

# False-positive Detection with Convolutional Neural Networks

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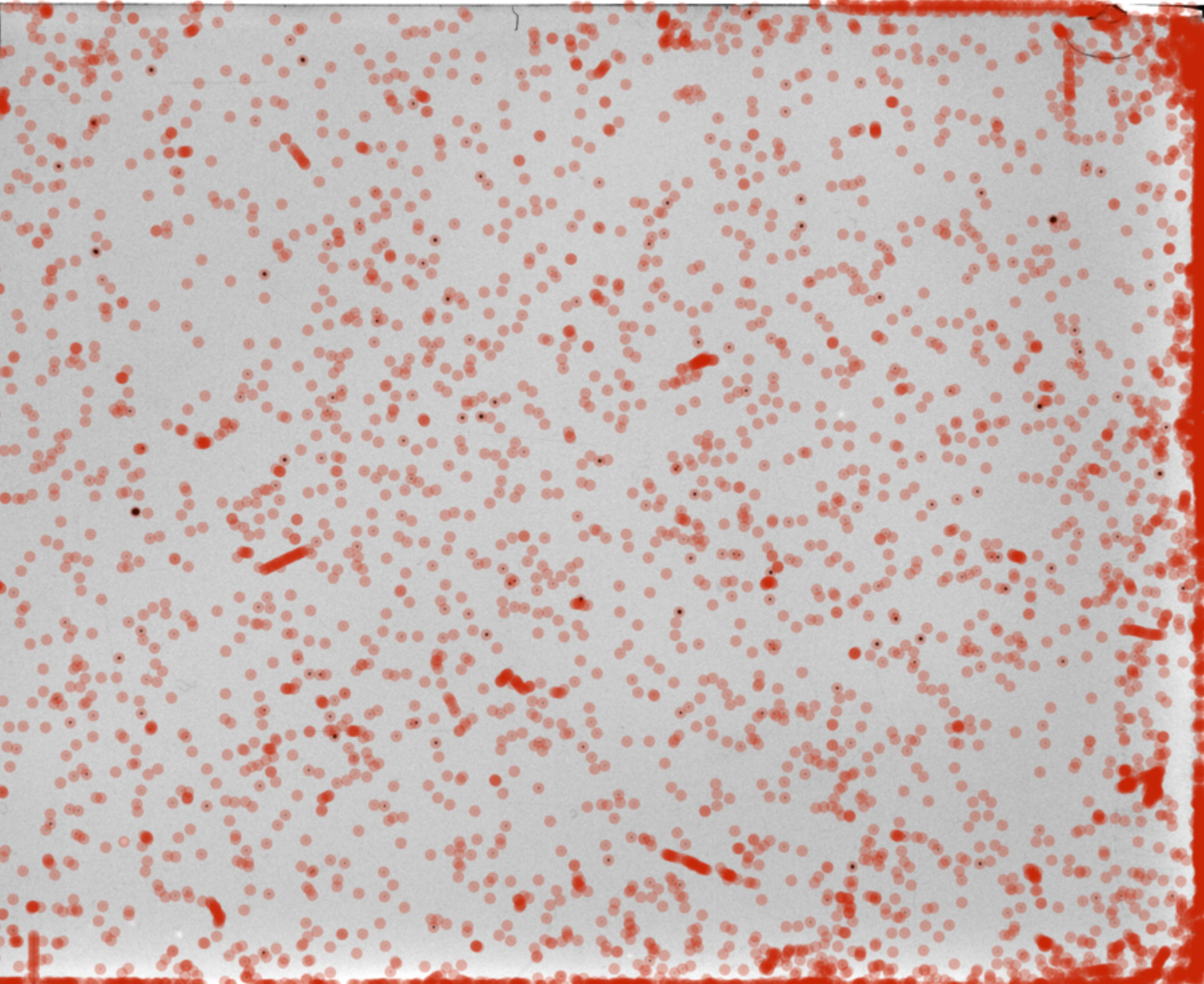
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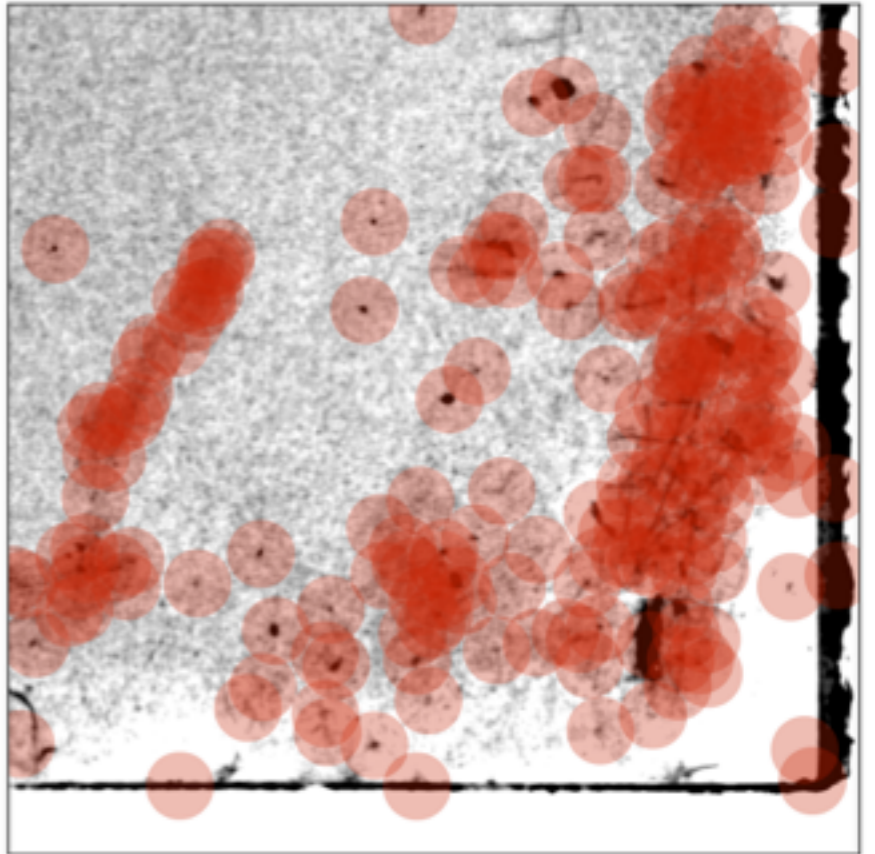
