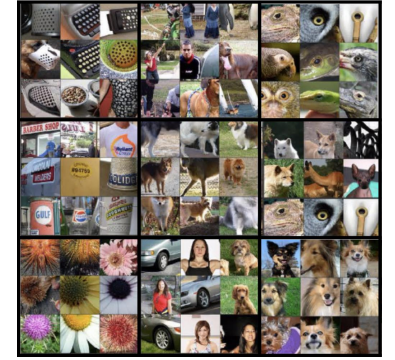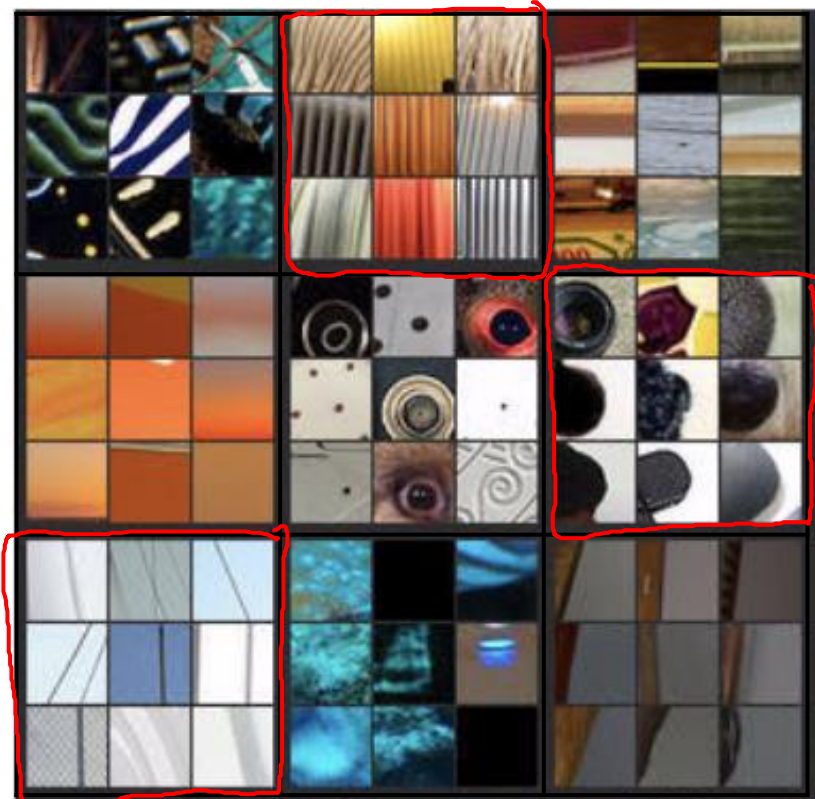
Visualizing deep layers: Layer 2
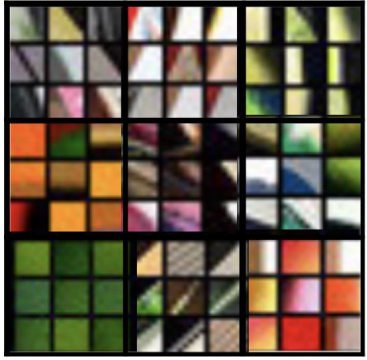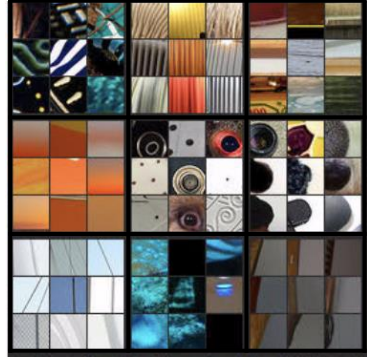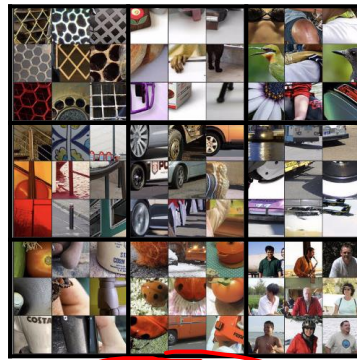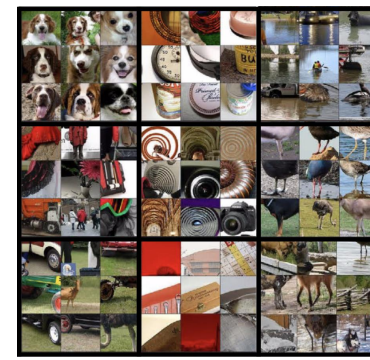

