Hackathon 5

Intro to Deep Learning CSCE 879

Bottleneck layers are a variant of Residual block layers. It basically utilizes 1×1 convolutions to create a bottleneck. Bottleneck mainly reduces the number of parameters being used and decreases computations involved in matrix multiplication and other tasks involved in training of a neural network. Defined formulae below helps us understand that how number of parameters used are decreased when a filter size of 1×1 is used in the model. This layer makes the residual block thin, which in turns helps to make networks deep as possible with reduced parameters and is suitable for deeper architectures. These kind of ResNet architectures were introduced through ResNet50, ResNet101 and son on.

Method for calculating No. of parameters used in a convolutional layer -
$Parameters = (\ (Filter(width) \times Filter(Height)\ \times No.of\ filters(Previous\ Layer) + 1)) \times No\ of\ filter\ (current\ layer)$