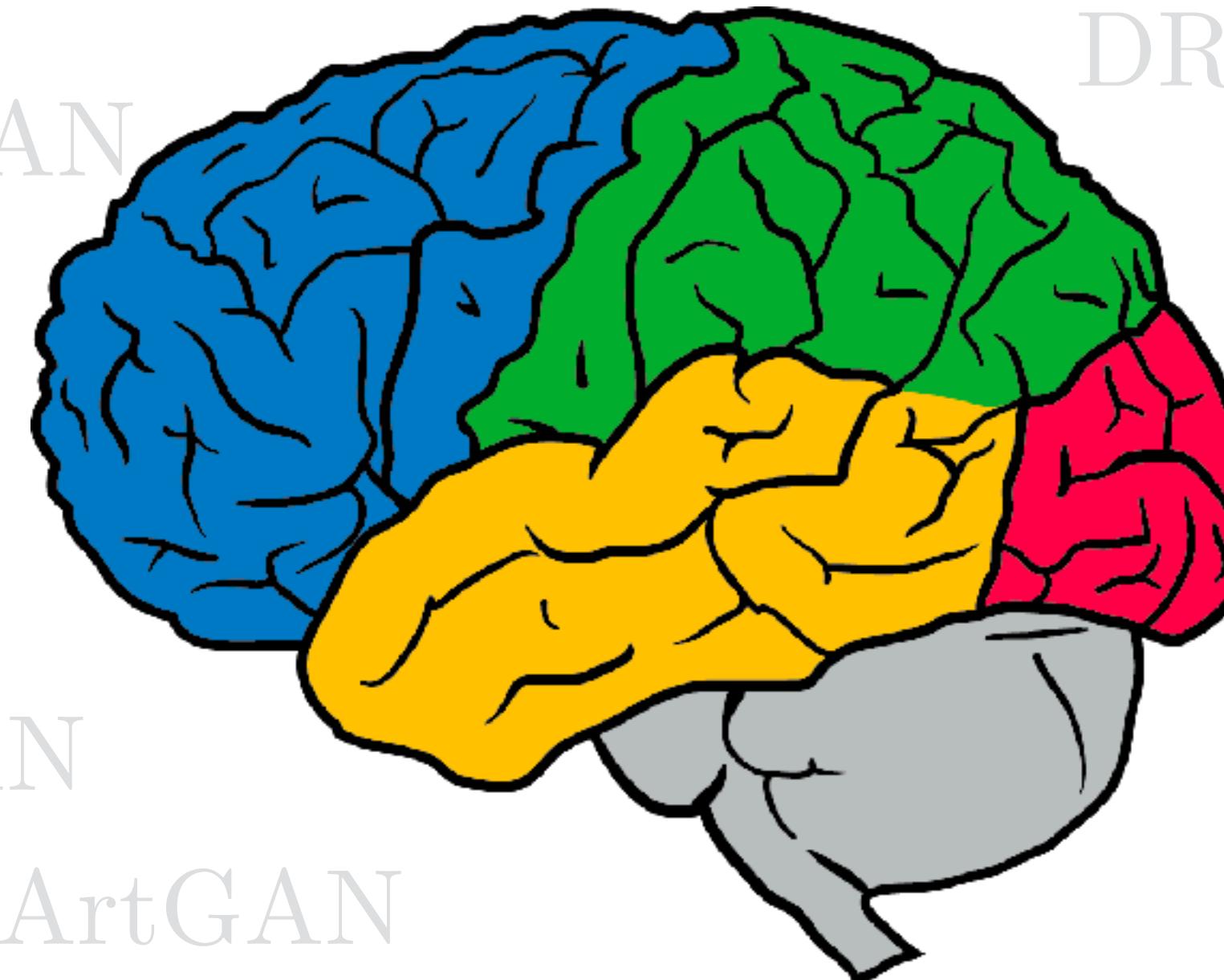


Introduction to GANs

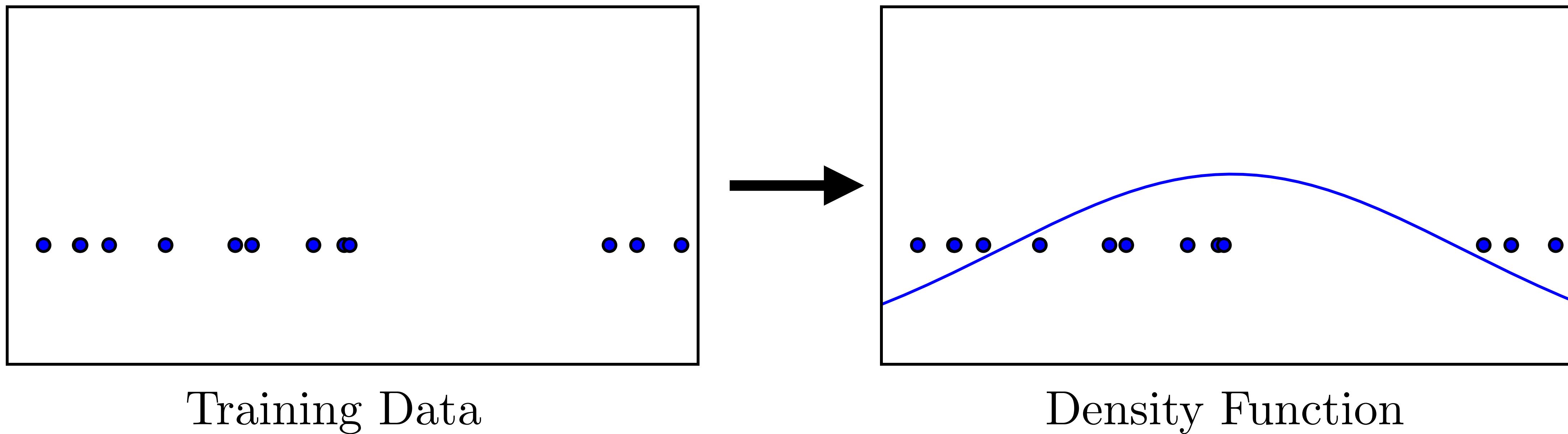
Ian Goodfellow, Staff Research Scientist, Google Brain