Layer 1 Layer 2 Layer 3 Layer 4 Layer 5

detecting textures etc.
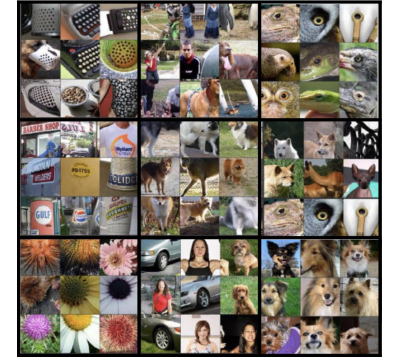
Visualizing deep layers: Layer 3
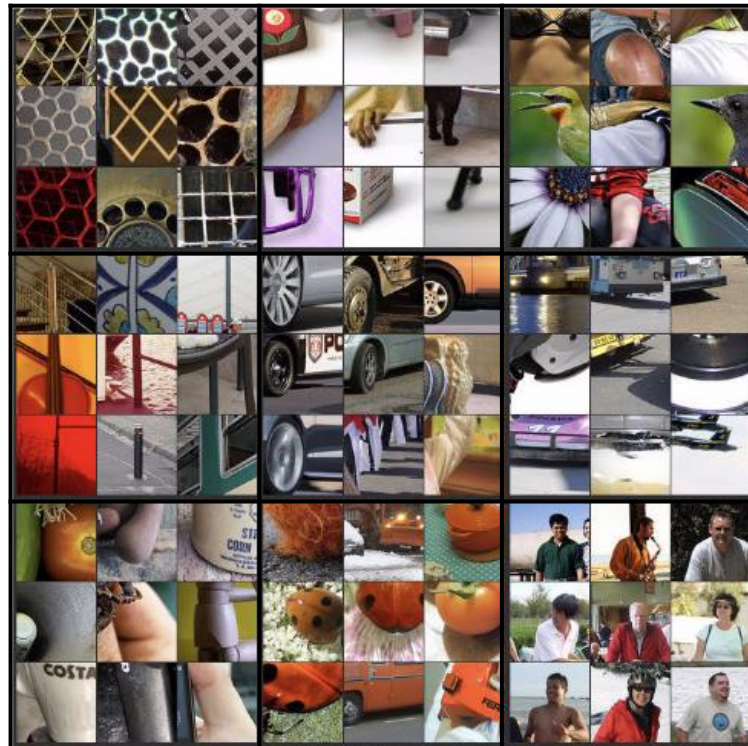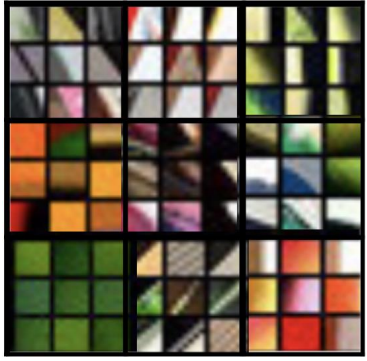