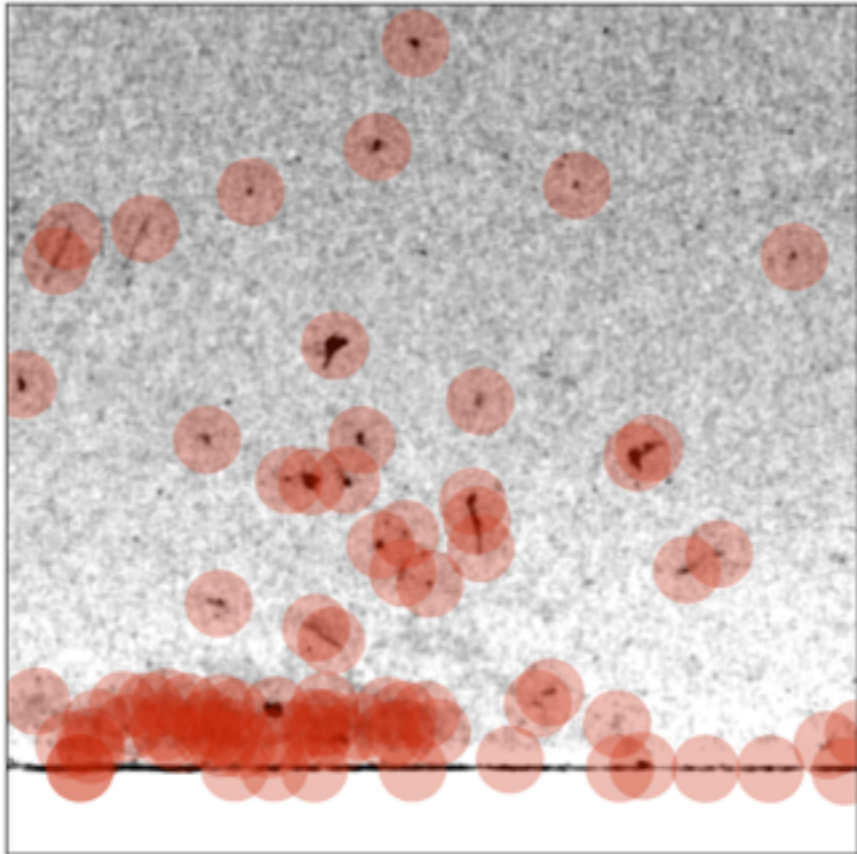
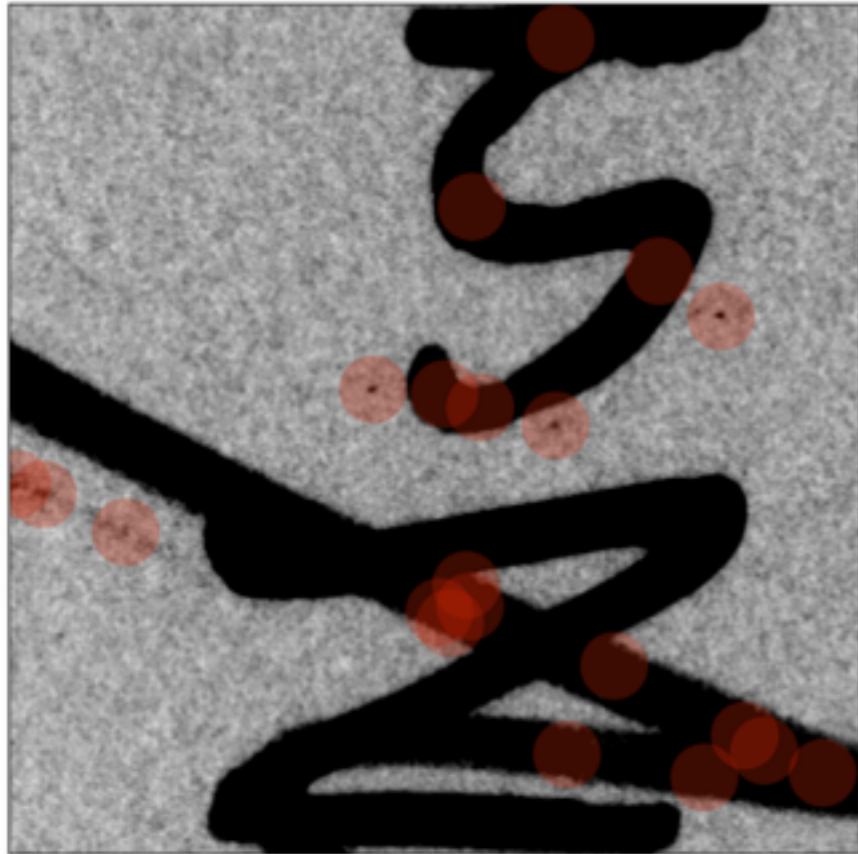
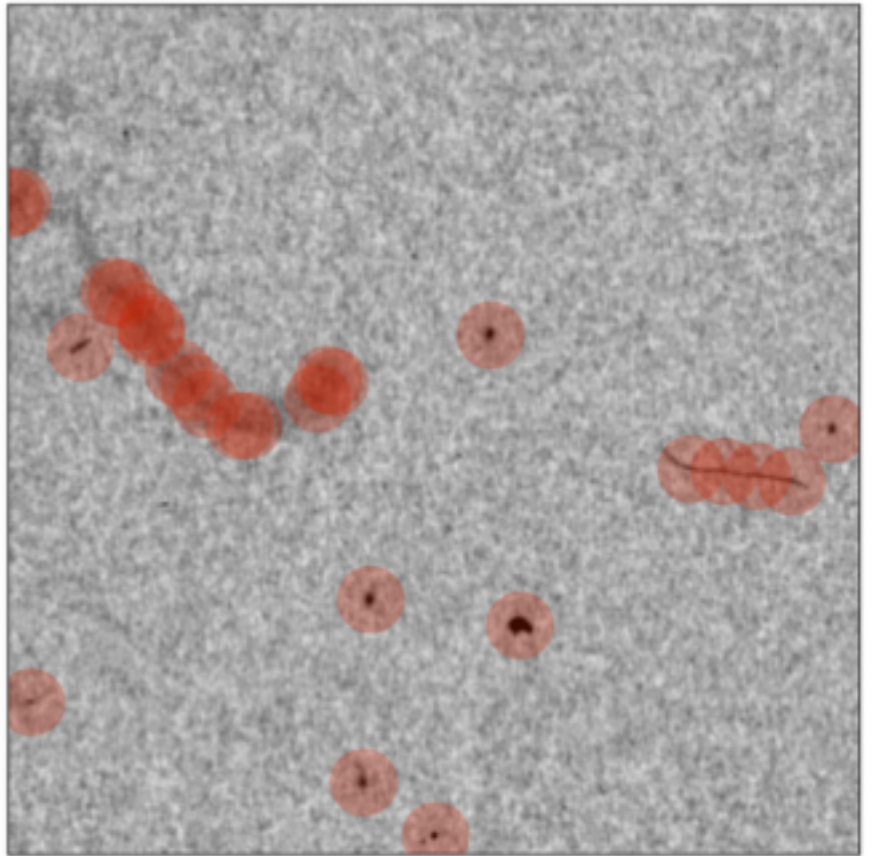
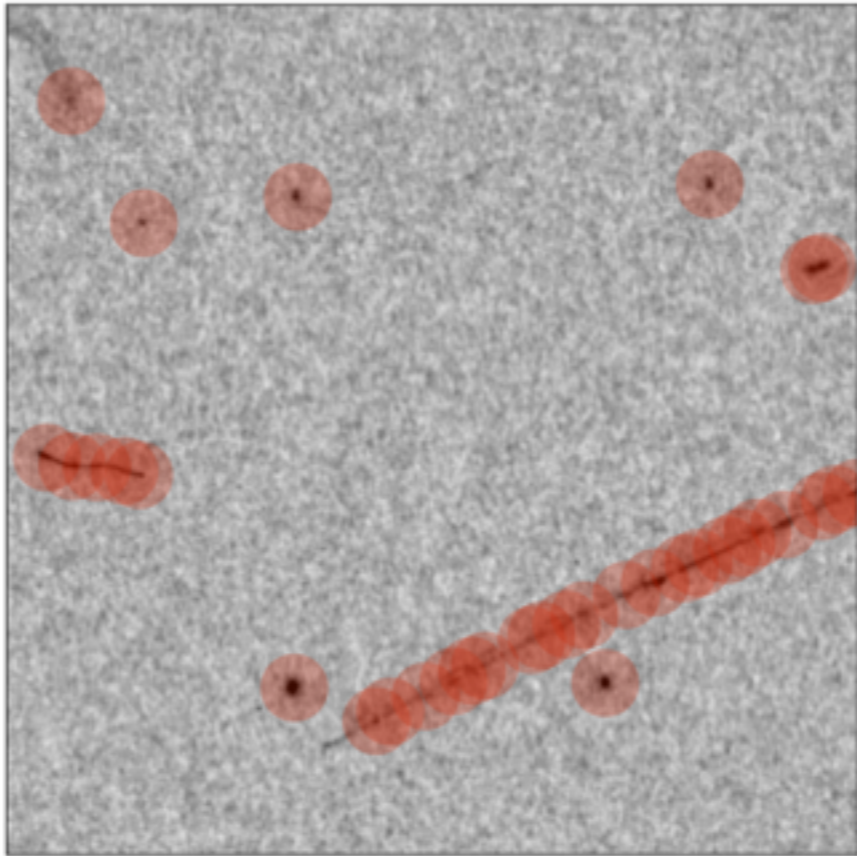
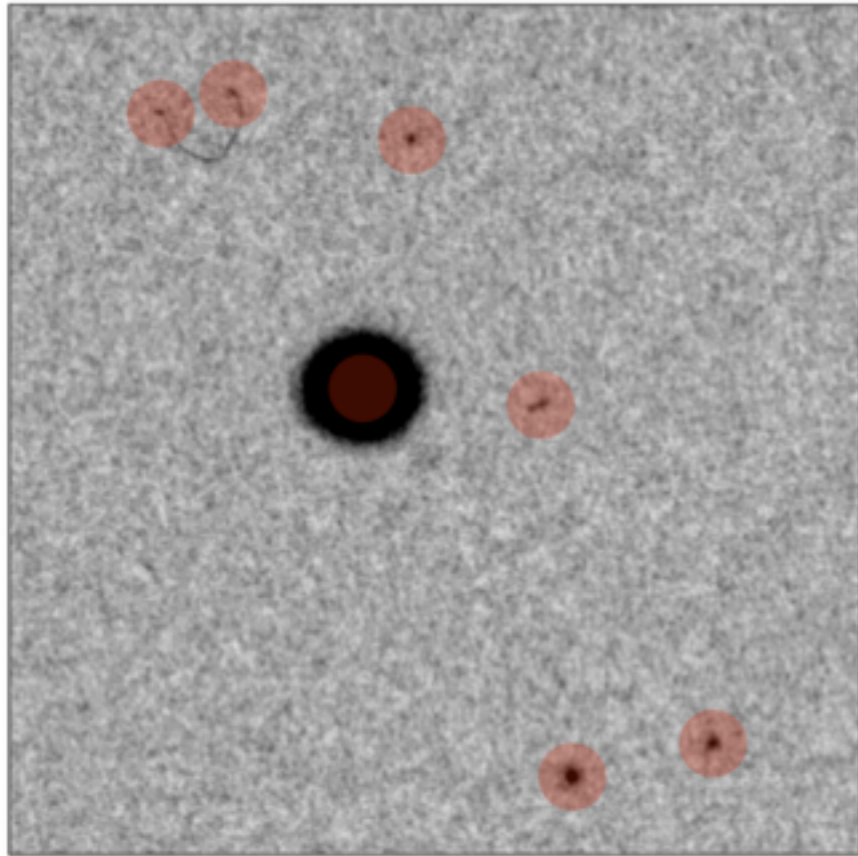


