

# Dat550 exercises on Neural Networks and Convolutional Neural Networks

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## 1 Neural Networks Activation

Which of the following activation functions can lead to vanishing gradients?

1. ReLU
2. leaky ReLU
3. Sigmoid
4. Tanh
5. Softmax

## 2 Neural Networks Learning curve

You train your deep neural network and visualize the learning curve using tensorboard and you see the pattern seen in Figure 1, what is the potential problem? and what would be your solution to resolve this issue?

## 3 CNN parameters

You are training a CNN on an image with 128x128 resolution with 3 channels. Consider a Convolution layer with 32 filters of size 9x9. Padding and stride parameters are 0 and 1 respectively.

1. What is the number of weights in the next layer?

Next you decide to add an additional pooling layer of size 2. Again Padding and stride parameters are 0 and 1 respectively.

2. What is the number of weights after this pooling layer?



Figure 1: Learning Curve