

Pruning of Neural Network using Generalized Bayesian Approach

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The use and popularity of Neural networks have increased in the recent past due to its performance and efficiency to solve problems of different sectors. With the improvement in performance, there is an increase in the complexity of the structure. Small sized networks tend to show good generalization but are also underfitted. On the other hand, large scale networks learn the data efficiently but lack generalization. In this research, a Neural network pruning algorithm influenced by general Bayesian inference has been introduced. The research is an attempt to prune the Neural network and also to study the activation patterns of weights for different class of input data. The proposed approach was verified on a simulated and an image dataset. On simulated dataset it was found that pruning was maximum when the data was easily separated, as the complexity of the data was increased, the pruning reduced substantially. The results from real-world data show that the base network was pruned by 40%. It was also possible to decipher the important nodes for the classification of classes. After pruning, loss of the network was reduced to some extent.