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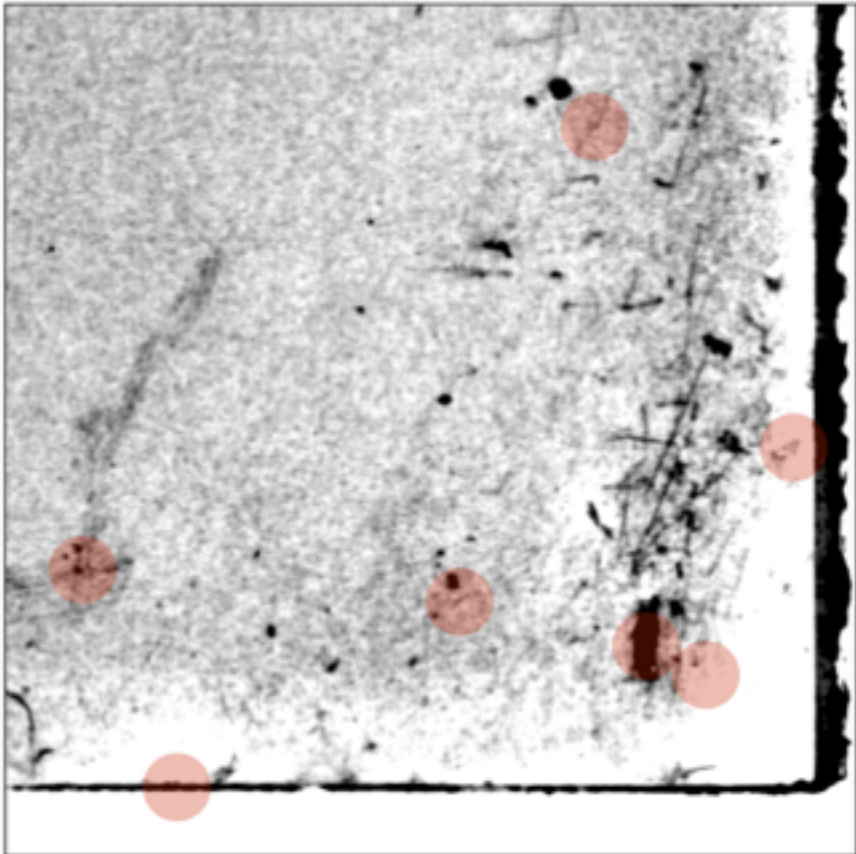
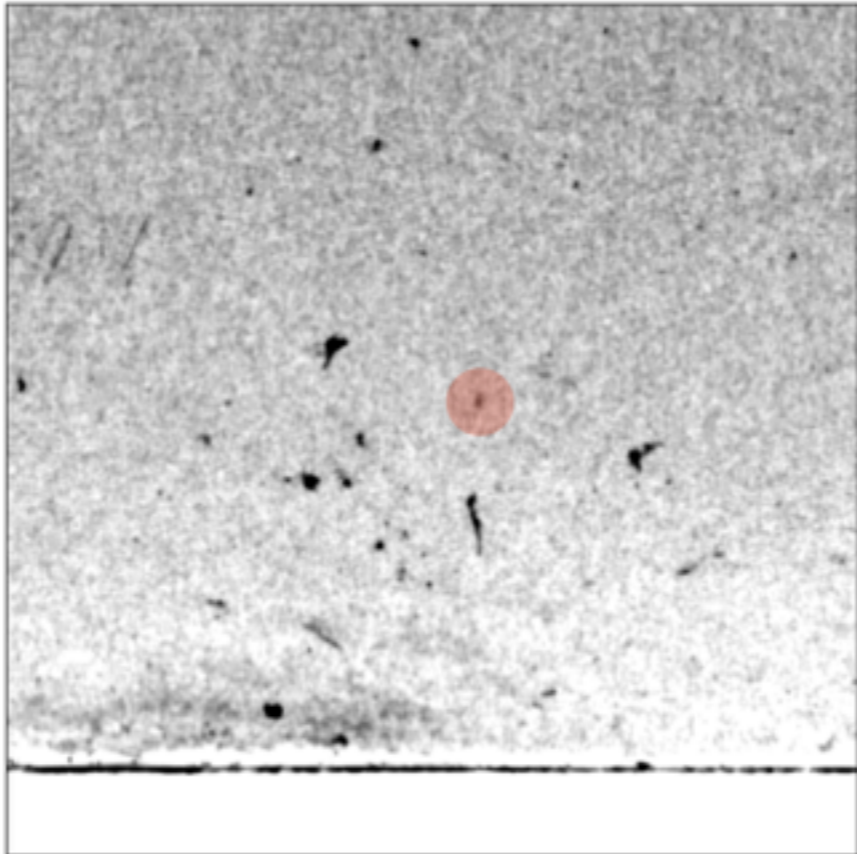
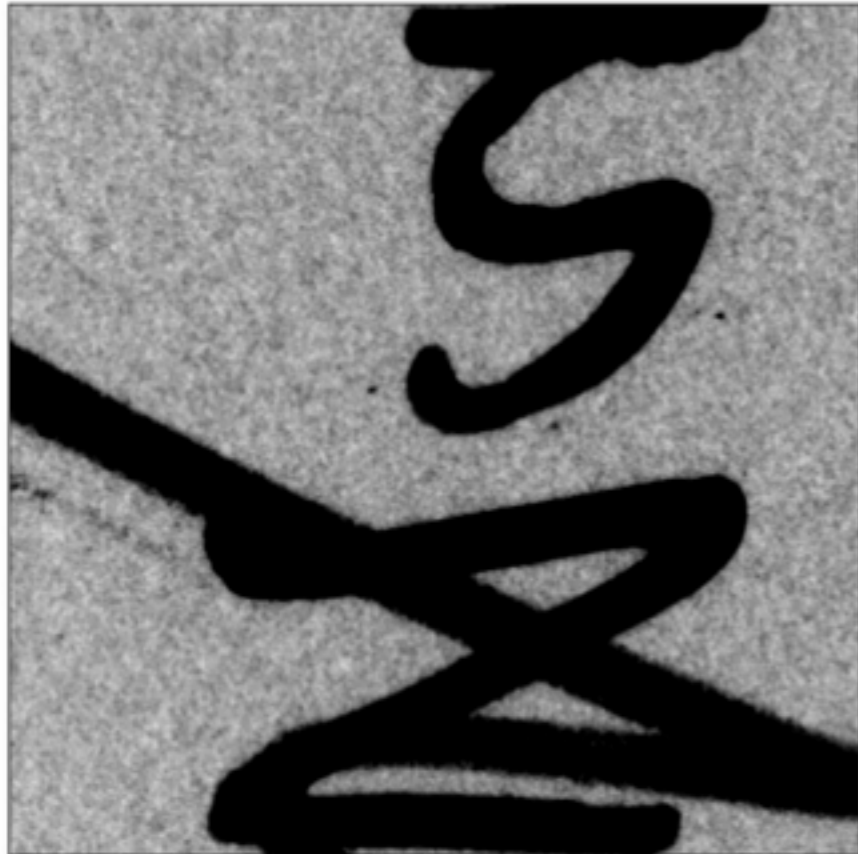
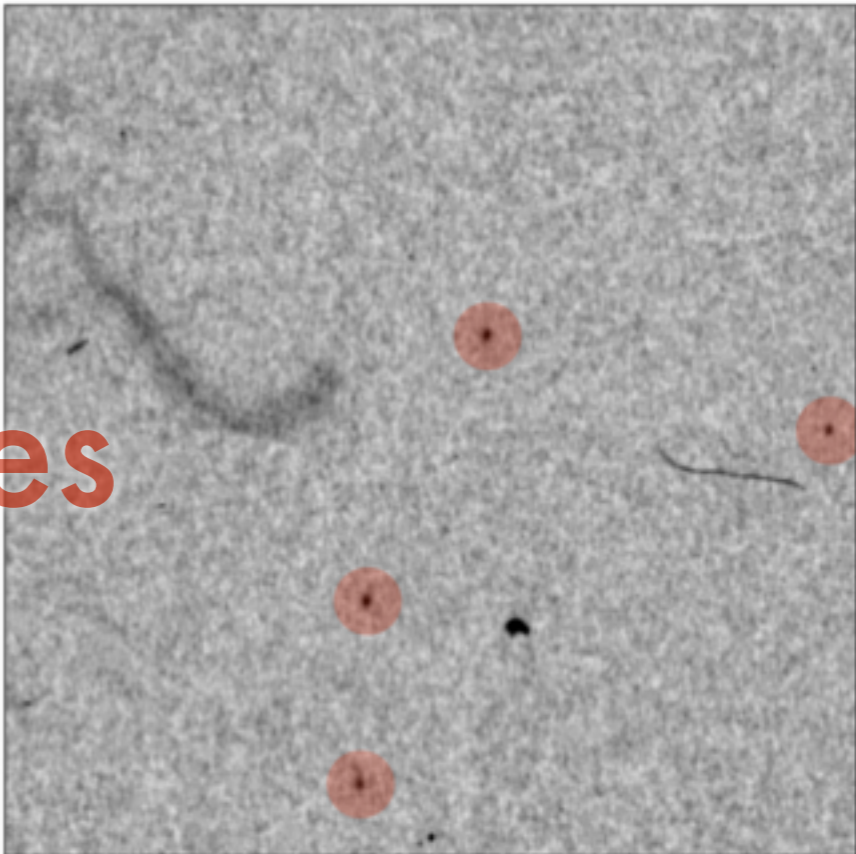
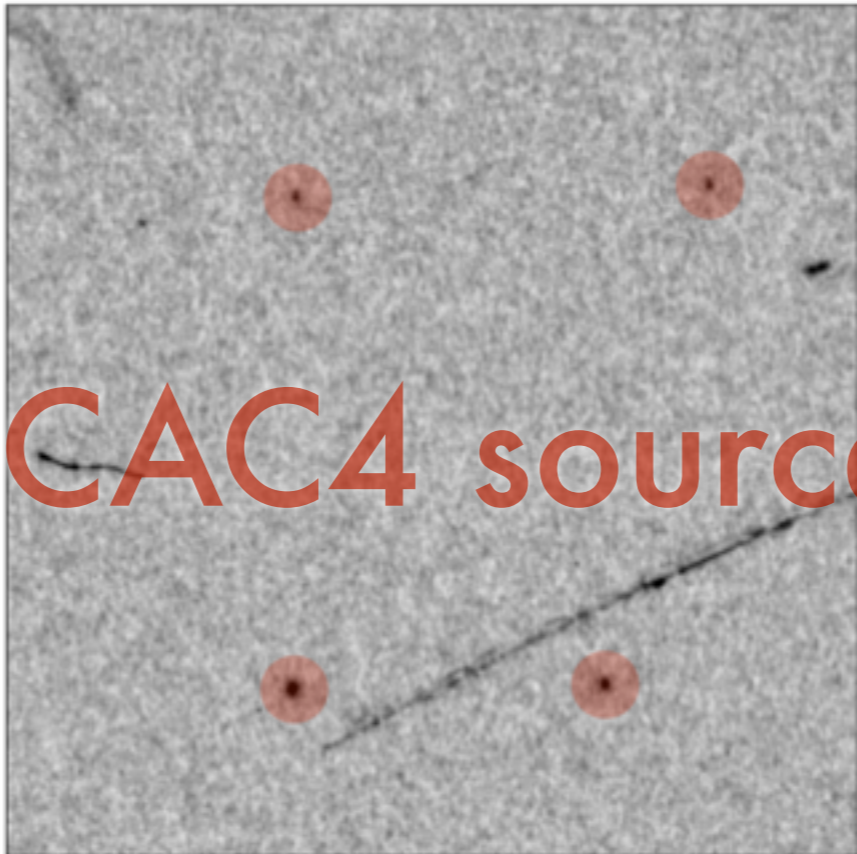
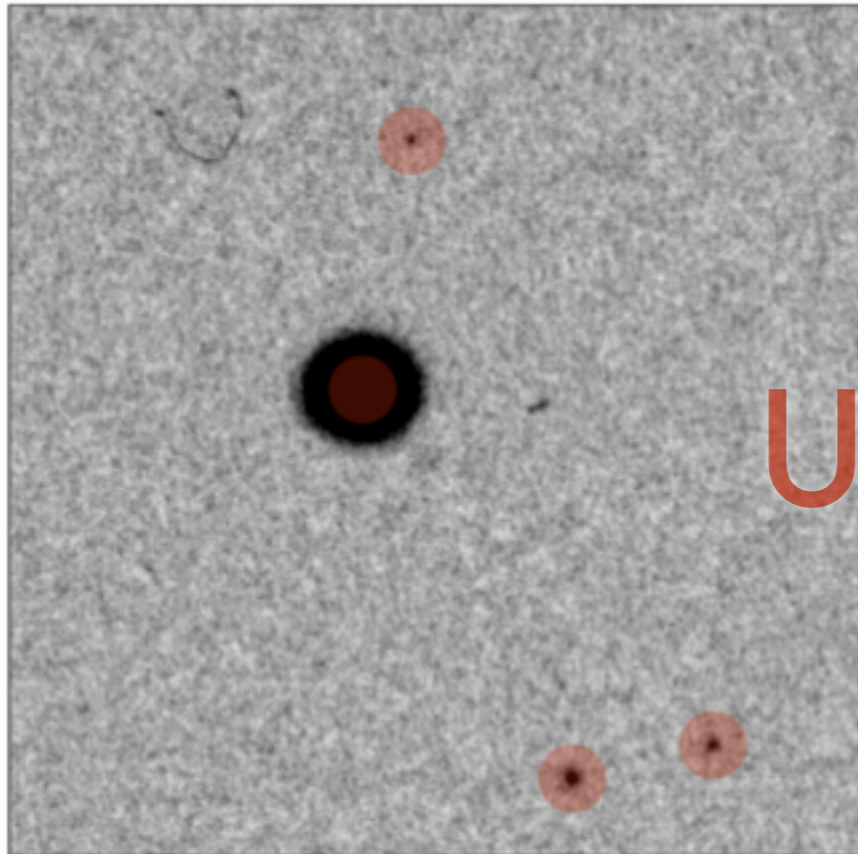