CVPR Tutorial on GANs

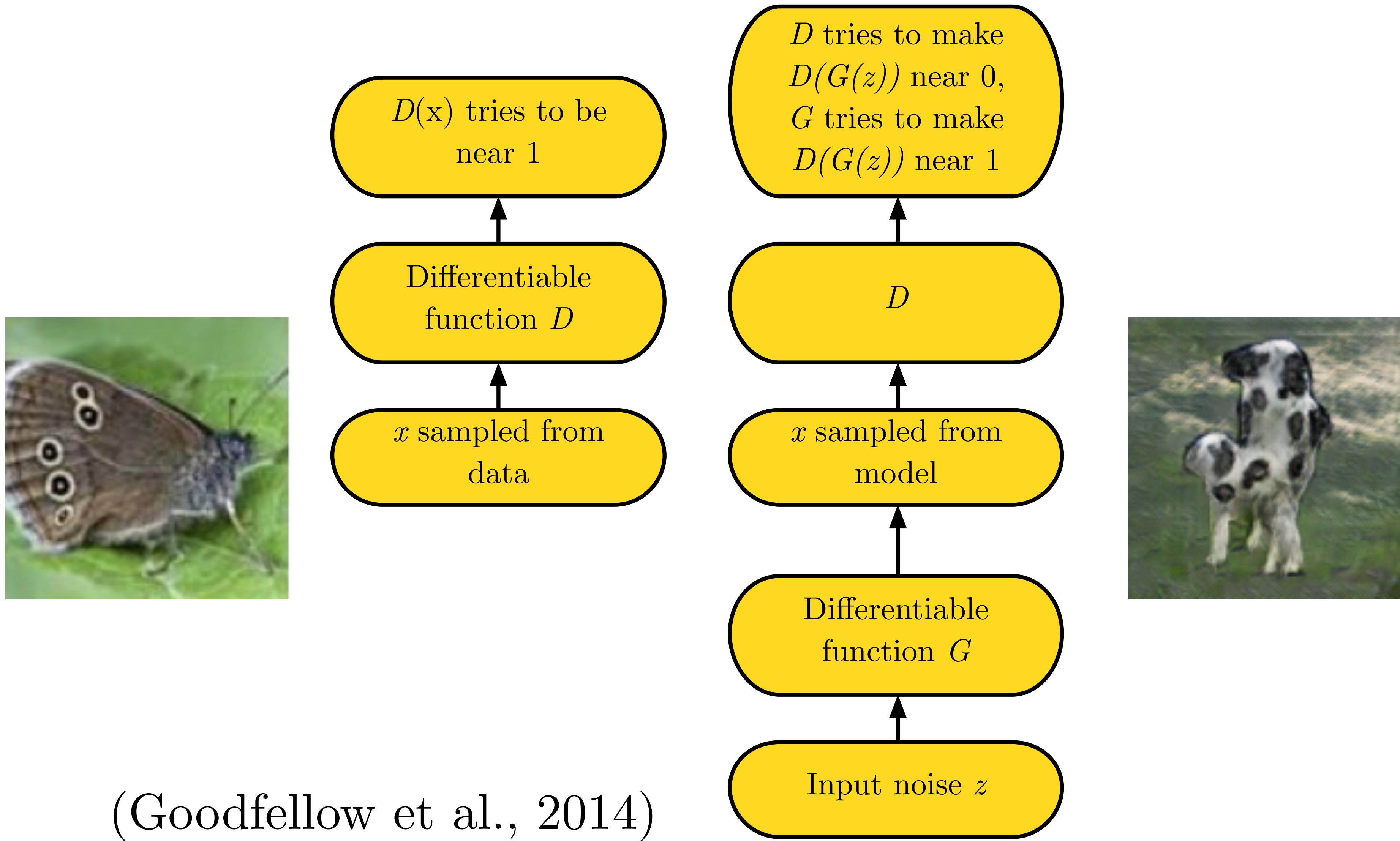
Salt Lake City, 2018-06-22



Generative Modeling: Density Estimation



