| **Structure based on AlexNet [2]** |
| --- |
| Conv1: 7: 4: 0: 120: ReLU Max Pool:3:2 LRN |
| Conv2: 5: 1: 2: 240: ReLU Max Pool:3:2 LRN |
| Conv3: 3: 1: 1: 360: ReLU |
| Conv4: 3: 1: 1: 360: ReLU |
| Conv5: 3: 1: 1: 360: ReLU Max Pool:3:2 |
| FC1: 500: ReLU Dropout |
| FC2: 300: ReLU Dropout |
| FC3: Softmax |

AlexNet(2012) is a neural network structure used to classify ImageNet data. It consists of 5 convolutional layers and 3 convolutional layers. It also uses ReLU nodes, max pooling and dropout. This network is, however, ran on two GPU’s for training, making the model slightly more complicated.[1] A more simplified version could still prove useful for this classification problem.[2]

Another technique that could prove useful is something called Boosting, most used is the algorithm called AdaBoost. This technique should improve the performance of the neural network. I do not fully understand how it works, but it has been shown useful in several papers. [3]

[1] Krizhevsky, A., Sutskever, I., & Hinton, G. E. (2012). Imagenet classification with deep convolutional neural networks. In *Advances in neural information processing systems* (pp. 1097-1105).

[2] Yi̇ği̇t, G. Ö., & Özyildirim, B. M. (2017, July). Comparison of convolutional neural network models for food image classification. In *2017 IEEE International Conference on INnovations in Intelligent SysTems and Applications (INISTA)*(pp. 349-353). IEEE.

[3] Schwenk, H., & Bengio, Y. (2000). Boosting neural networks. *Neural computation*, *12*(8), 1869-1887.