UCAC4 sources





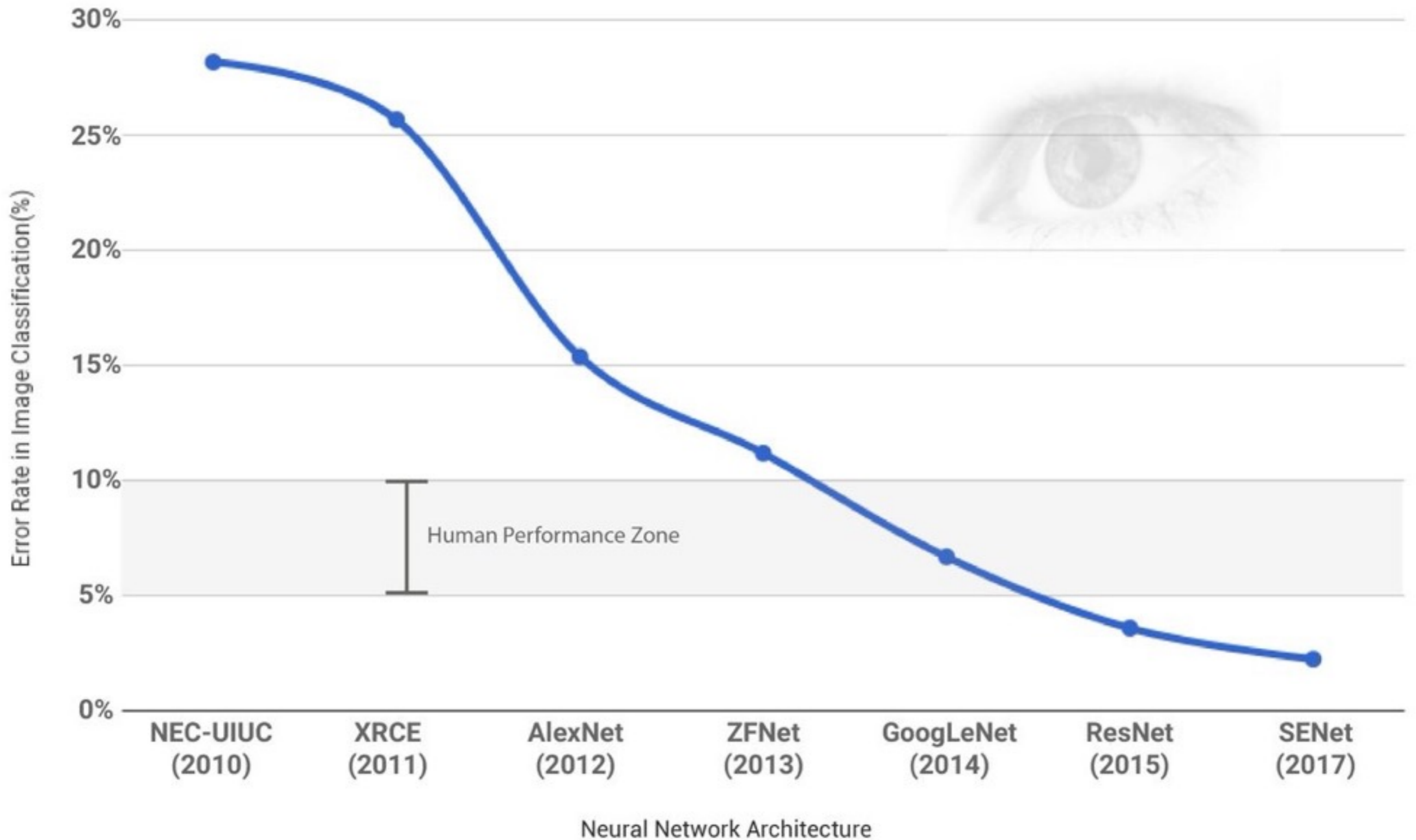
APPLAUSE DR3 has

3,508,339,749

sources



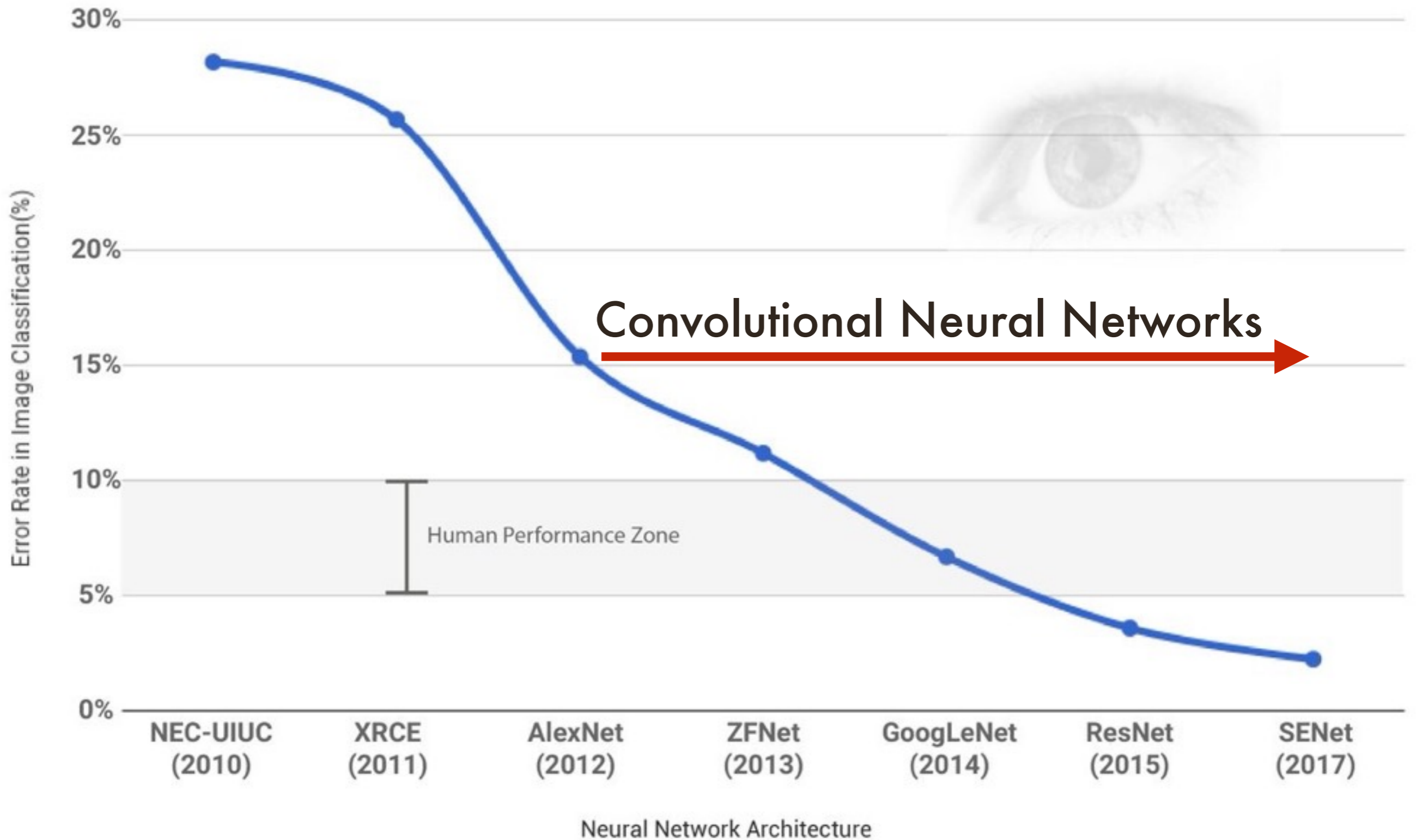
# IMAGENET Large Scale Visual Recognition Challenge



source:

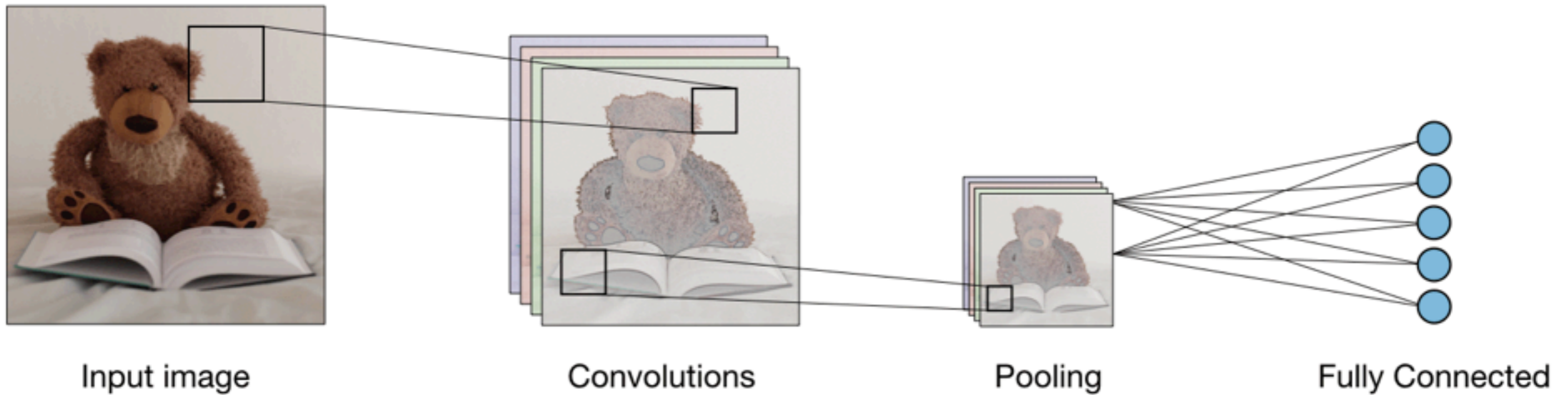


# IMAGENET Large Scale Visual Recognition Challenge

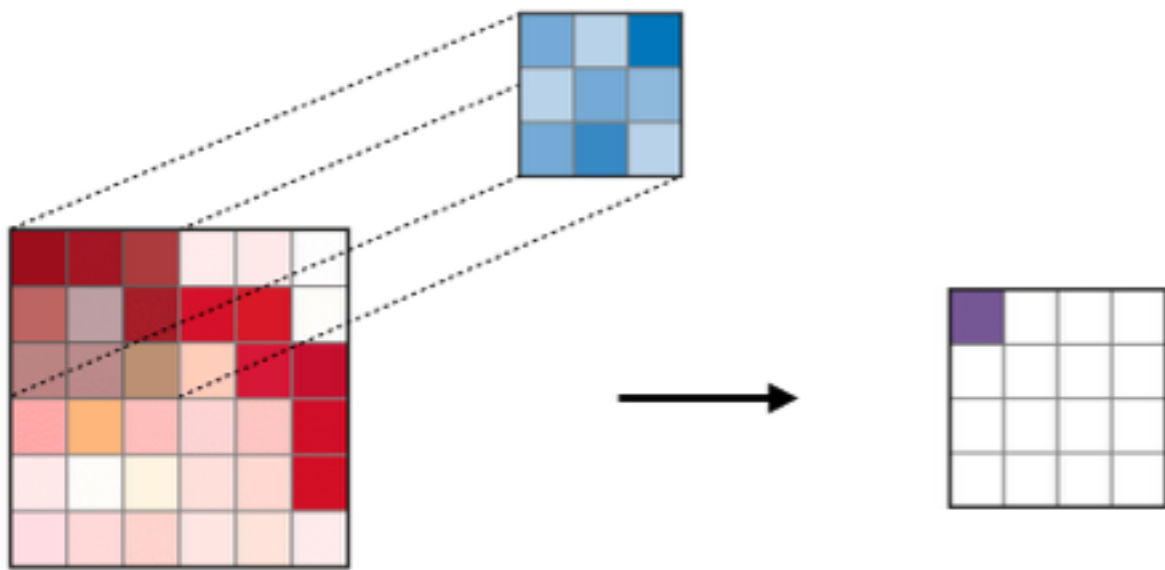


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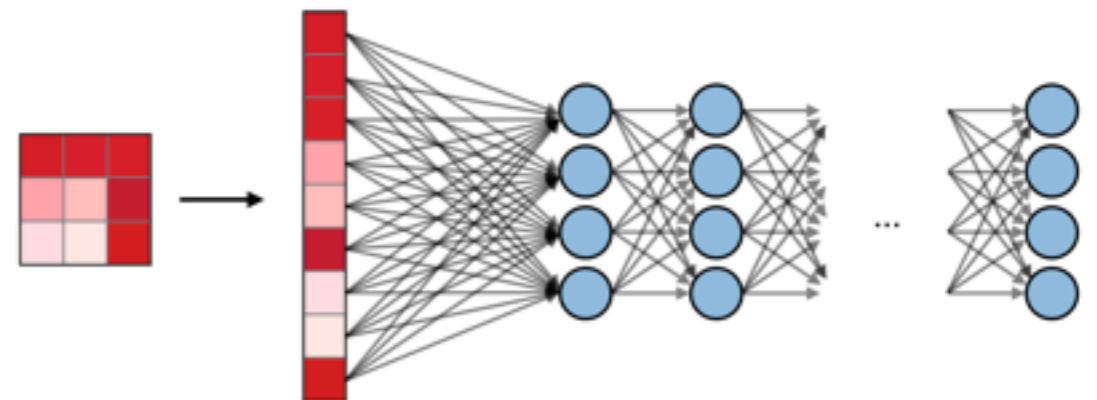
# Convolutional neural network (CNN) architecture



## Convolutional layer



## Fully-connected layers



source:

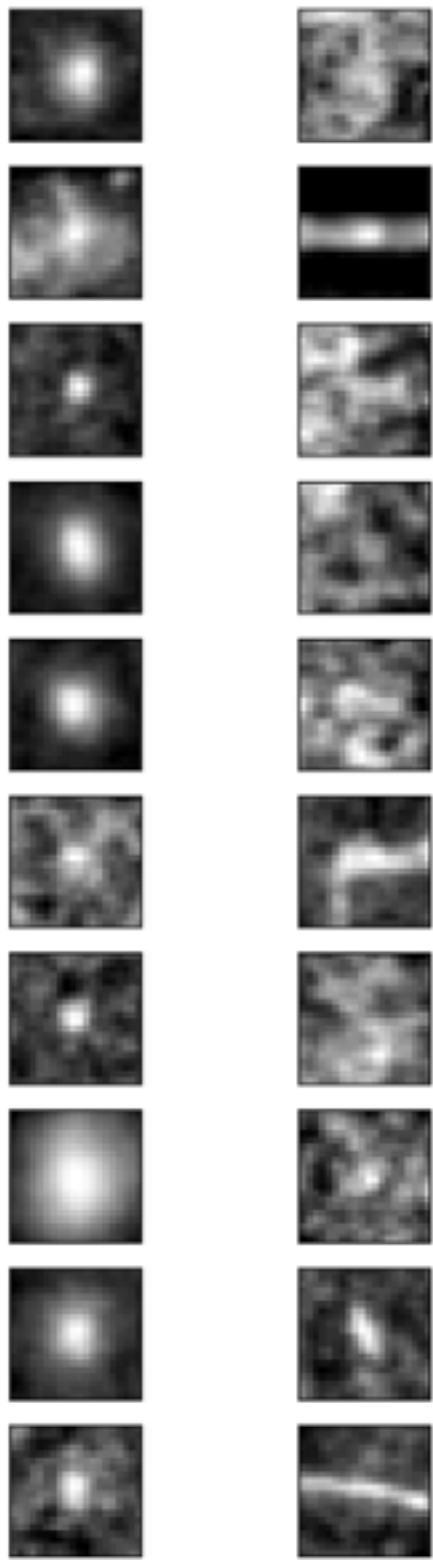


# Training set

(normalized and augmented)

