

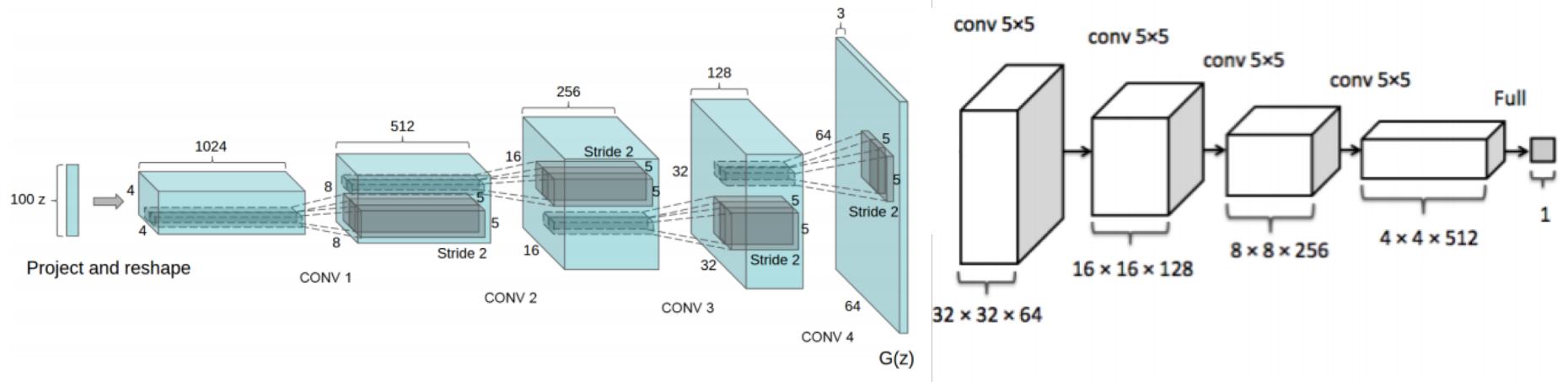


# Generative Adversarial Networks (GANs)

Javier Montoya ([montoya@ethz.ch](mailto:montoya@ethz.ch))