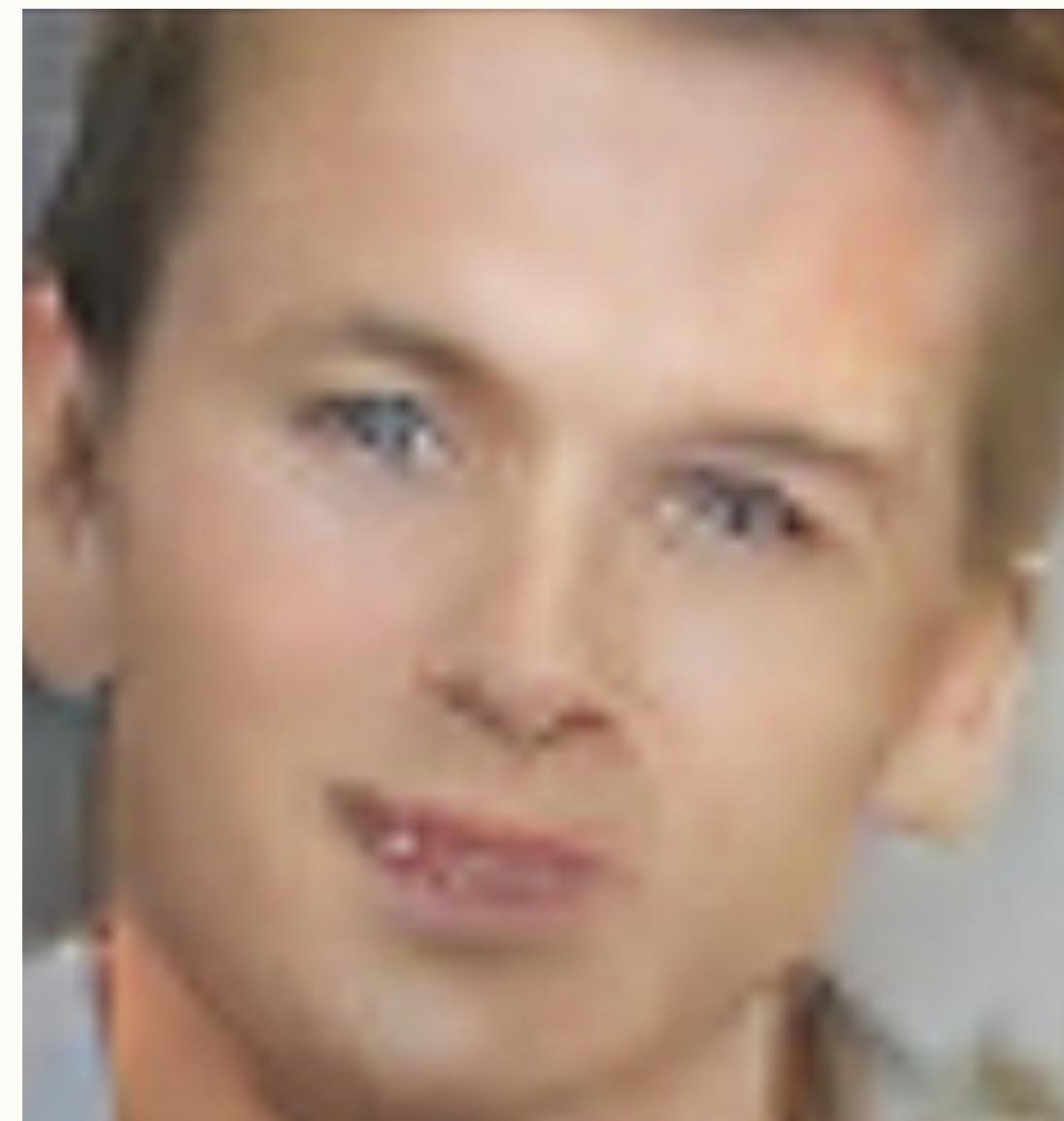
Adversarial Nets Framework



3.5 Years of Progress on Faces



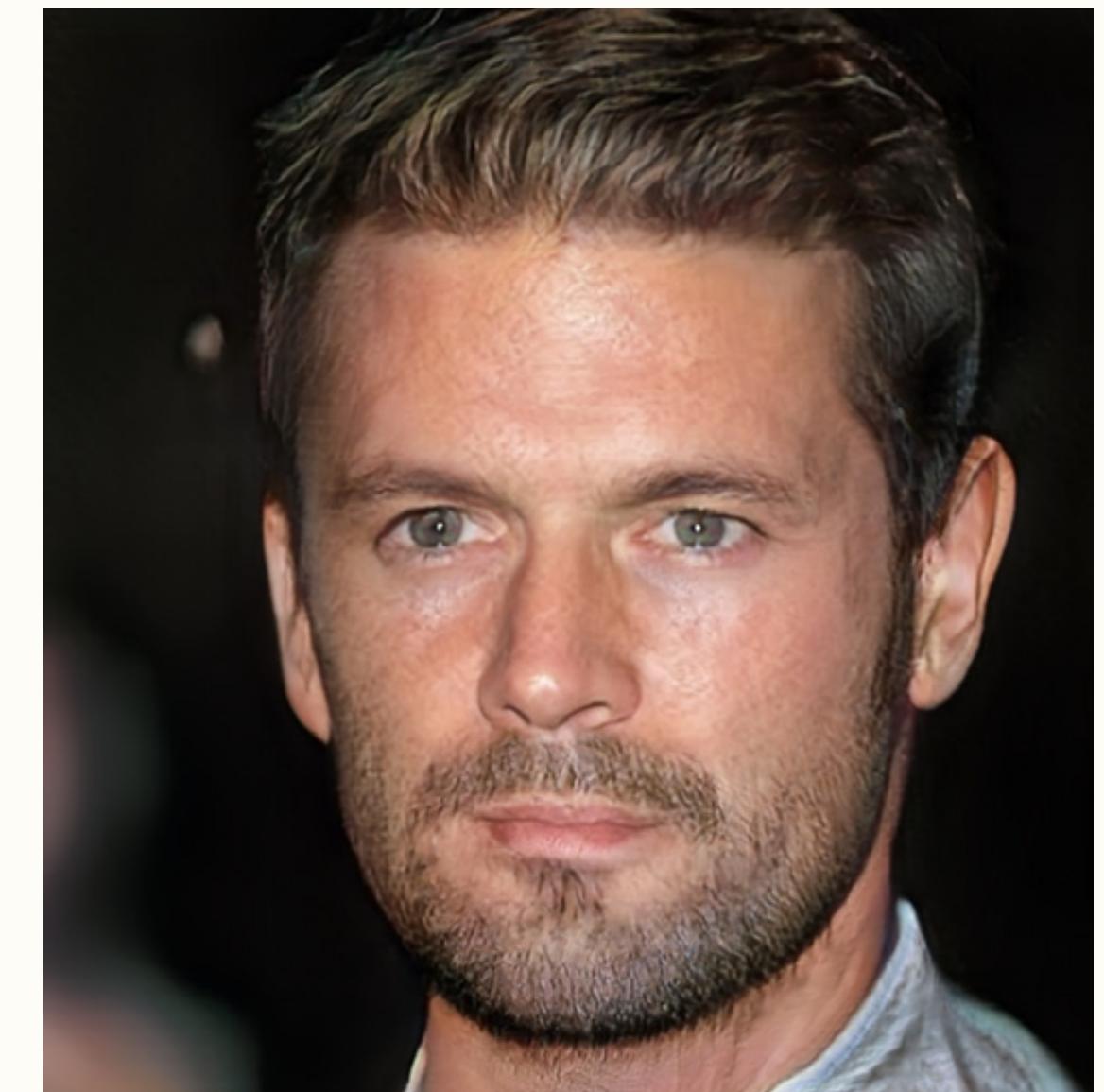