Good=1 Bad=0

20x20 pixel thumbnails

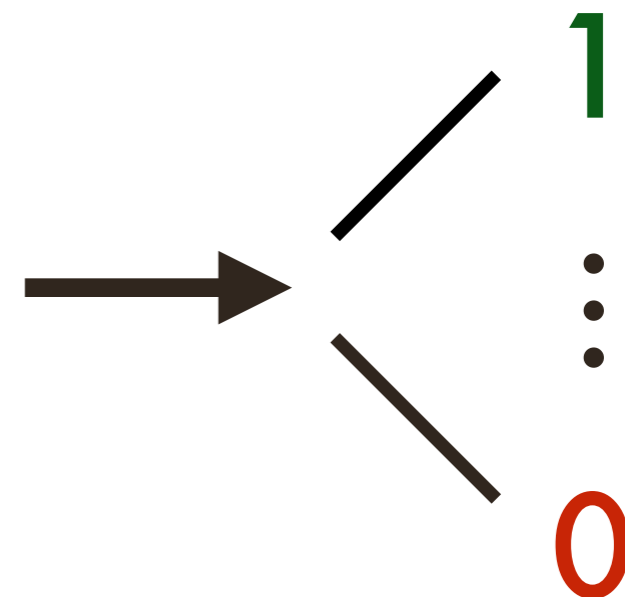
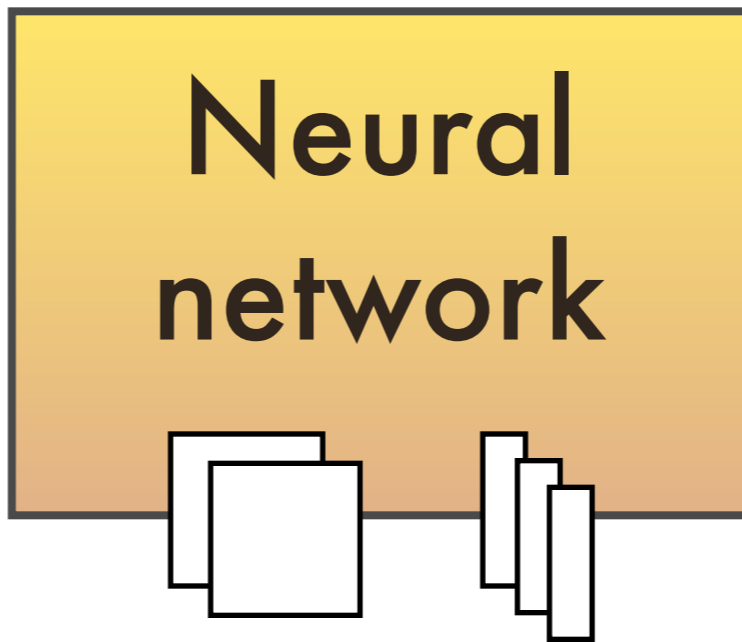


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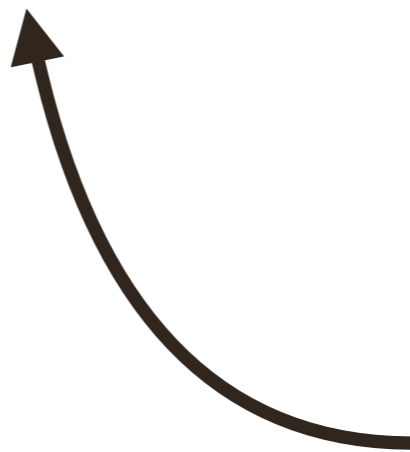
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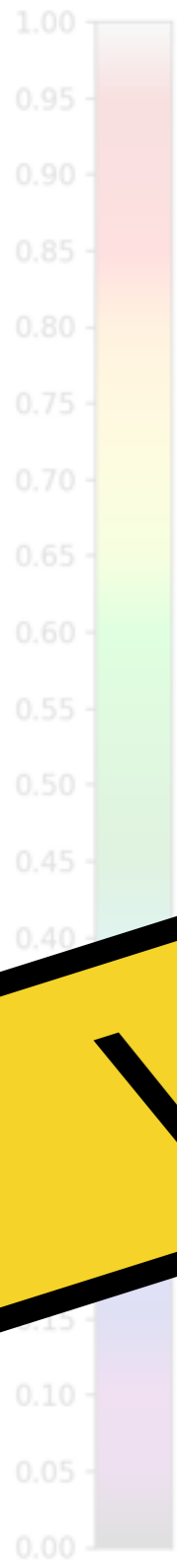
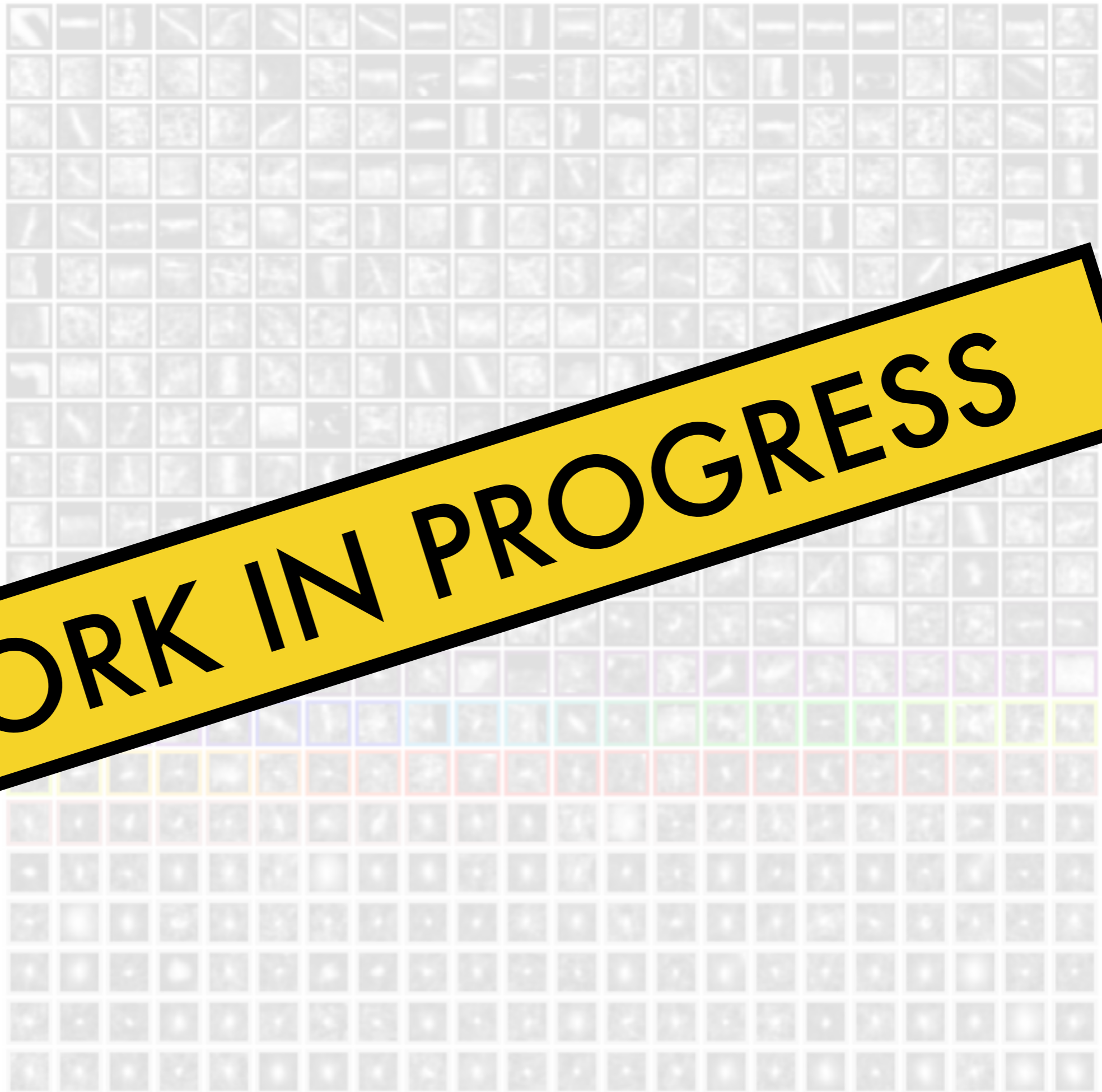
# Training process