Arequipa, 9<sup>th</sup> January 2019

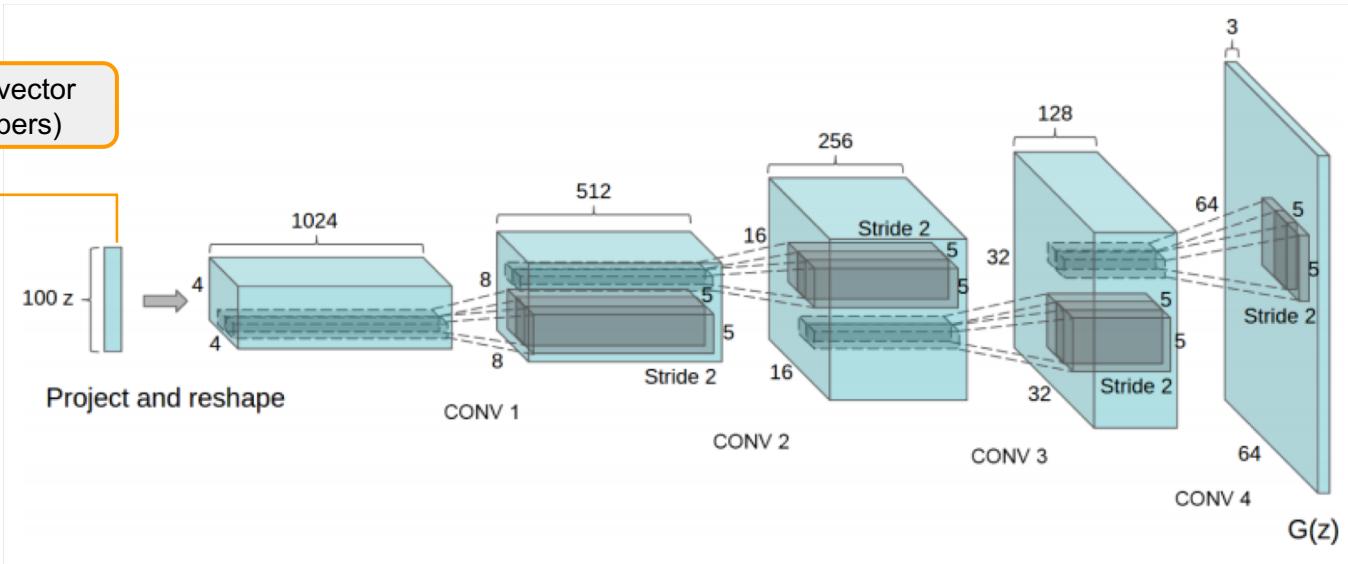
# DCGAN



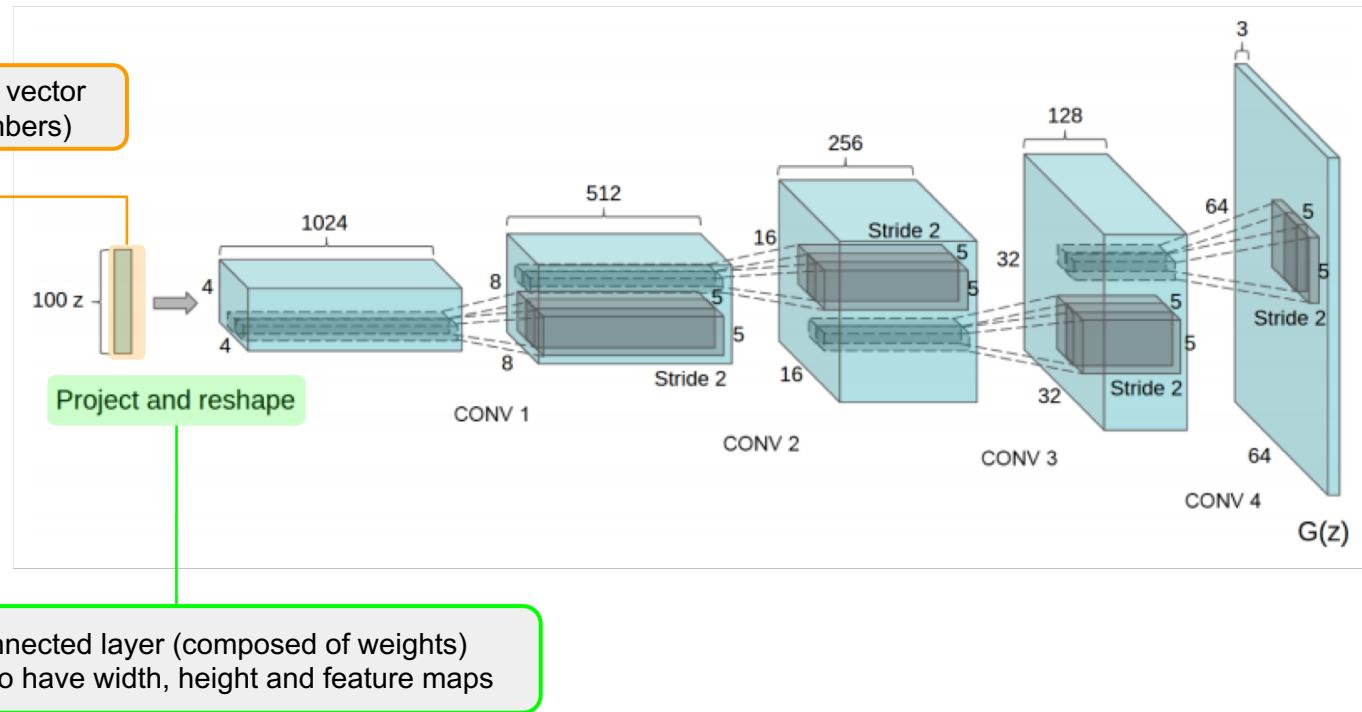
Let's explore some of the interesting architecture aspects of this architecture

# DCGAN (Generator)

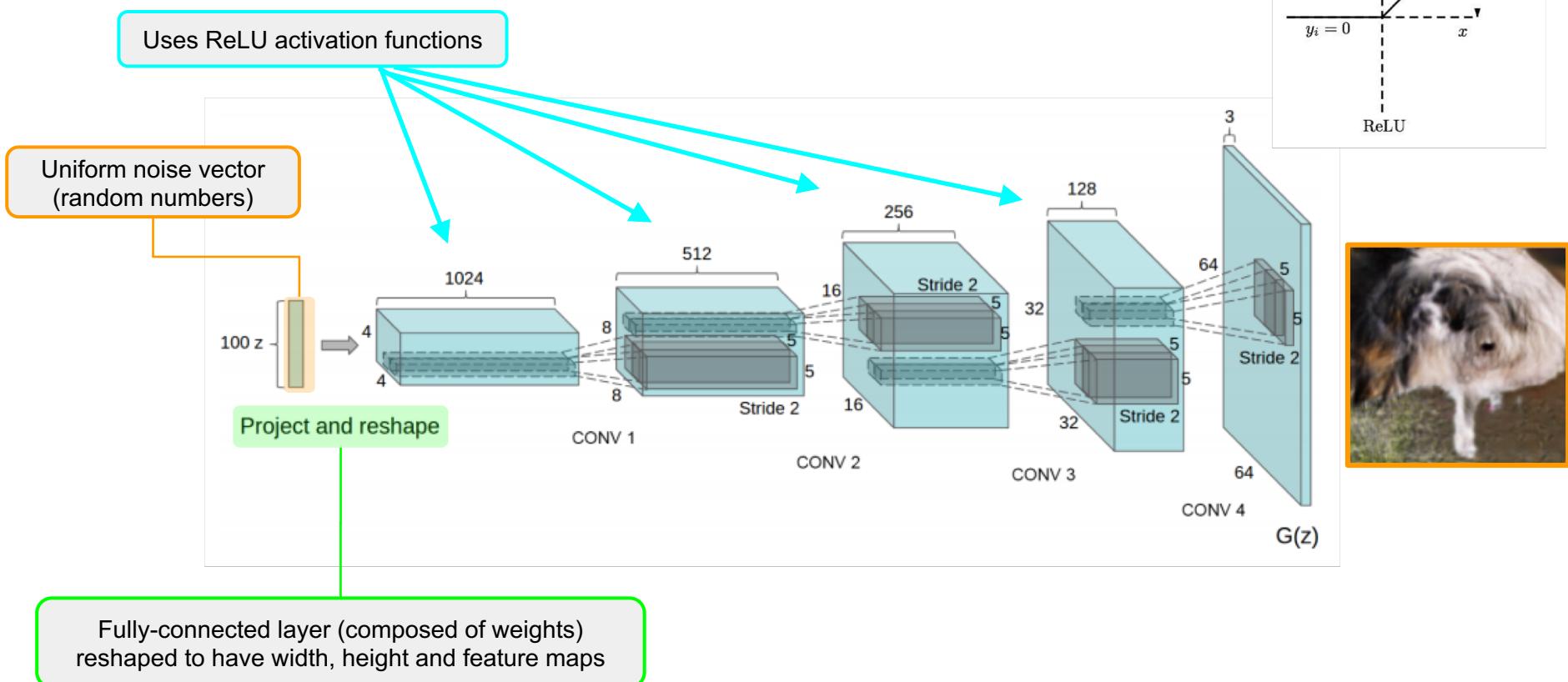
Uniform noise vector  
(random numbers)



