Discriminator network is similar to VGG [10] deep neural network classifier. It is trained to classify if the input image is fake SR image or real HR image based on the loss-function discussed earlier. The network follows architecture from Radford et al. \*\*[9]\*\*, uses LeakyReLU (dropout alpha = 0.2) and does not use max-pooling anywhere. The distinguishing blocks in the network is the stack of 8 CNN layers with kernel size of 3x3, but with increasing number of kernels from 64 to 512. The network is stacked from input to output in following manner:

* A single CNN network without the batch normalization.
* 7 CNN blocks consisting of:
  + A CNN of 3x3 kernel, followed by a batch normalization.
  + LeakyReLU with dropout probability of 0.2.
  + Number of feature maps increase from 64 to 512 as shown in diagram below.
  + The stride size alternates between one and two, as shown in diagram below.
* Two linear neural network with a LeakyReLU in between.
* Finally, a sigmoid function to classify the image.

[9] A. Radford, L. Metz, and S. Chintala. Unsupervised representation learning with deep convolutional generative adversarial networks. In International Conference on Learning Representations (ICLR), 2016.

[10] K. Simonyan and A. Zisserman. Very deep convolutional networks for large-scale image recognition. In International Conference on Learning Representations (ICLR), 2015.