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a The effect of Filter Size

i

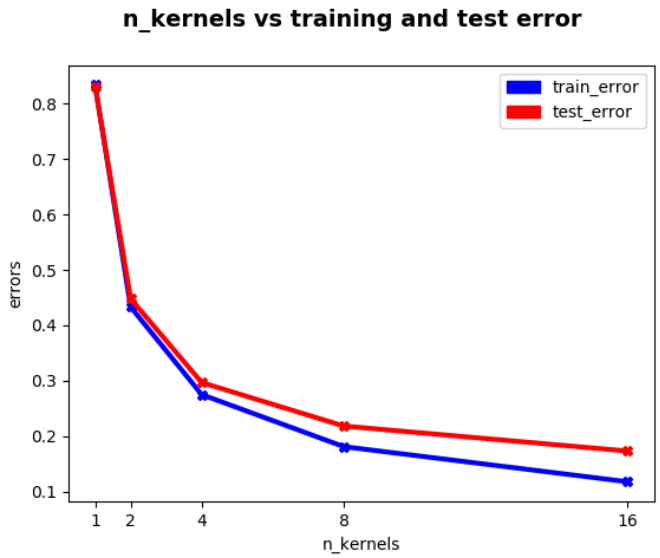

Figure 1: Plot showing the effect of Filter size on training and test error of the models

ii

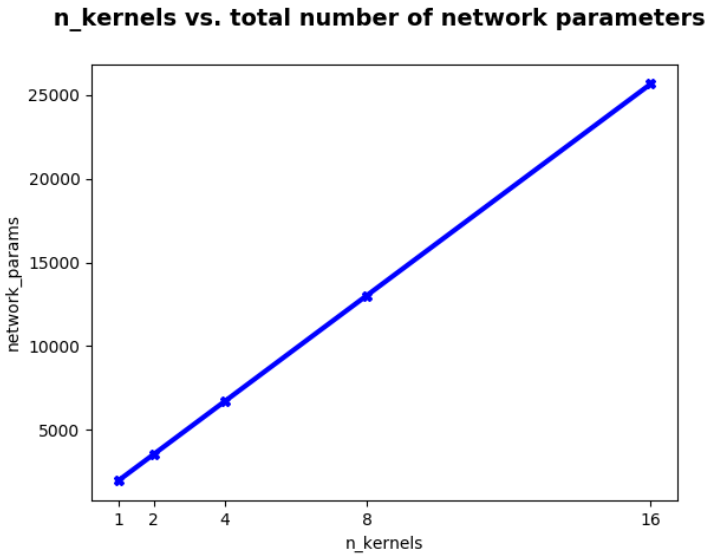

Figure 2: Plot showing the effect of Filter size on number of network parameters of the models

A reasonable value for *n_kernel* would be *"8"* or some value between *"8"* and *"16"* as even though the error is low when the filter size is 16 the number of network parameters is significantly high and that is a trade off relative to the computing power available and complexity of the task.
Discussed with Sai Ram Chappidi

b The effect of Kernel Size

i

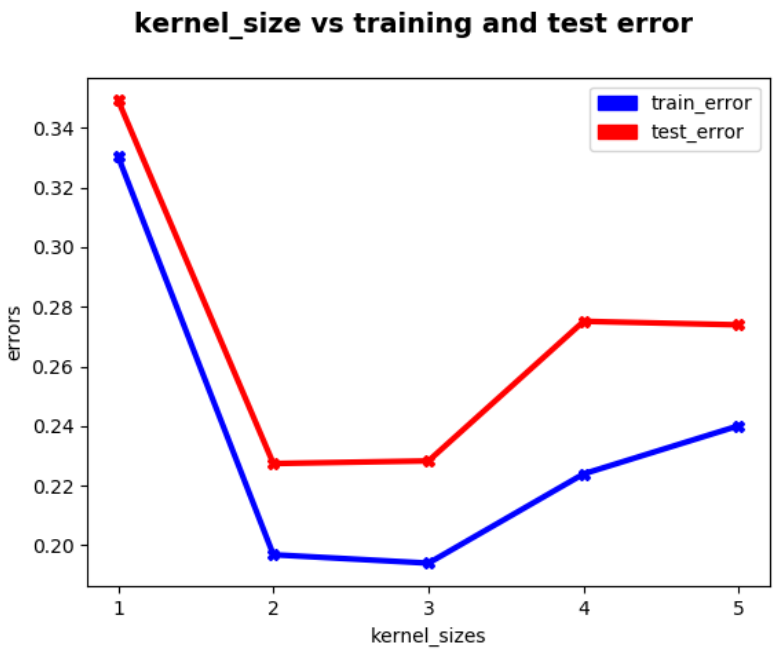

Figure 3: Plot showing the effect of Kernel size on training and test error of the models