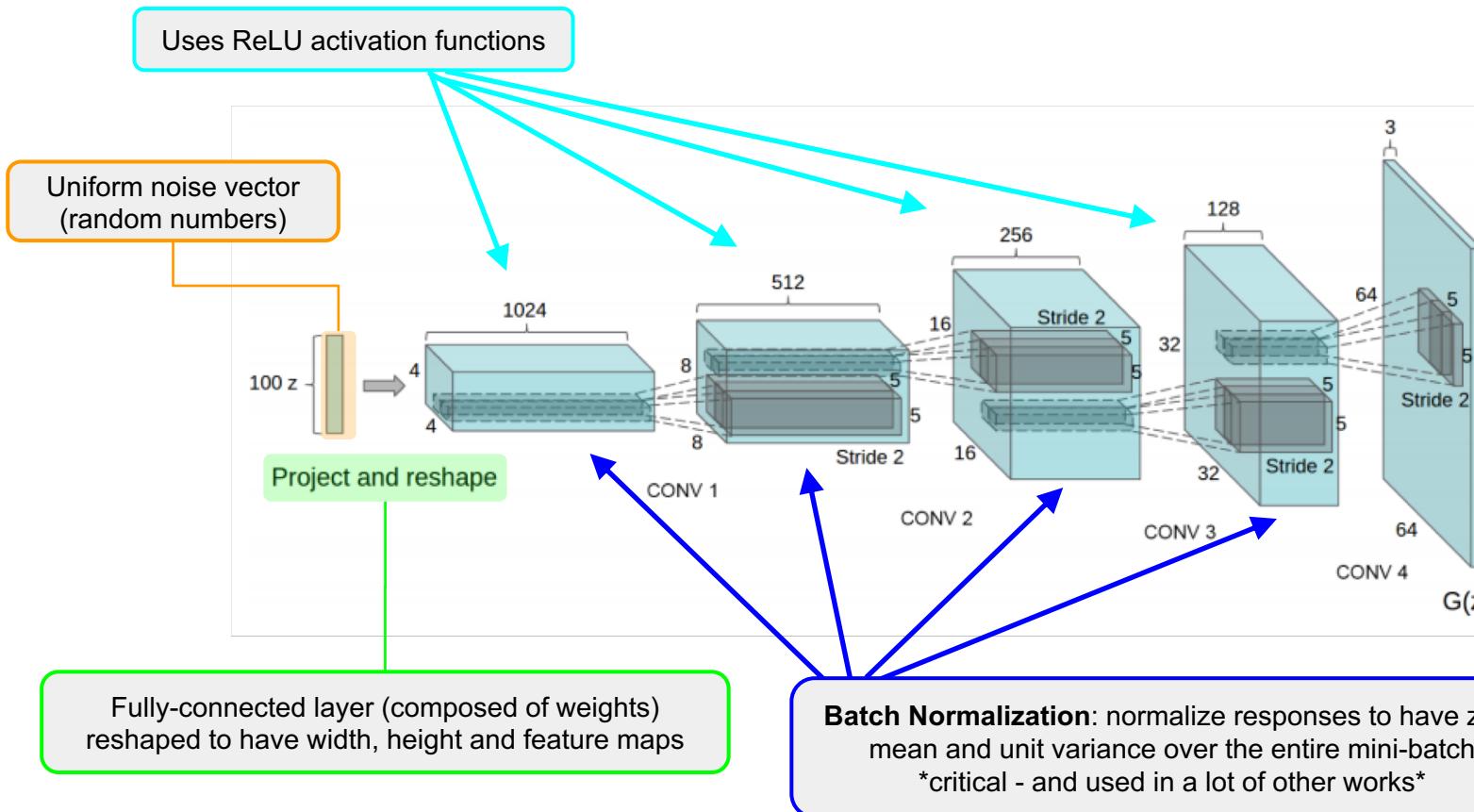
# DCGAN



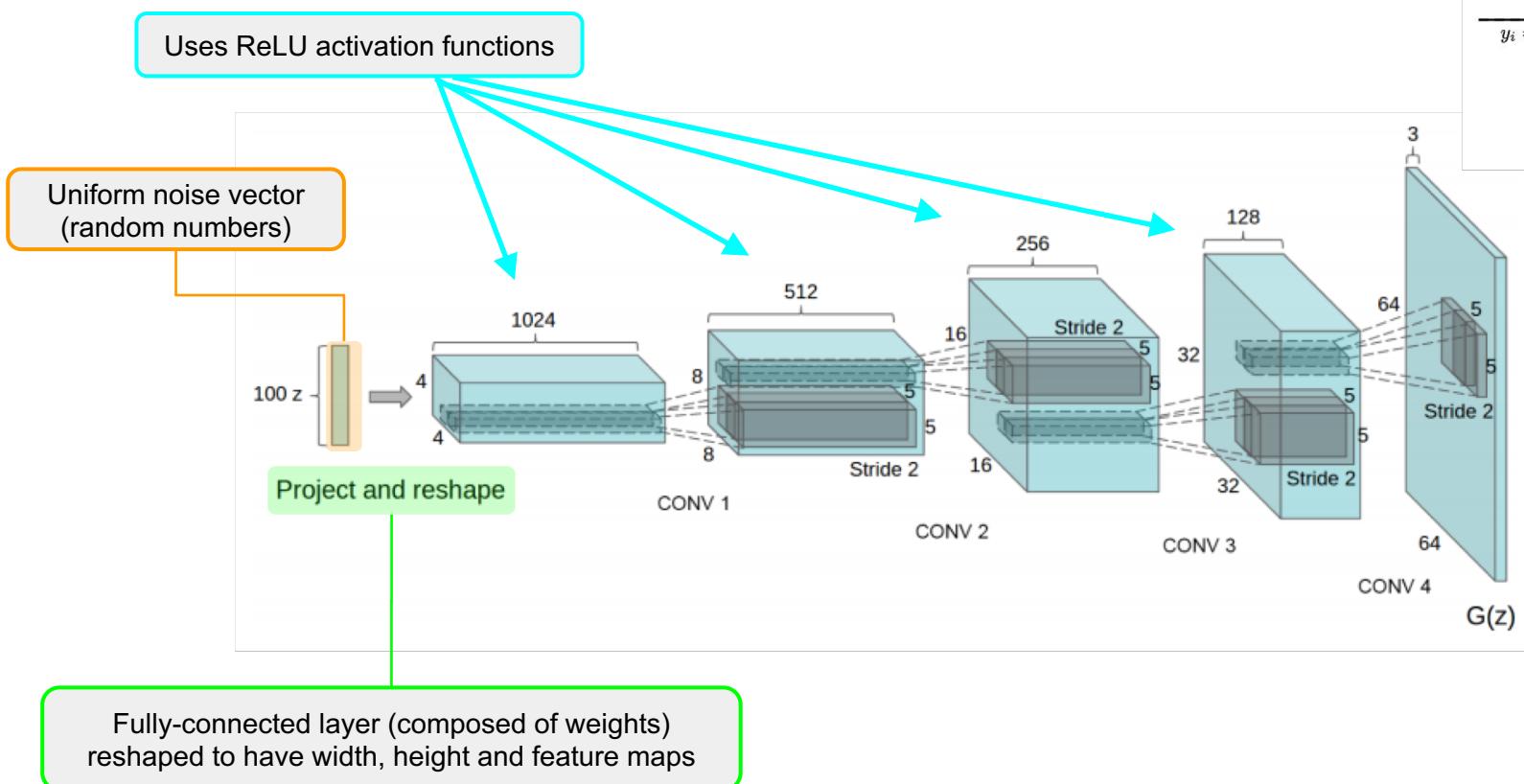