2 convolutional layers  
3 fully-connected layers



Cost function

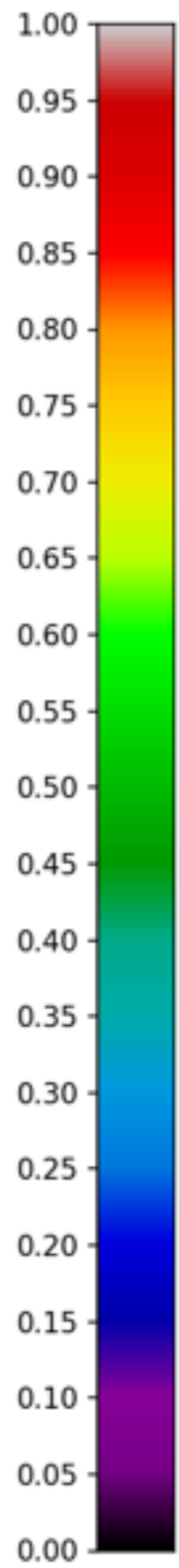




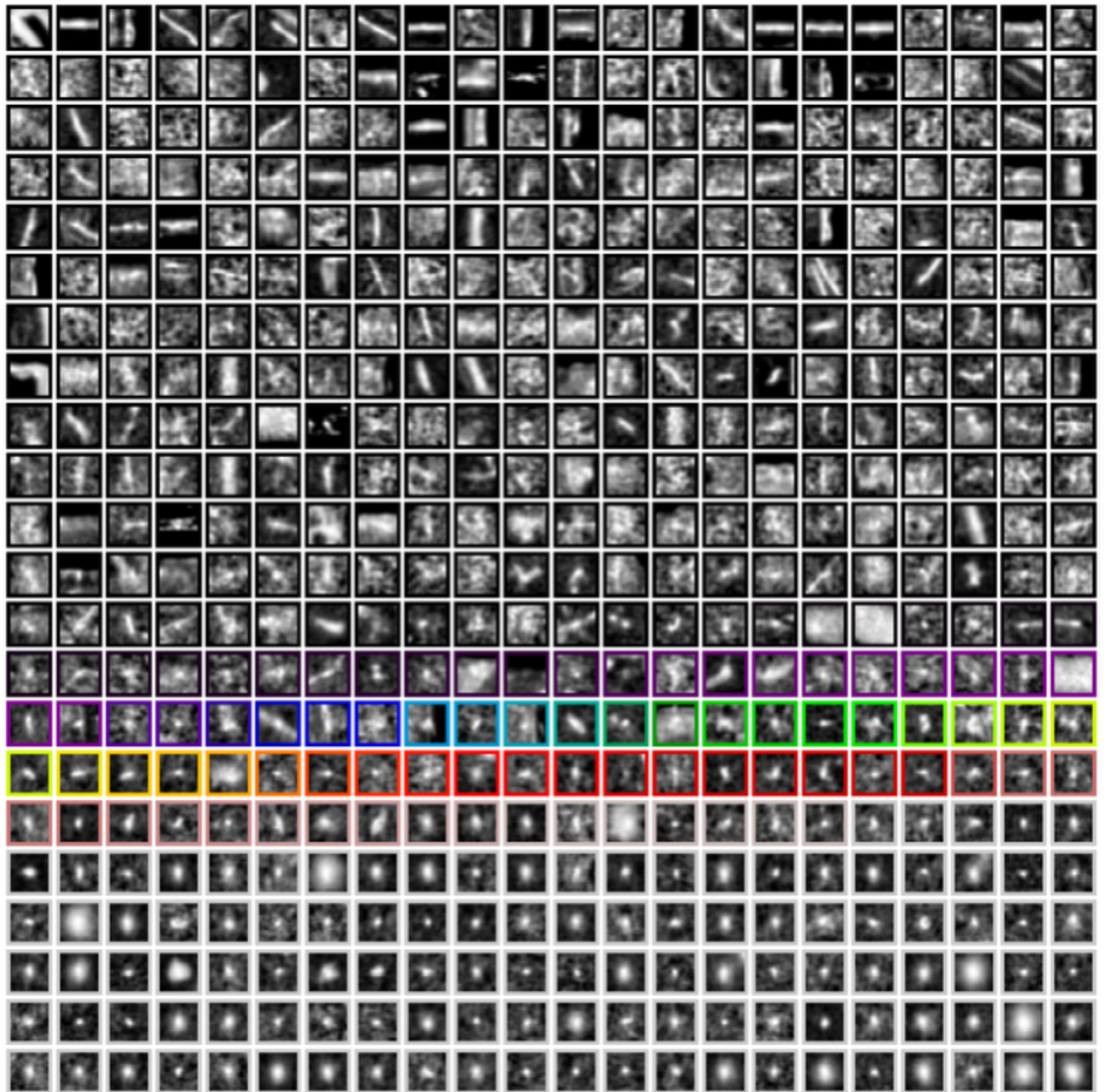
**WORK IN PROGRESS**



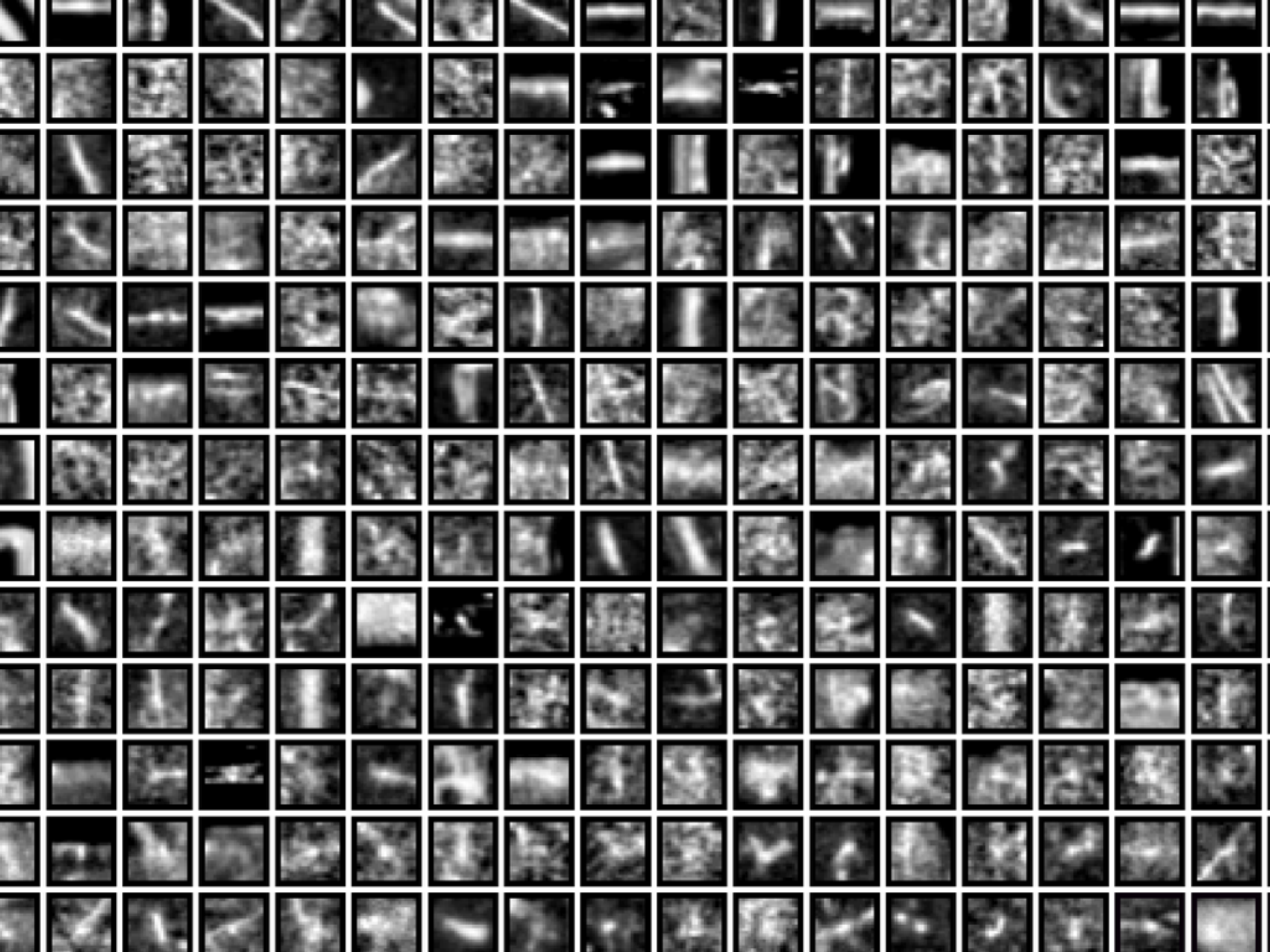
Good=1



Bad=0