2014



2015



2016

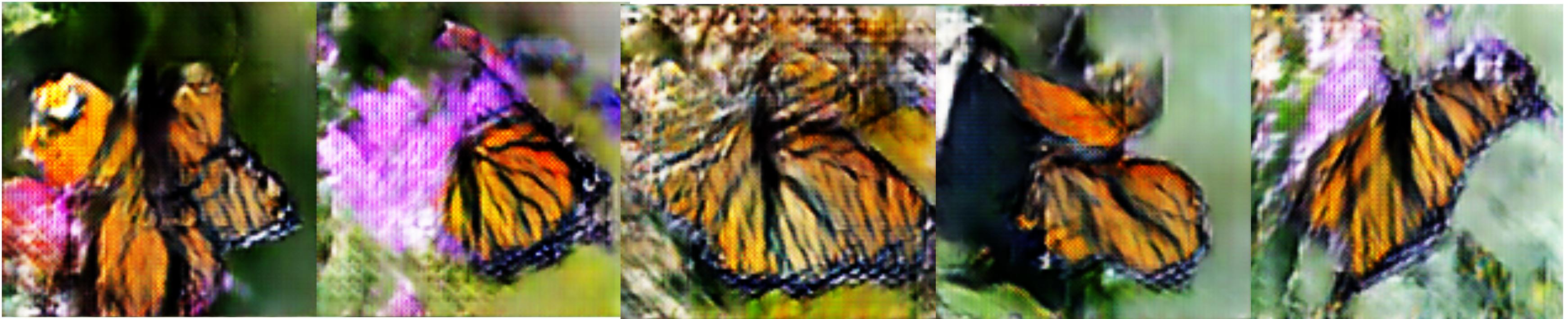


2017

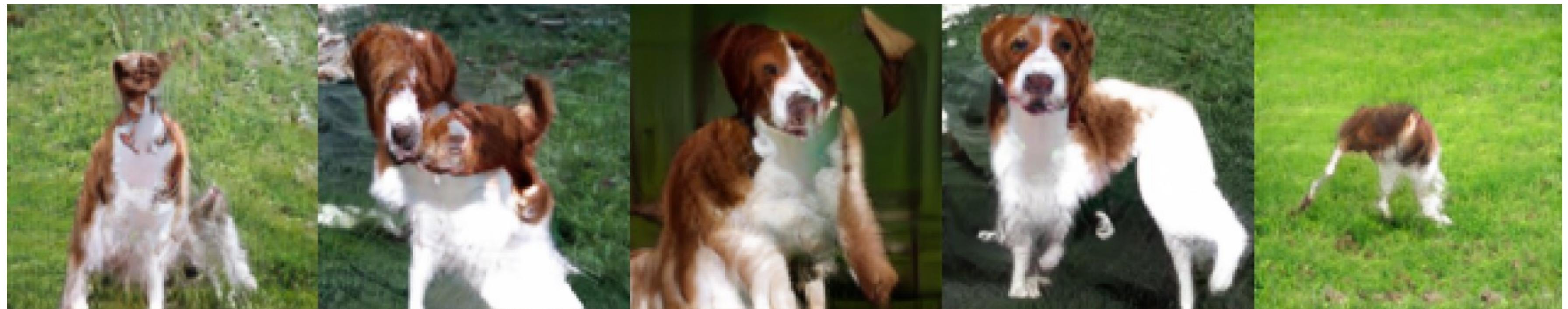
(Brundage et al, 2018)