ii

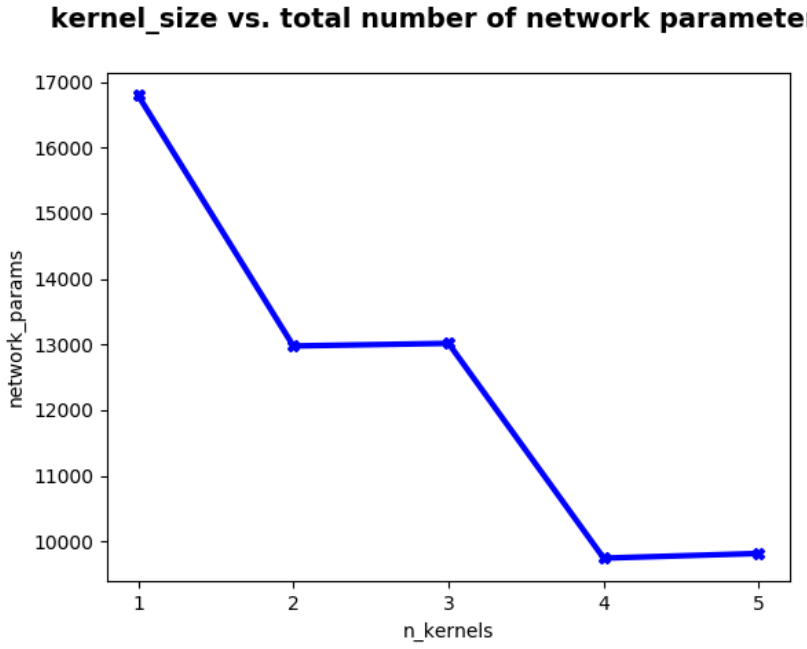

Figure 4: Plot showing the effect of Kernel size on number of network parameters of the models

A reasonable value for *kernel_size* would be *"3"* or *"2"* as error is significantly low and the number of network parameters is also low. Selecting a larger kernel size could improve computation speed but it could also lead to loss of details (and may underfit).

c The effect of Stride

i

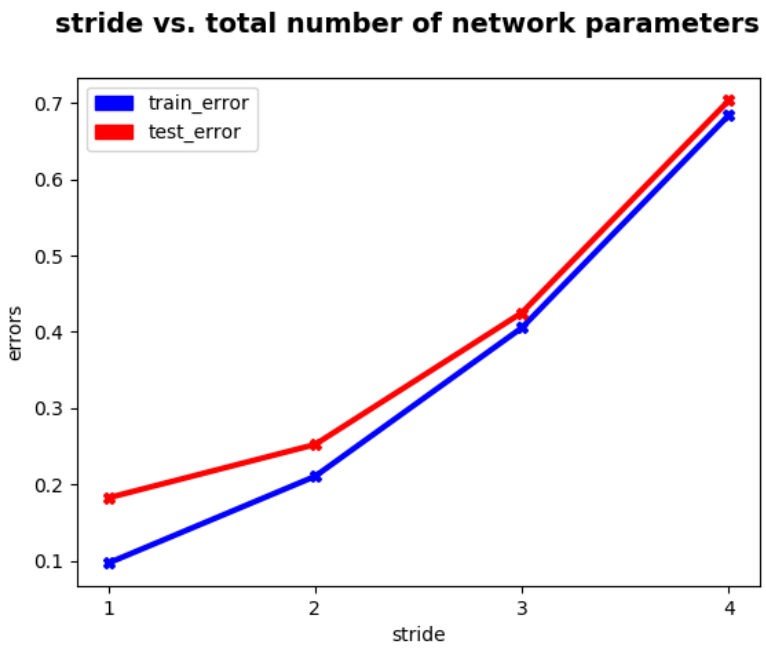

Figure 5: Plot showing the effect of Stride on training and test error of the models

ii

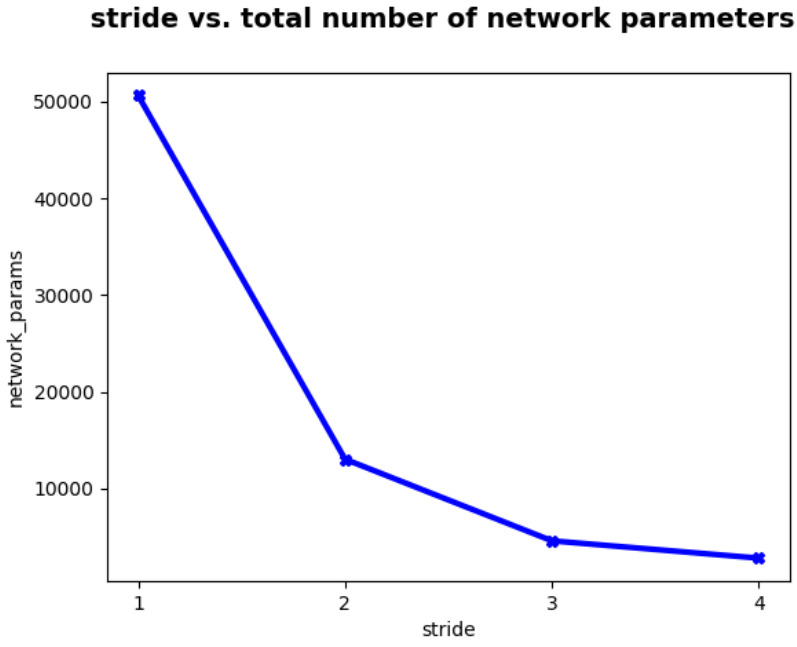

Figure 6: Plot showing the effect of Stride on number of network parameters of the models

