**HW4 – XRAY**

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**Part 1**

**Task 2:**

Activation function influence models greatly. The activation function determines the output of each neuron given its weighted sum of inputs.

ReLU function is the following function:

This function is a very useful and commonly used for its fast activation and deactivation of neurons (neurons deactivate when they get the value of 0)

This is also a disadvantage, for its “shutting down” neurons that might be useful or important in some cases) having said that, this function is more commonly used for its fast computation time.

Sigmoid function:

**Part 2**

**Task 1:**

The Neural Network consist of 8 layers. Including 5 convolution layer that use filters, 3 more layer that are fully connected.

Each layer has the following filters: 64, 128, 128, 256, 256 (corresponding to the convolution layers).

We expect the number of parameters in the CNN be much lesser than a fully connected neural network. Because of each convolution layer is not connected to the next layer completely its number of parameters drop dramatically.

This Neural Network uses regularization, we can see that because the convolution layers use kernel regularization of l2.

**Task 2**:

Results we received:

Filter:64, 128, 128, 256, 256:

Loss: 8.6

Accuracy: 25.1%

Filter:32, 64, 64, 128,128:

Loss: 4.6

Accuracy: 25.7%

These results might happen because the model is overfitted, therefore our model cannot “learn” only memorize.

Because of that our results are poor and reducing the number of filters helped.