<2 Years of Progress on ImageNet

Odena et al
2016



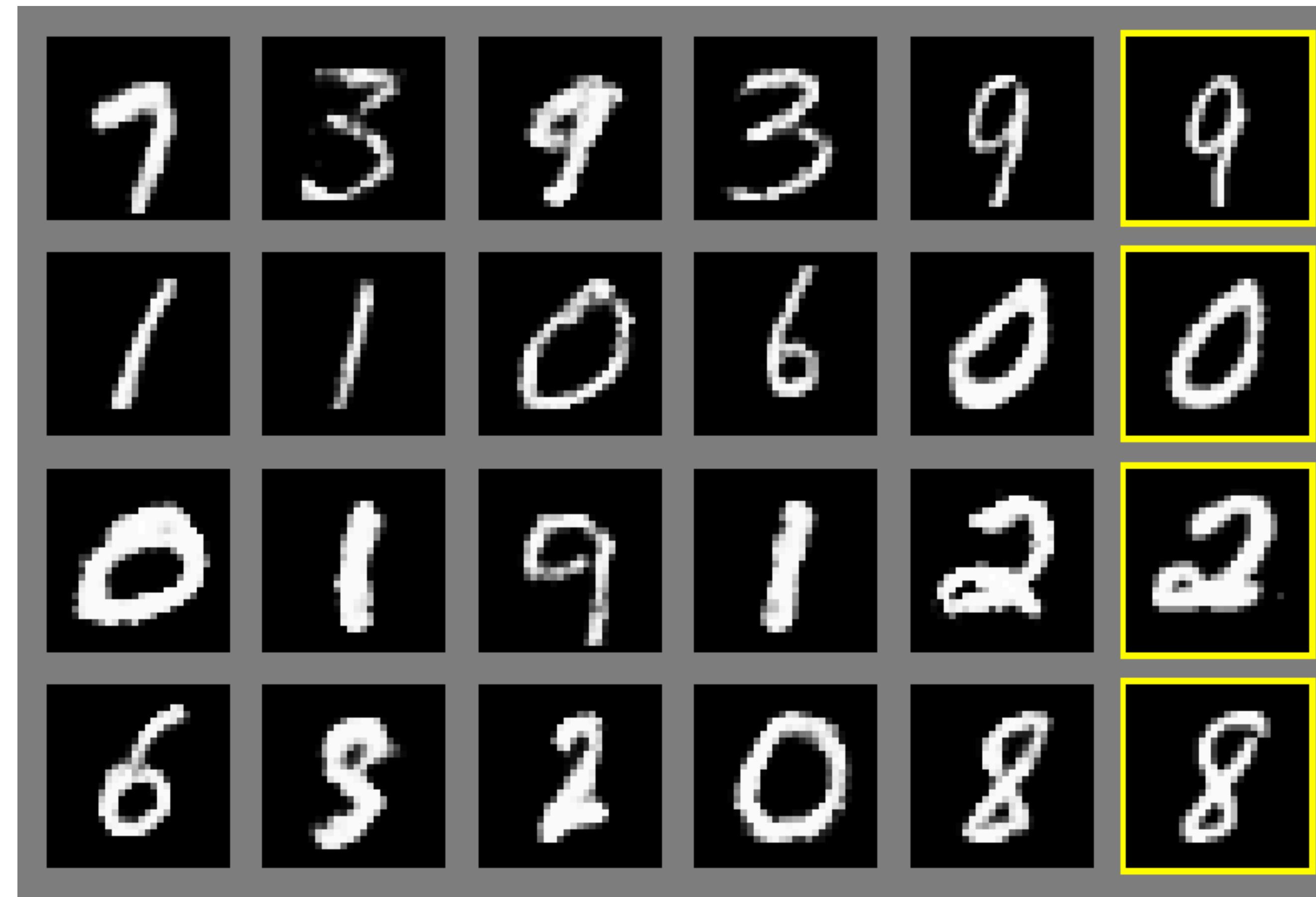
Miyato et al