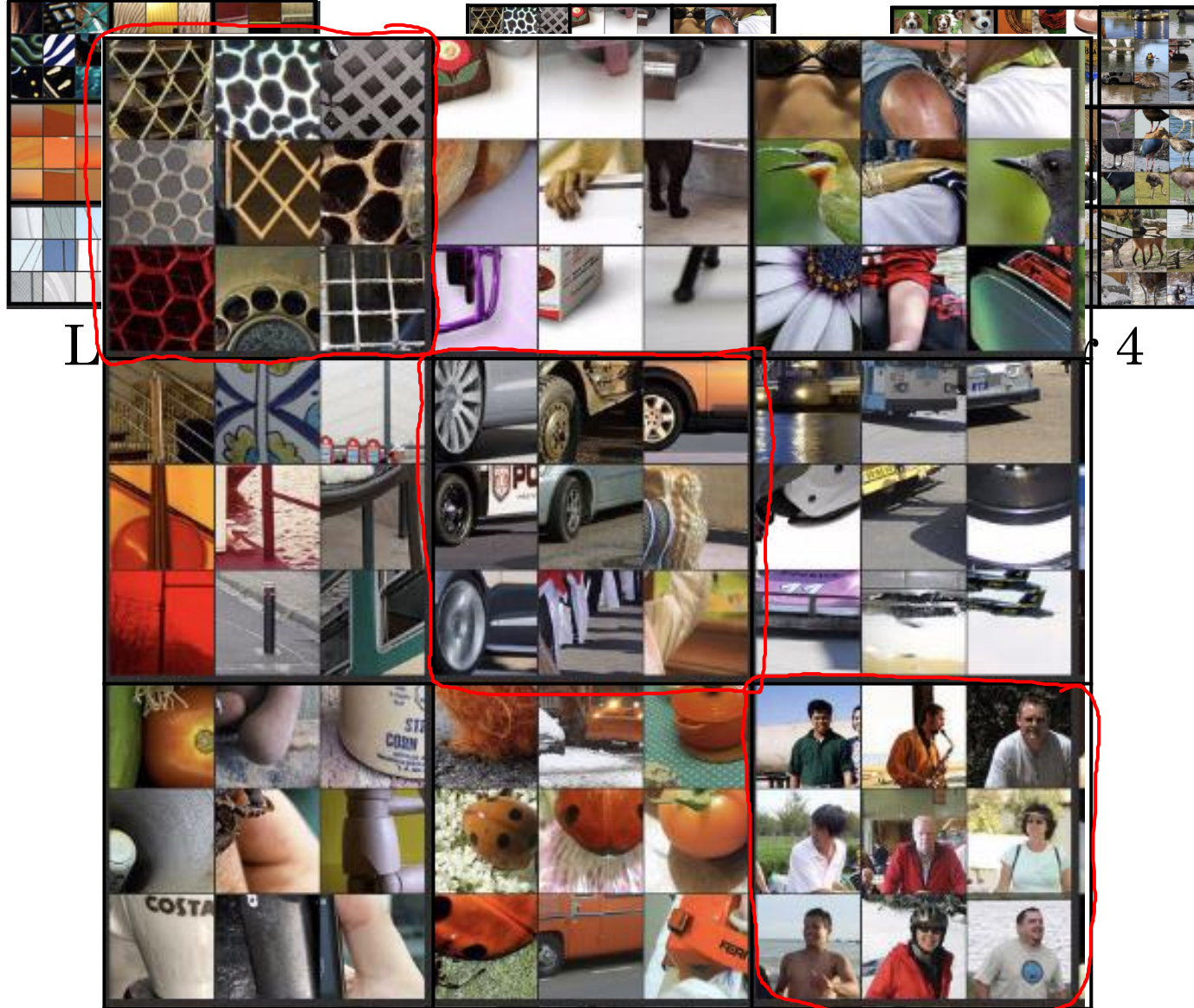Layer 1   Layer 2   Layer 3   Layer 4   Layer 5

