# ***Back Propagation***

-Used to adjust the weights of the neuron so that the result comes closer and closer to the true known result

Neural networks work

ANN for Neuron ‘j’

Weight is not to be updated in the forward path, but you must change the weight in the backwards path

Weight is the only parameter that changes in the formulae

# Gradient Decent

Let the error function is given below

E= (w-2)2

# CNN

In deep learning filters take the image of 12 pixels and add a kernel filter of 4 pixel and gives and output of 8 pixels

Stride is the movement of 1 pixel

We can use a stride size of 3 for something like a portrait but if we need more detail, we can use a smaller stride size to find the small details

The filter will take less from the edges

Zero Padding: Adding zero to the edges to make the outer parts of the image into the inside

(Give formula)

Features of the convolution layer

An image is composed of 3 channels

Now when we to edge detection we have a filter used for edge detection namely vertical edge detection where the first row is 1 second is 0 and third is -1, this allows the difference between the edges and the proper colours

Example of usage: In a social media filter, the mobile takes your face and if you have a wrinkle, it takes the average value of the surrounding skin to make the wrinkle disappear, this is a perfect example of average pooling.

Another is where we increase the brightness of the image (Which is basically biasing) where all the values are just increased in the whit component of an image.

(Image)

How would you separate it?

What are features?

Max pooling – When we need a feature which is big and large

Average pooling – When we need a feature which is really small