2017



Zhang et al
2018



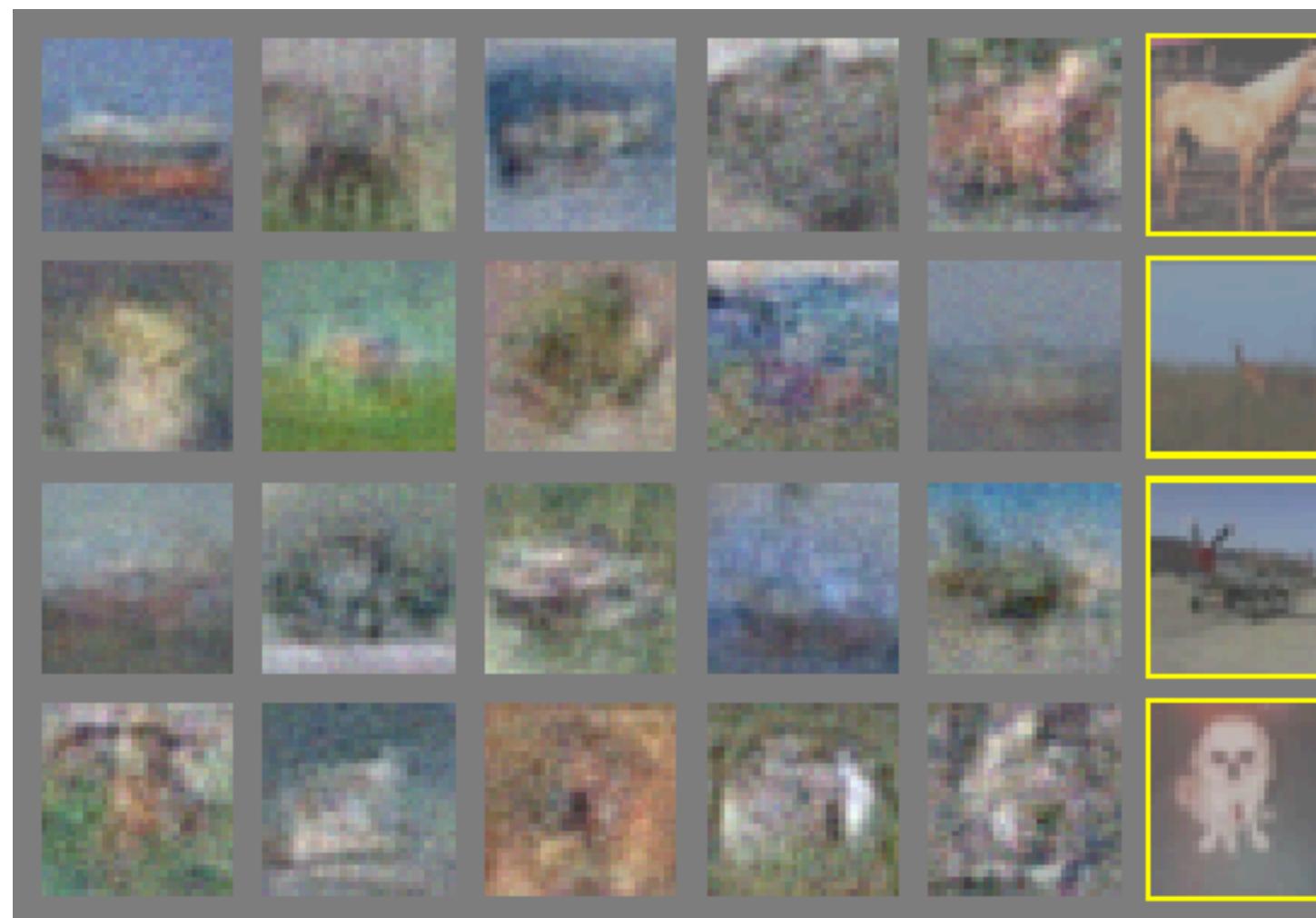
No Convolution Needed to Solve Simple Tasks