# DCGAN



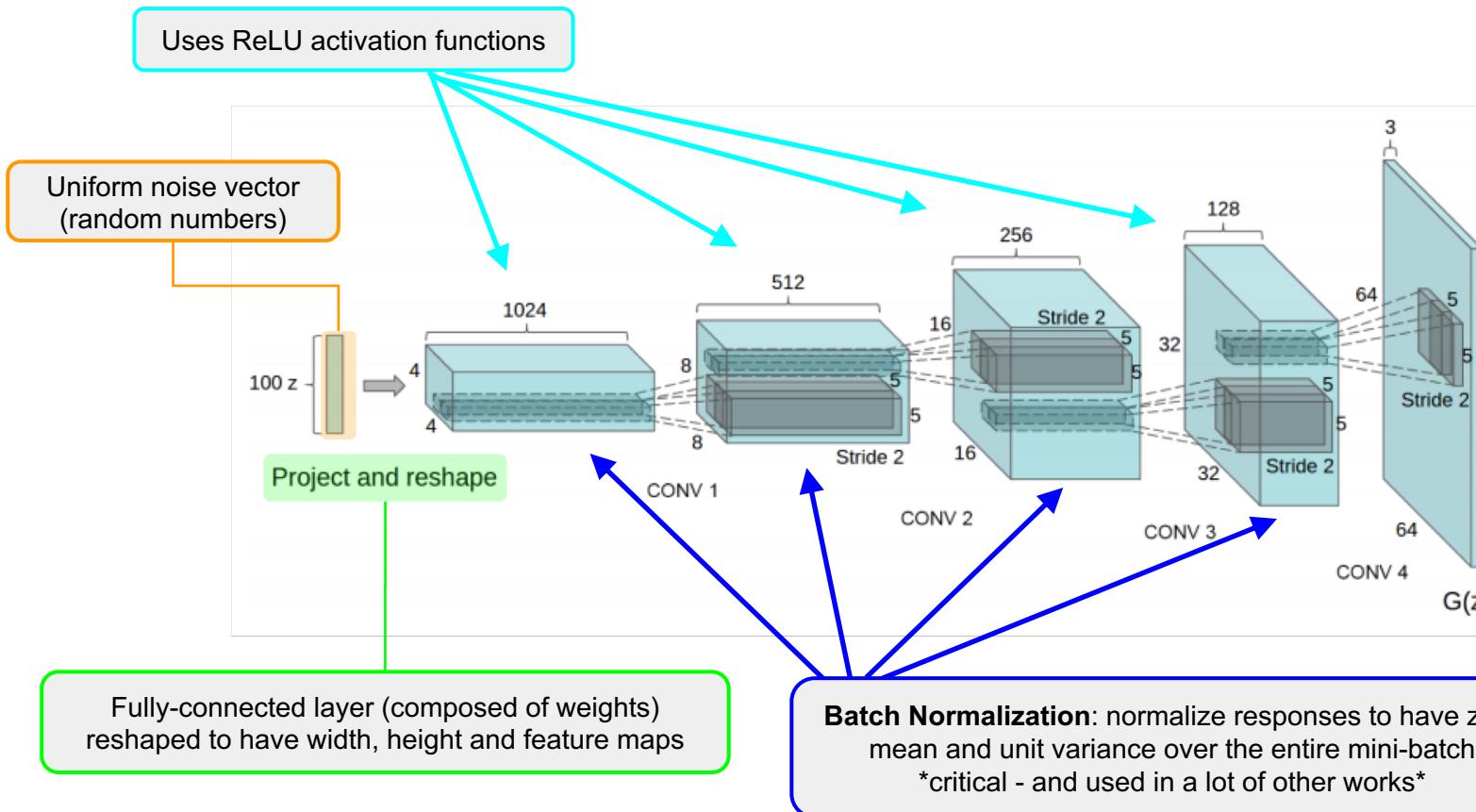
# DCGAN



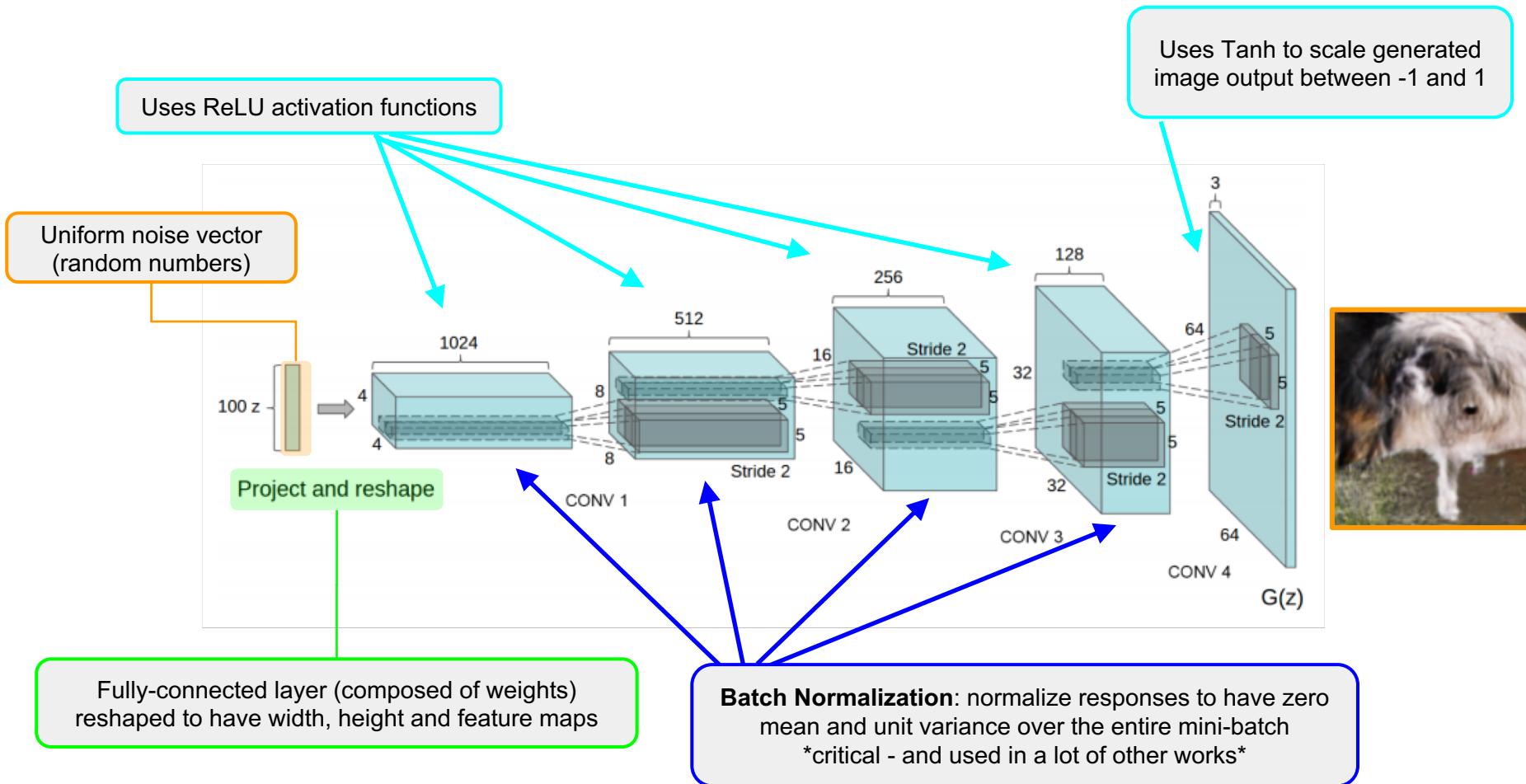