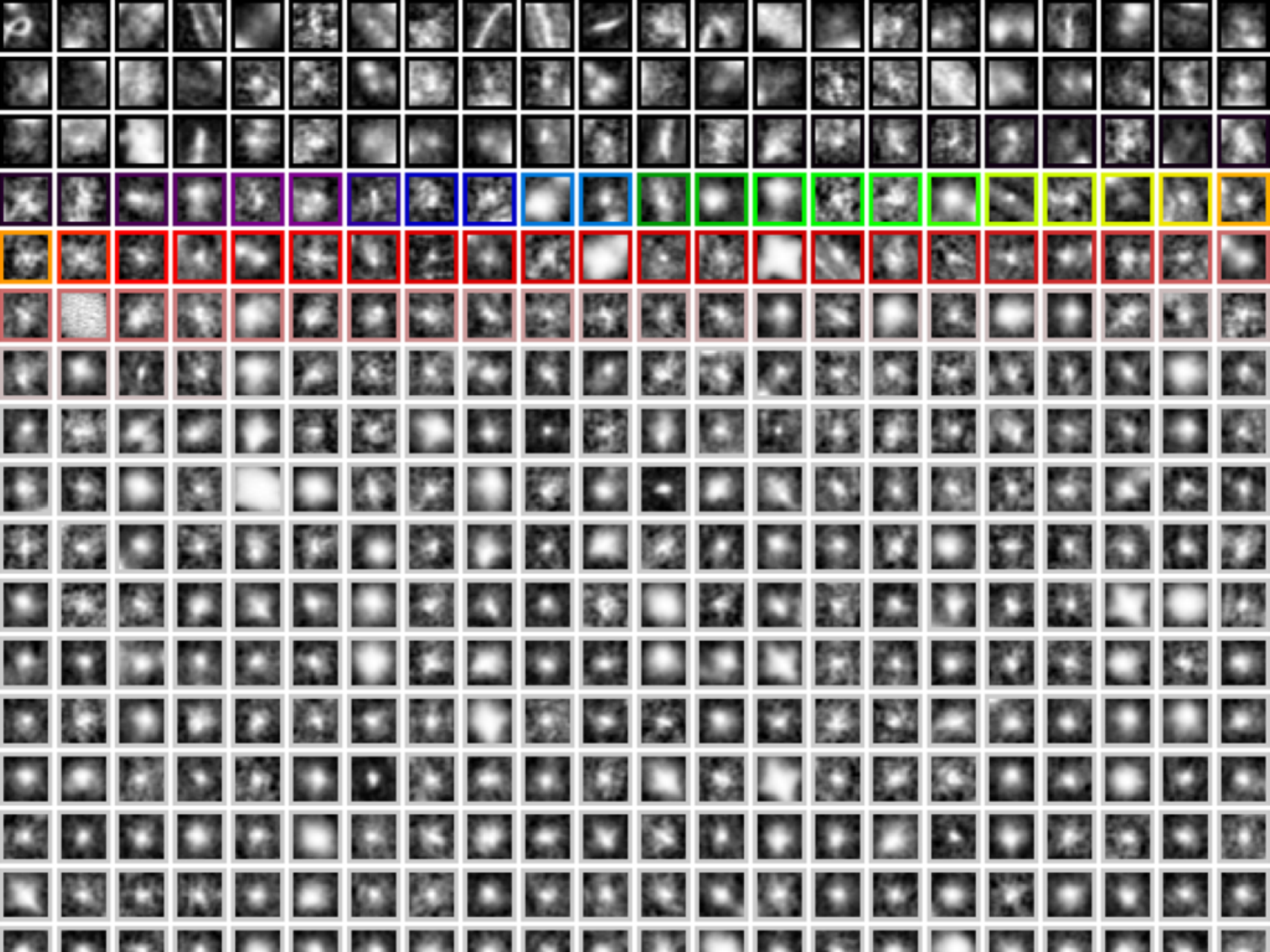




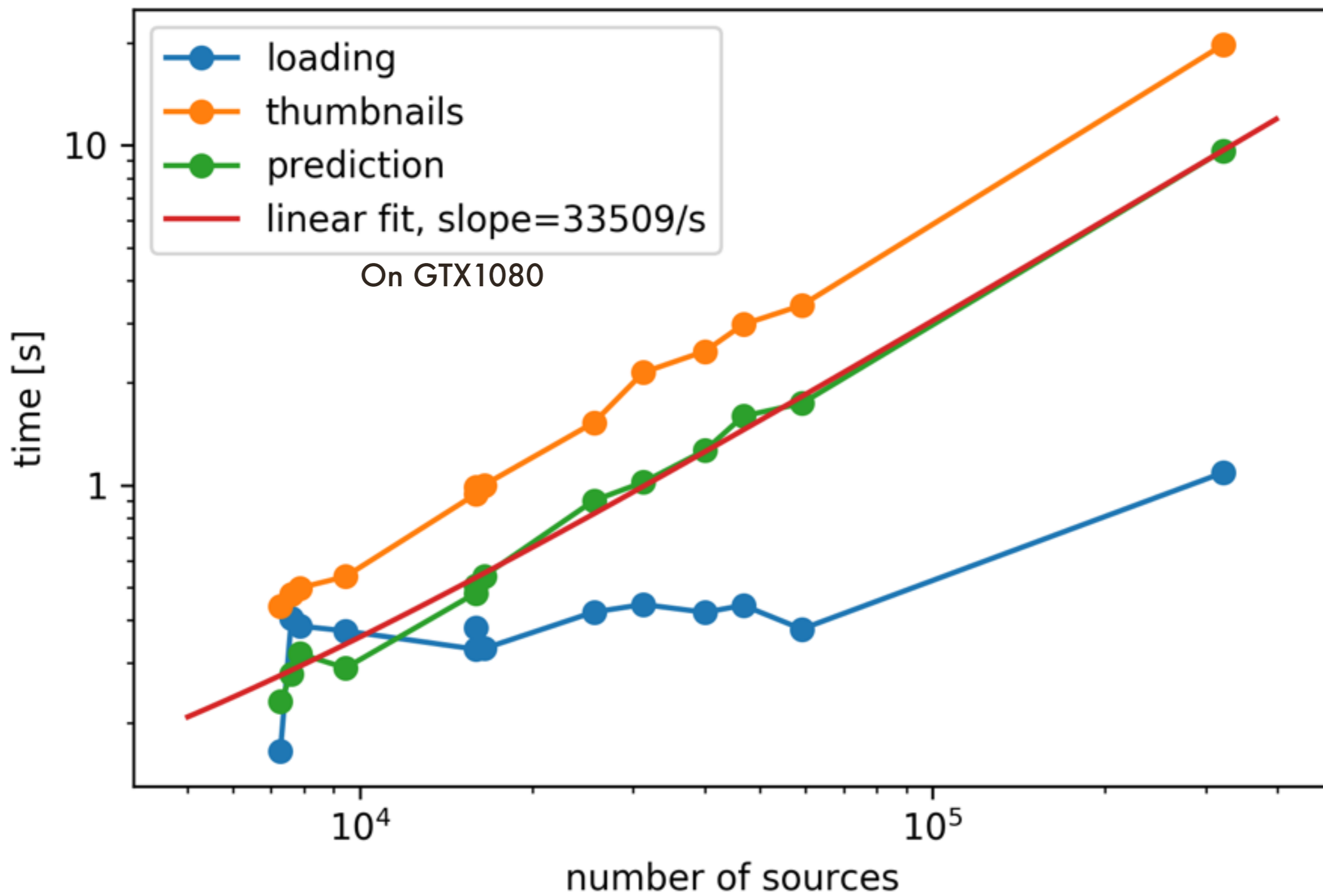




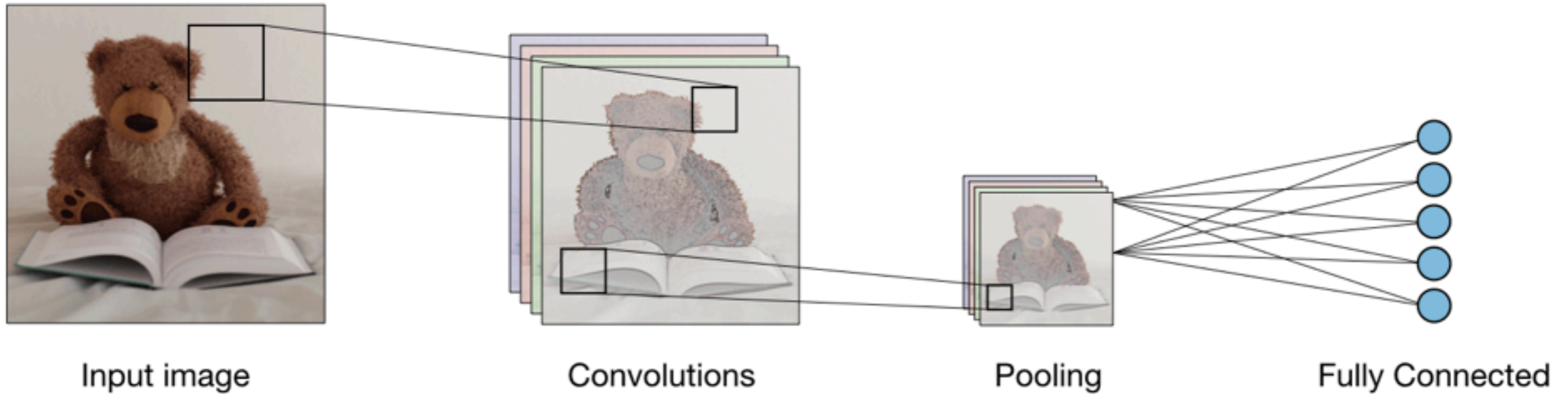




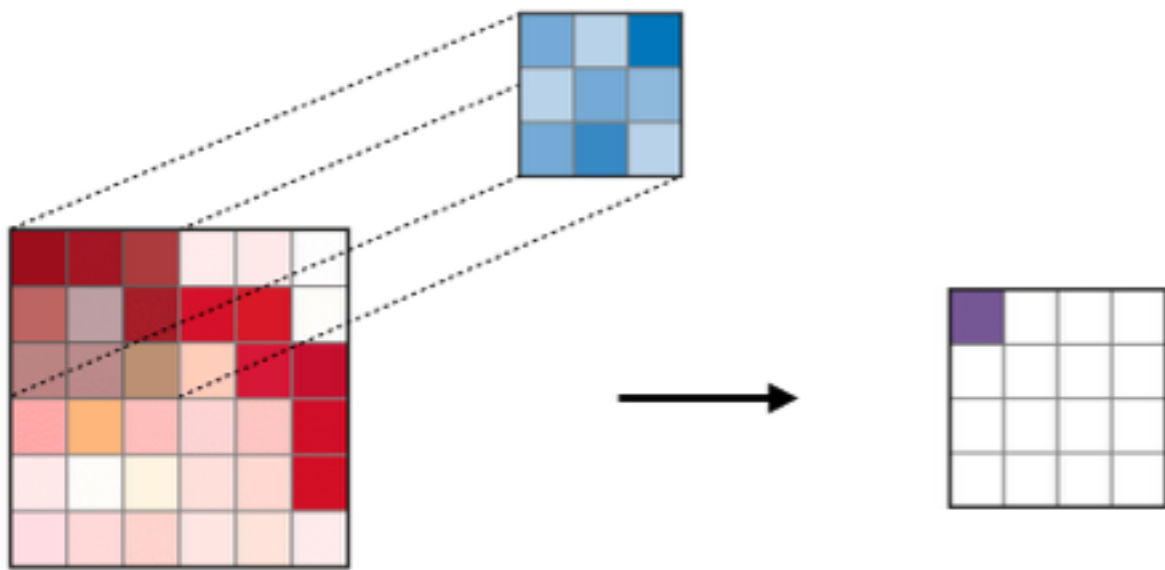




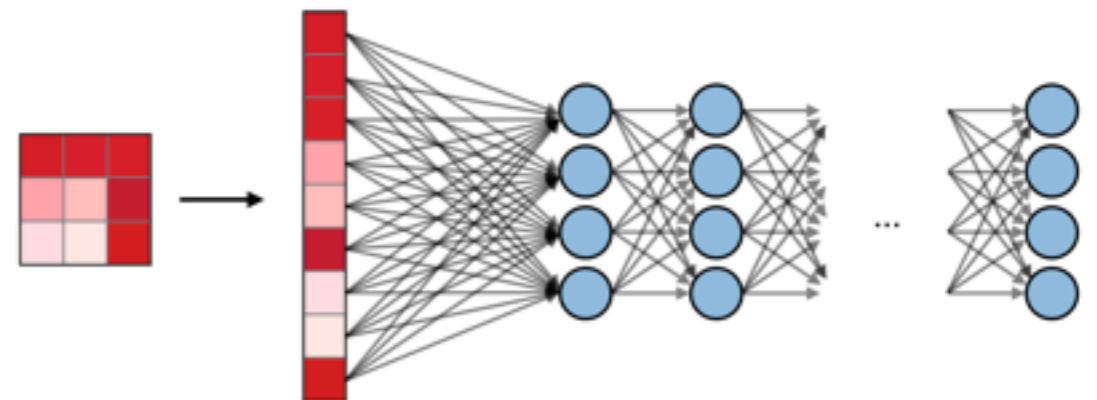
# Convolutional neural network (CNN) architecture