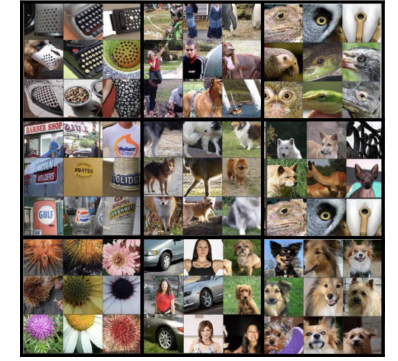detecting parts of the objects
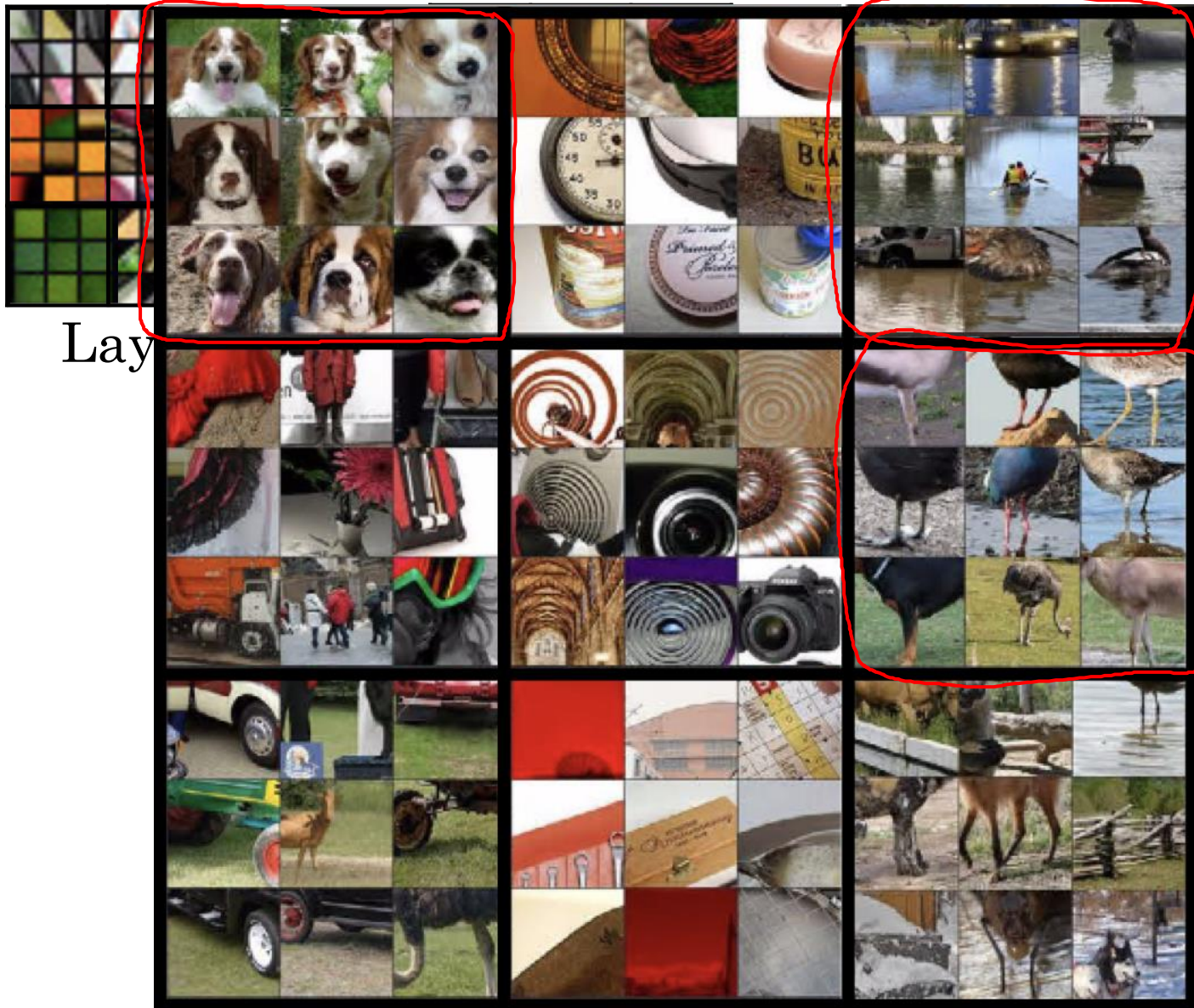
Visualizing deep layers: Layer 3

Layer 1

Layer 4
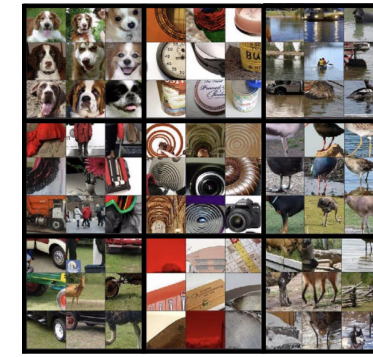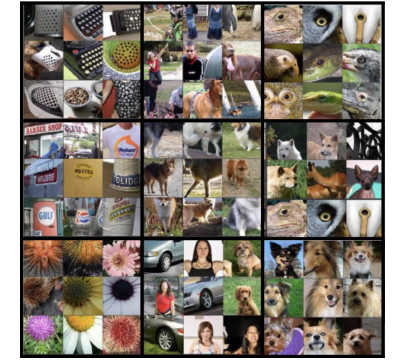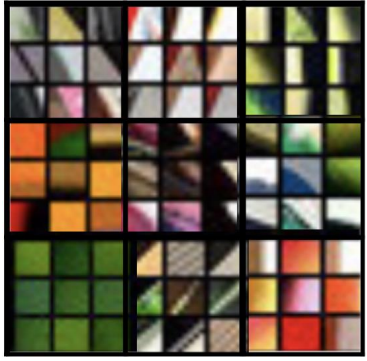
Layer 5