# DCGAN



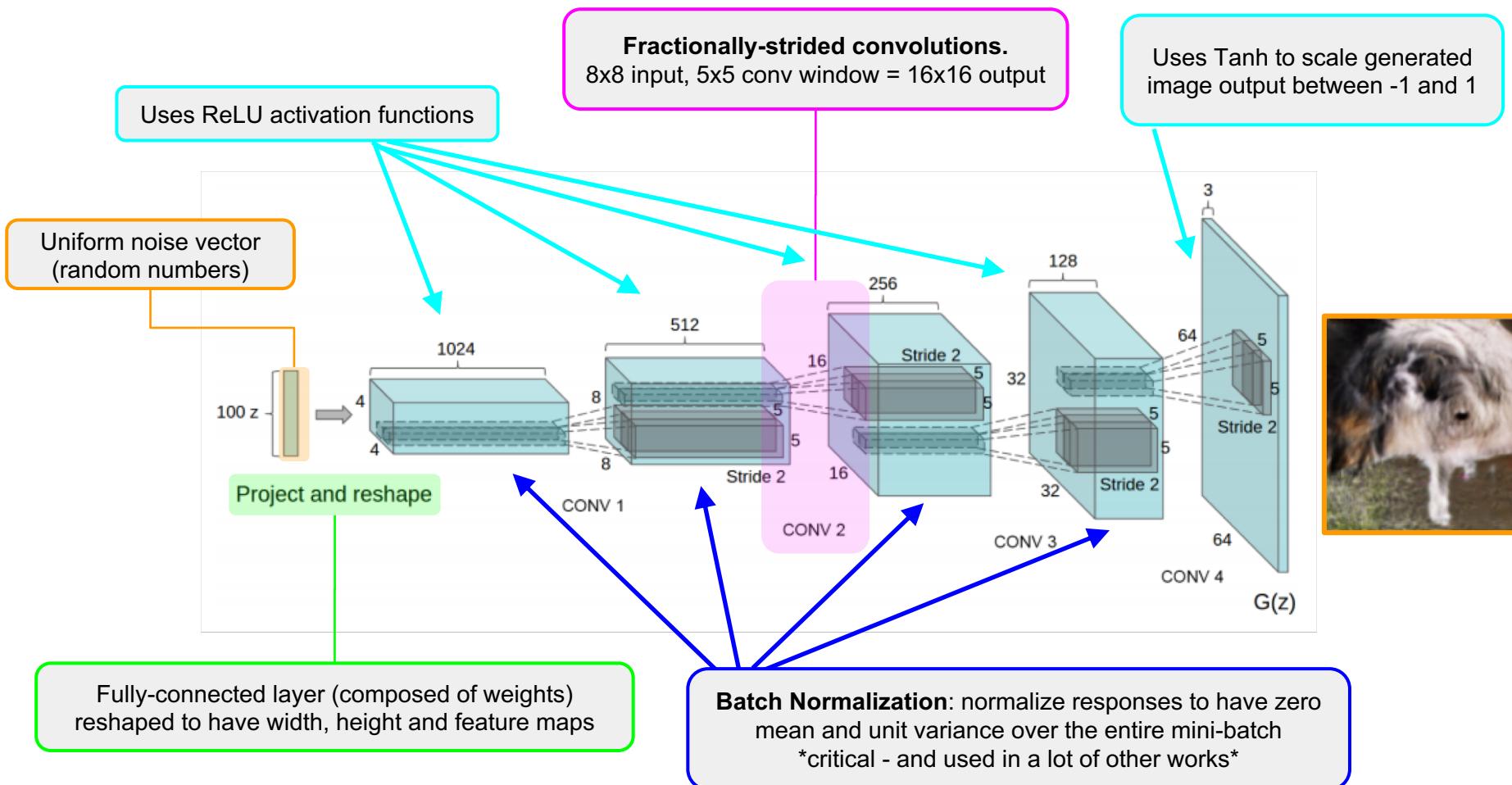
# DCGAN



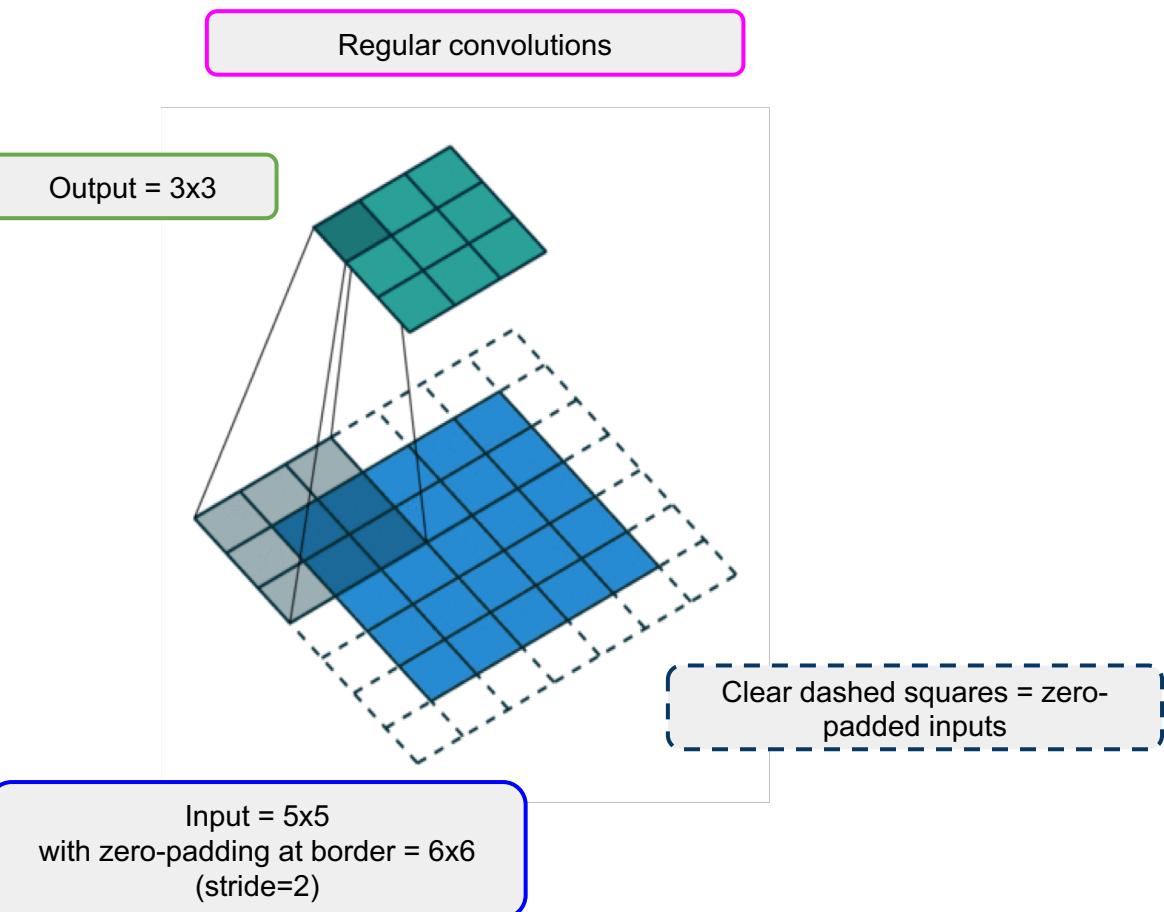
# DCGAN