## Convolutional layer

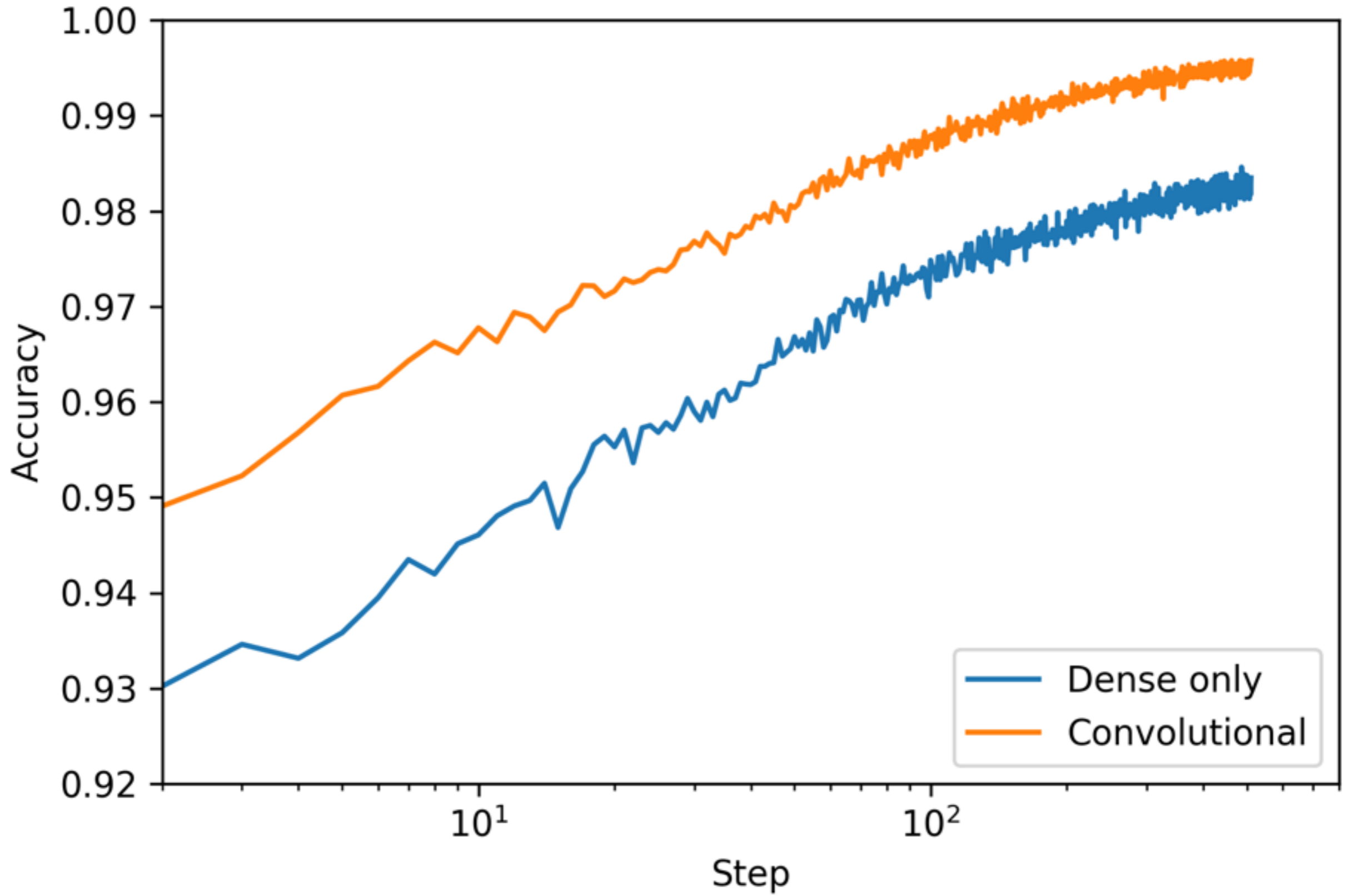


## Fully-connected layers

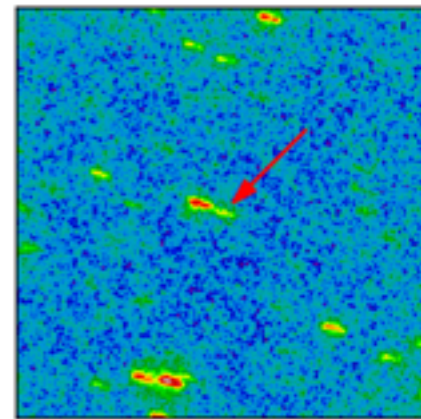
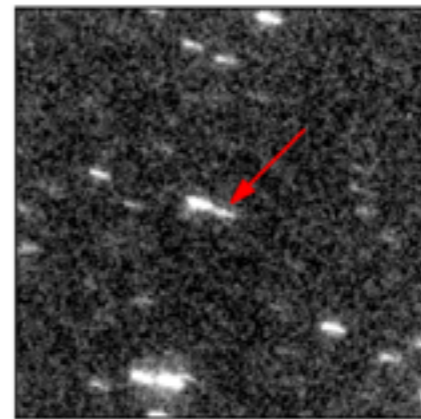
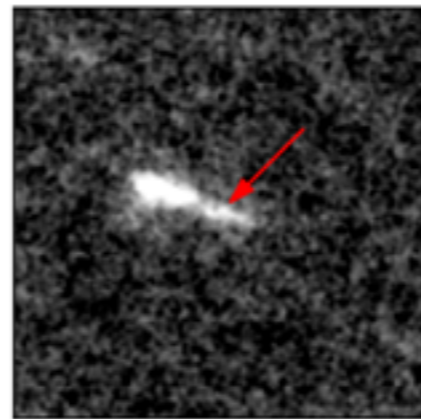
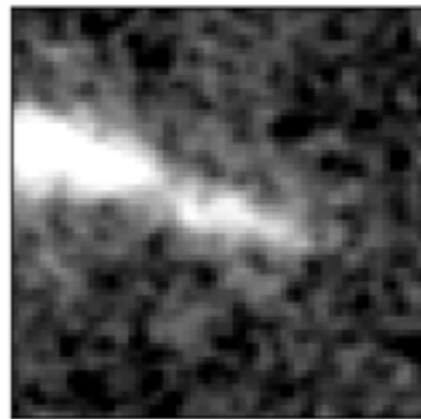
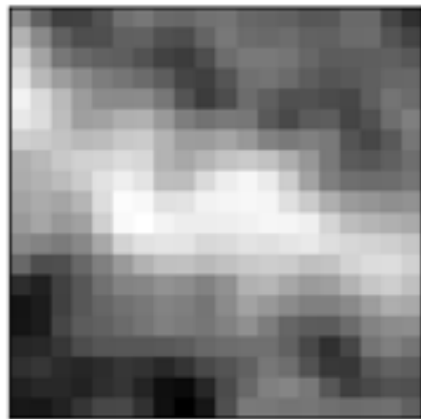


source:

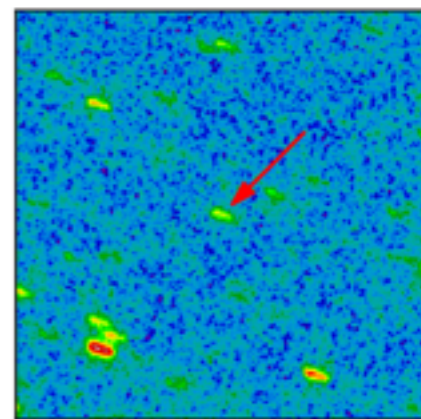
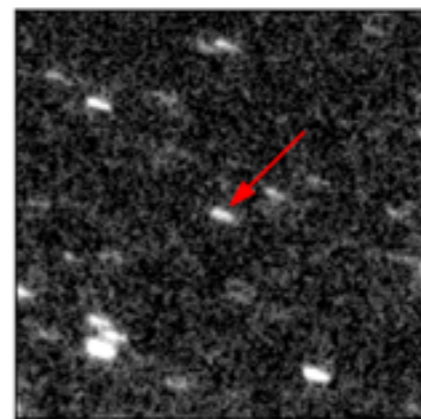
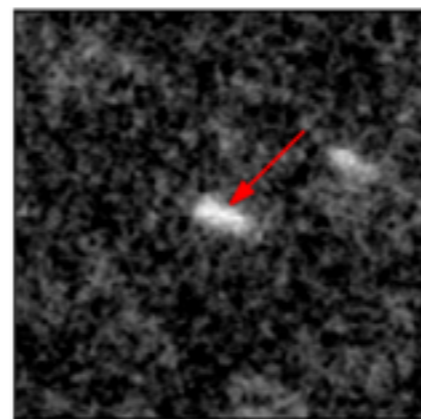
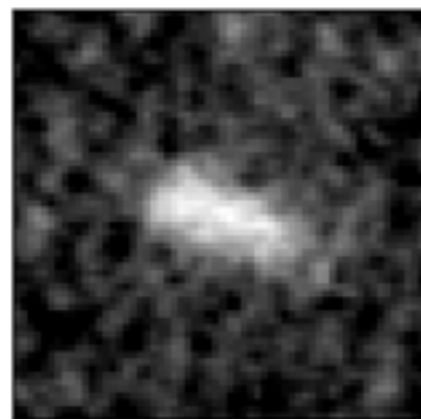
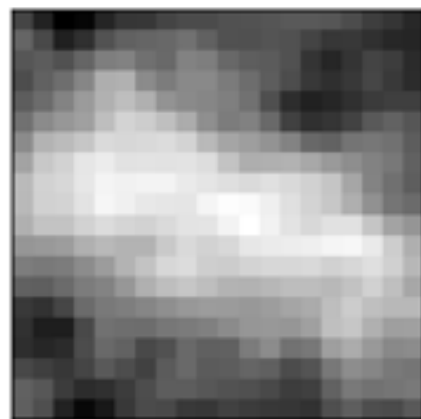




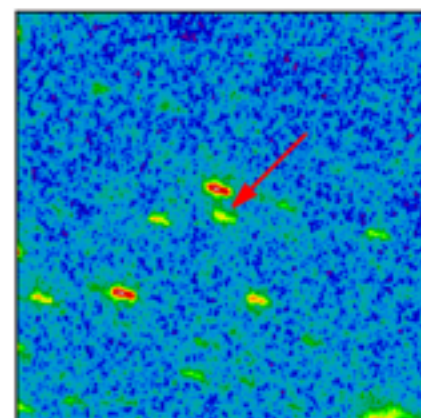
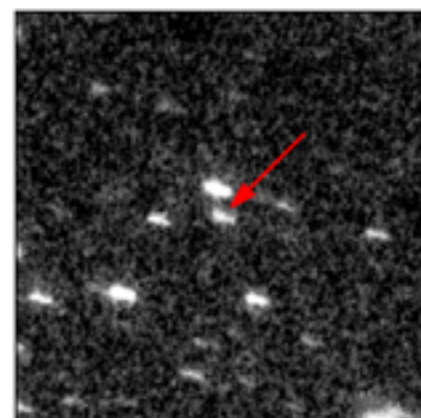
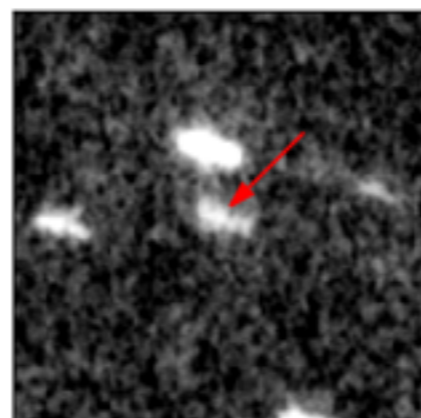
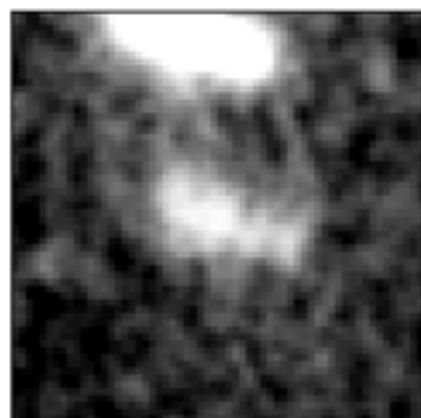
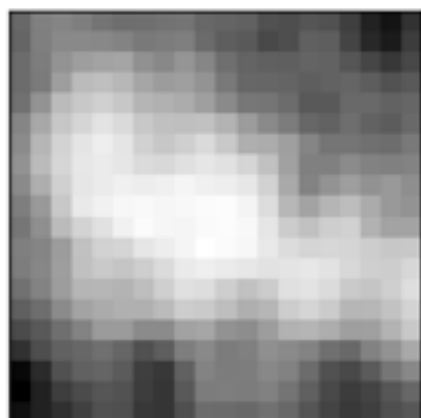
$p=0.001$



$p=0.51$

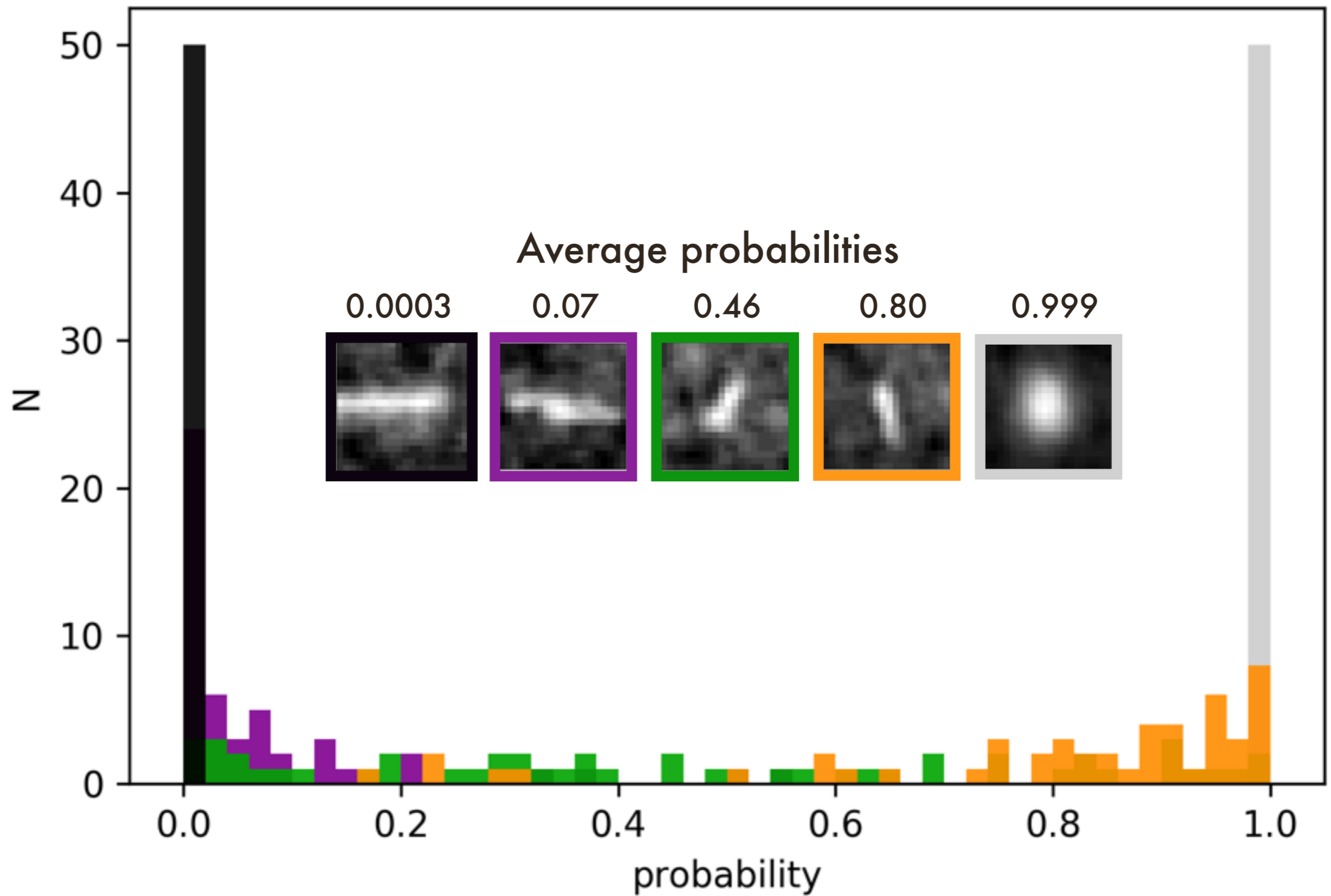


$p=0.999$





# 50 CNNs



$T_{eff}$

$T_{eff}$

$T_{eff}$

$T_{eff}$

$T_{eff}$

$T_{eff}$

$T_{eff}$

$T_{eff}$

$T_{eff}$

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