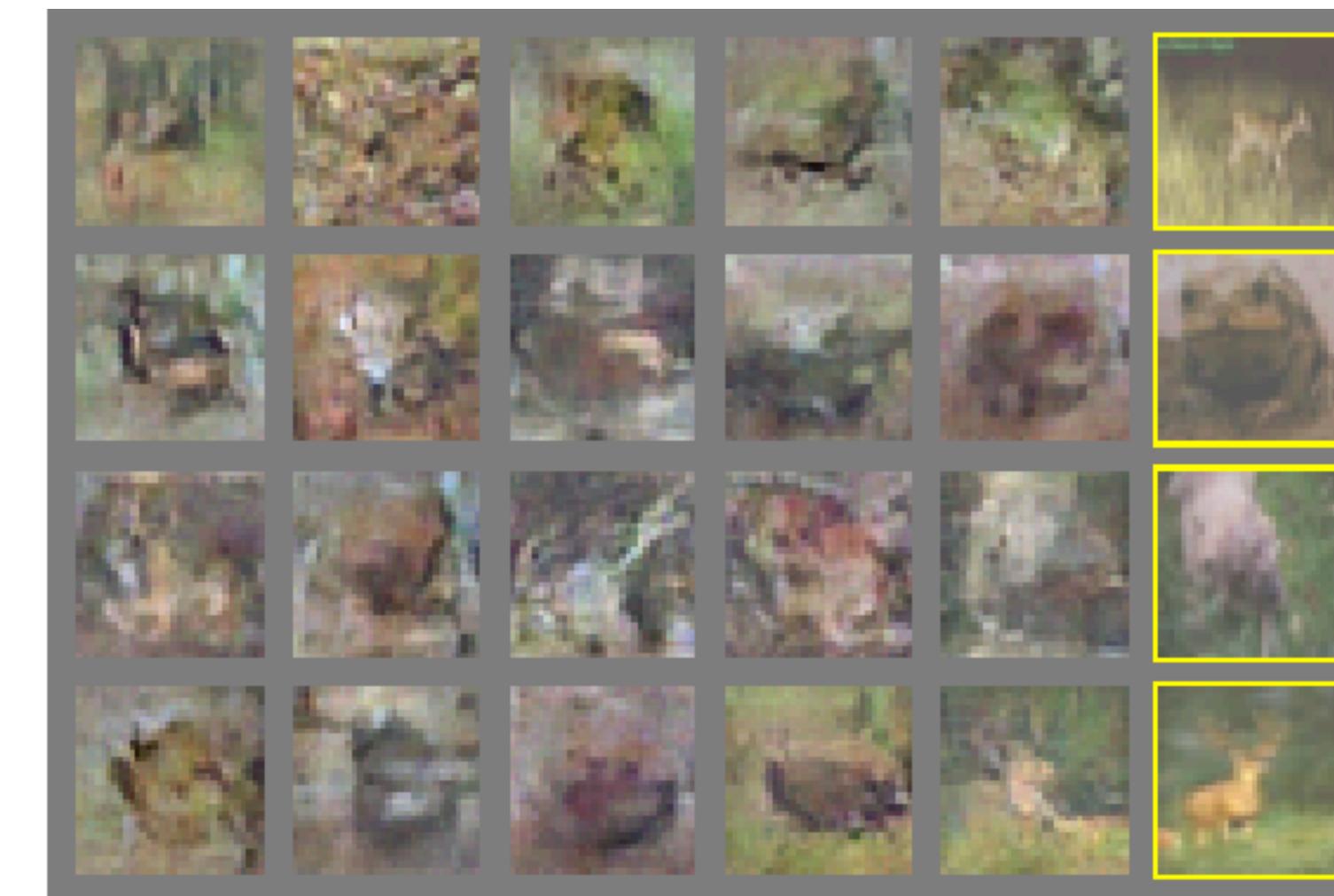
Original GAN, 2014

Depth and Convolution for Harder Tasks

Original GAN (CIFAR-10)