# DCGAN



# DCGAN



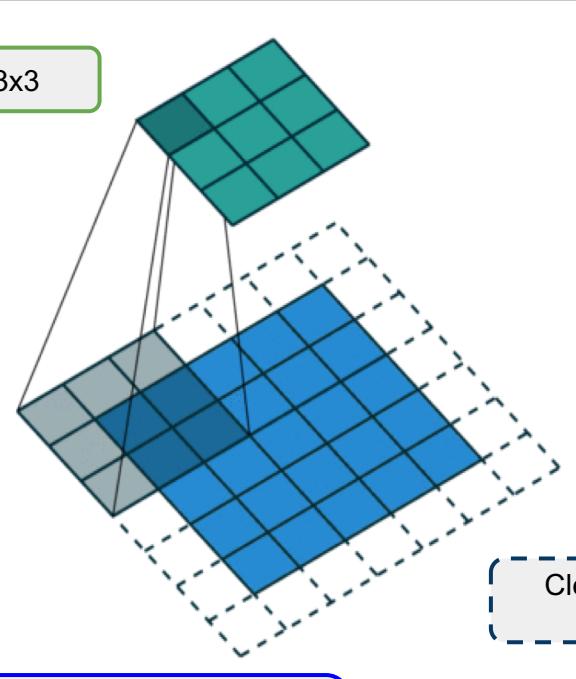
# DCGAN

Note: not 100% sure about this. See :