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Visualizing deep layers: Layer 4
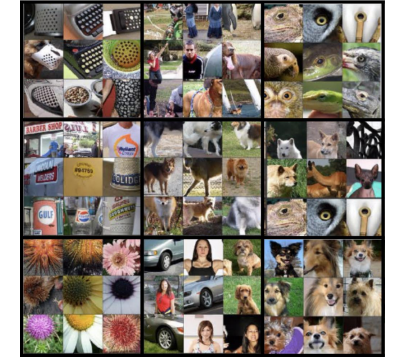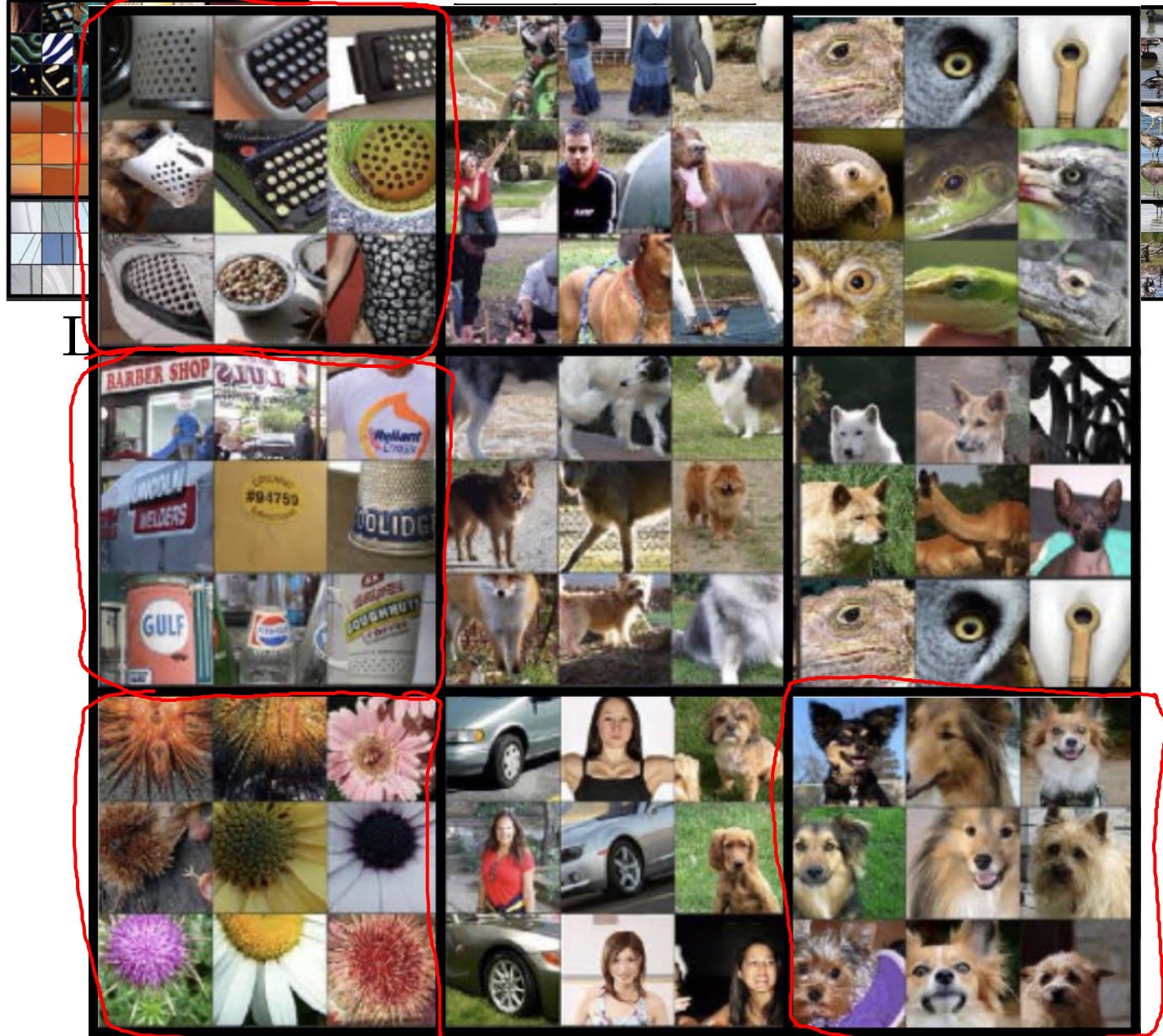

Layer 4

Layer 5

detecting objects

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Visualizing deep layers: Layer 5

Layer 1

Layer 5

detecting objects