No convolution



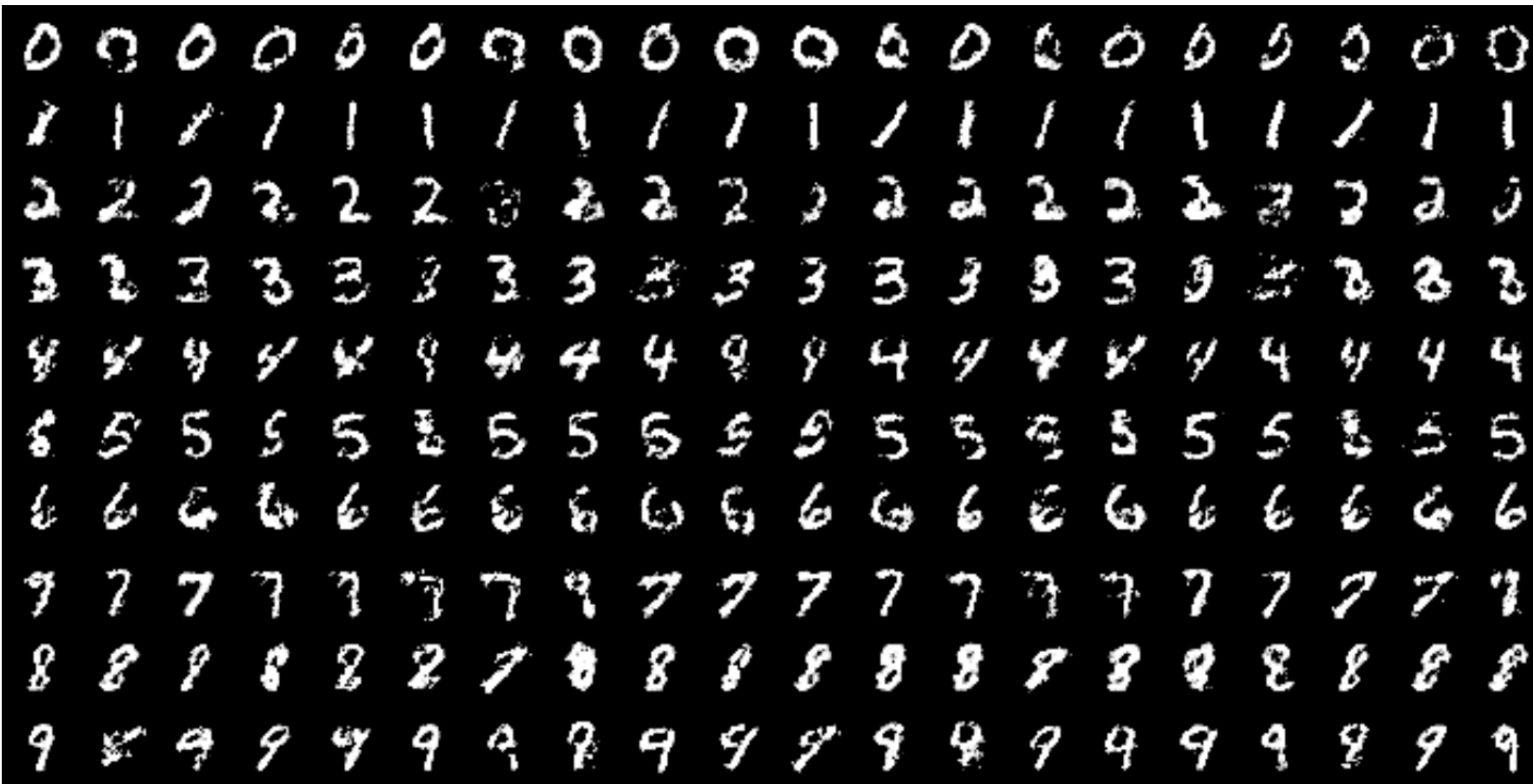
One convolutional layer

DCGAN (ImageNet)



Many convolutional layers
(Radford et al, 2015)

Class-Conditional GANs



(Mirza and Osindero, 2014)