<http://datascience.stackexchange.com/questions/6107/what-are-deconvolutional-layers>

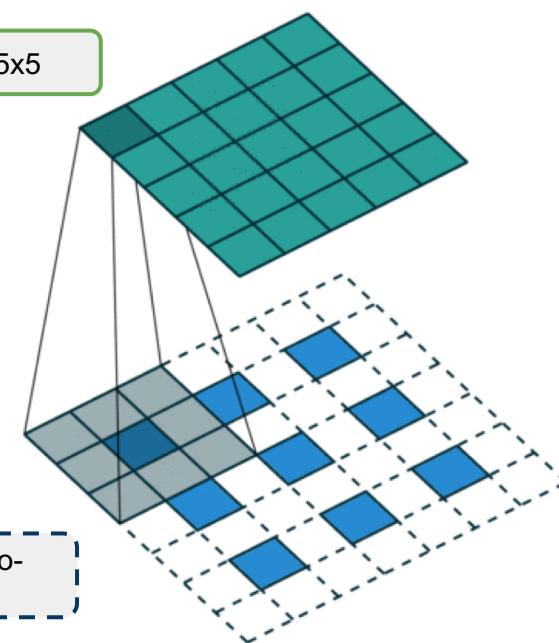
[https://www.reddit.com/r/MachineLearning/comments/4bbod7/which\\_deep\\_learning\\_frameworks\\_support\\_fractional/](https://www.reddit.com/r/MachineLearning/comments/4bbod7/which_deep_learning_frameworks_support_fractional/)

Regular convolutions



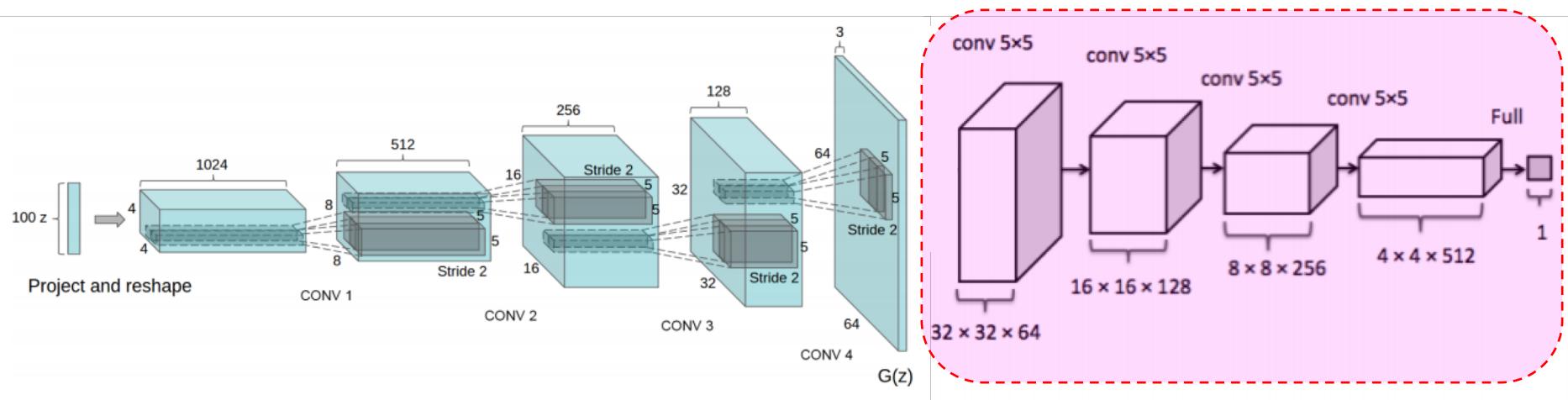
Input = 5x5  
with zero-padding at border = 6x6  
(stride=2)