A reasonable value for *stride* would be *"2"* as error is low and the number of network parameters is also low. Even though the error is at the lowest when the stride is *"1"* the number of network parameters is very high. A smaller stride could be chosen but this would be relative to the trade off between accuracy and computation performance.

d The effect of Dense Layer Size

i

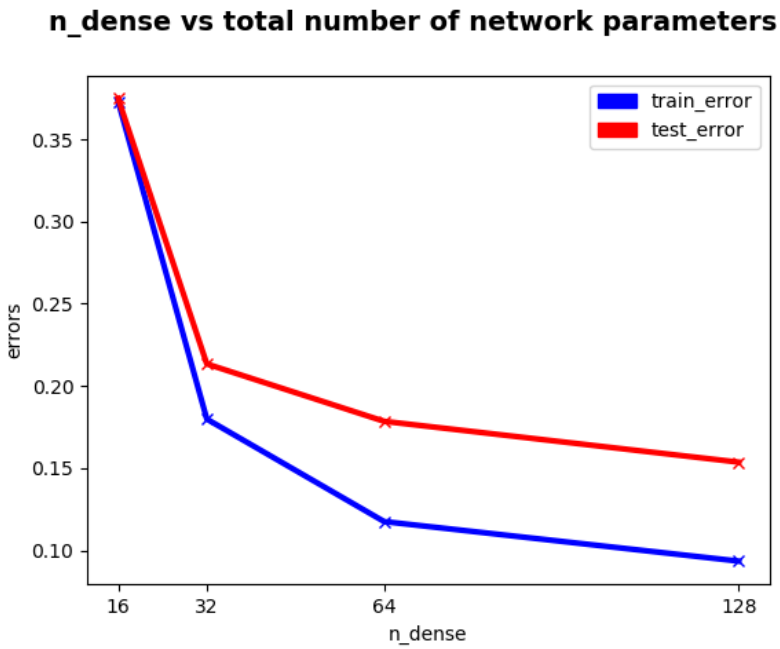

Figure 7: Plot showing the effect of Dense layer size on training and test error of the models

ii

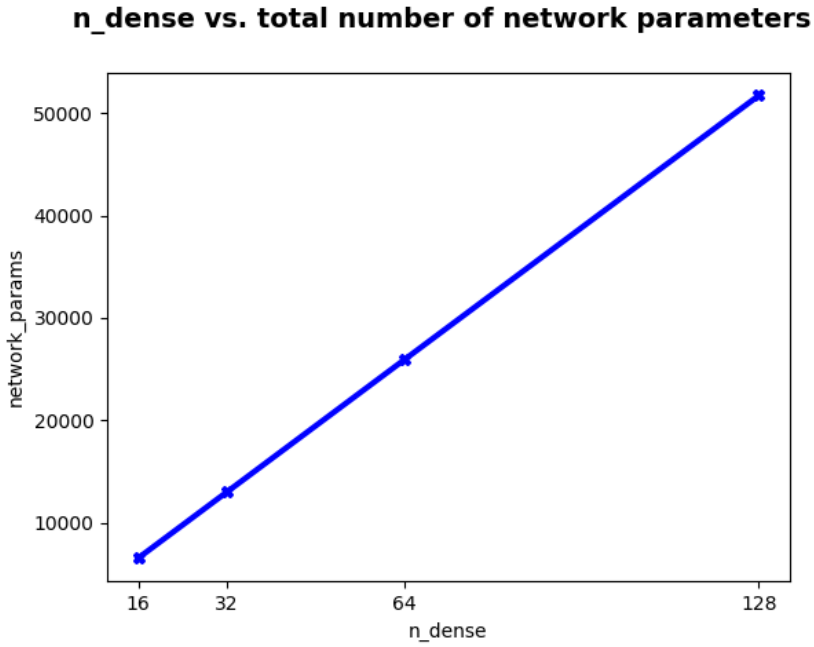

Figure 8: Plot showing the effect of Dense later size on number of network parameters of the models

A reasonable value for *dense layer size* would be *"32"* as error is low and the number of network parameters is low. Even though the error is at the lowest when the dense layer size is "64" or "128" the number of network parameters is very high. Models with Larger Dense Layer sizes only perform slightly better on test.