Fractionally-strided convolutions

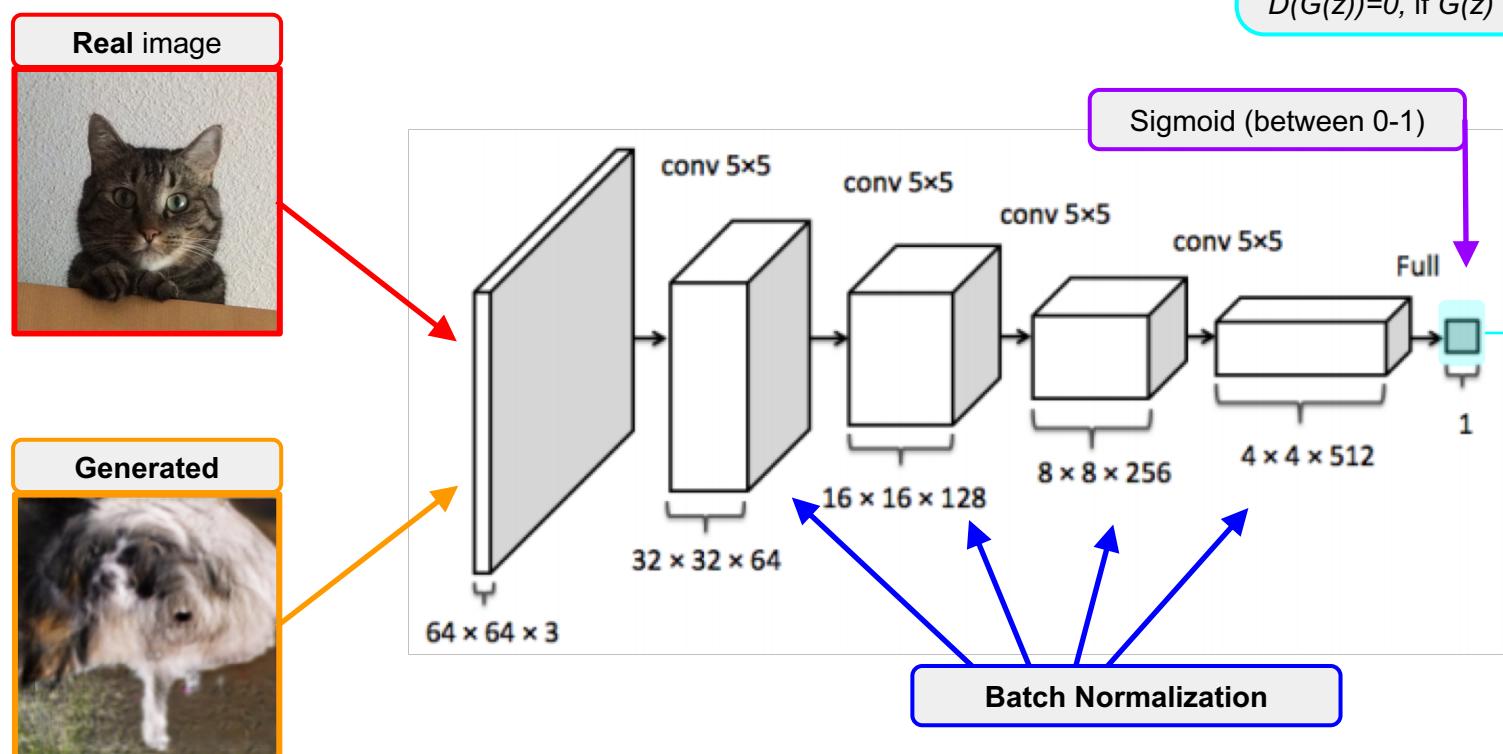


Input = 3x3  
Interlace zero-padding with inputs = 7x7  
(stride=2)

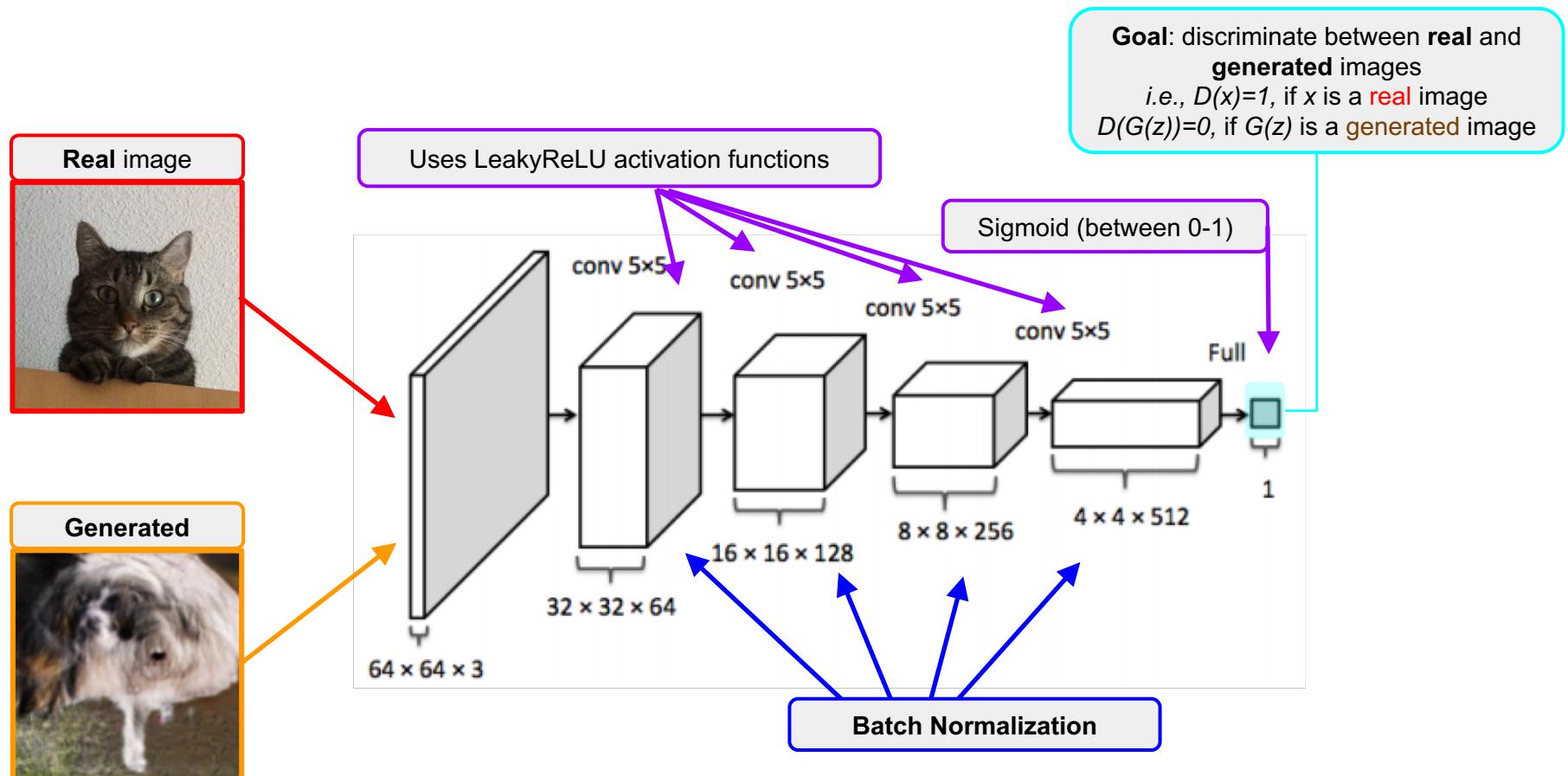
# DCGAN



# DCGAN (Discriminator)



# DCGAN





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