Reading Report-1

## **INFO 5082 Section 020 - Seminar in Research and Research Methodology**

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**1.ImageNet Classification with Deep Convolutional Neural Networks**

**Summary:**

**In this ImageNet classification, we train a deep convolutional neural network for the classification of 1.2 million images(test data) and we get 1000 different classes with the least error. While performing this task we get a problem of overfitting. To overcome this problem we use the dropout method.**

**Extensive outline:**

**While performing imageNet classification we need to follow some effective Convolutional Neural Networks(CNN) model to reduce overfitting problems because we are working on large datasets consisting of millions of images of different categories to get the output with less error rate. in the CNN method, we divide the data into different layers where every layer will take input from the parent layer and then after some consecutive layers we will get the final output of 1000 best images out of all these millions of images.in this process, we get the problem of overfitting which can be reduced by some techniques like data augmentation which generates translates and reflections of images and alters the intensities of channels in training images.**

Dropout is a method that we use in the initial layers of the CNN. which doubles the required number of iterations for converging. It also combines different predictions and reduces the error rate. All of the neurons which are dropped didn’t go forward for the analysis.

**Limitations and Extensions:**

As we are working on large datasets if we remove one of the middle layers in the process it will result in a loss of 2% for the top-1 performance in the network.

While working on the large resolution image data the process may slow down in between.

Here we need to increase the labeled data. so, that we can improve the result with the least error rate.

**Opinion:**

In my opinion, working on millions of images, we need to perform with a large capacity.so, the CNN model is the best fit for this analysis.

**References:**

Berg, A., Deng, J., Fei-Fei, L. Large scale visual recognition challenge 2010. www.image-net.org/challenges. 2010.

**2. Deep Learning for Sentiment Analysis: A Survey**

**Summary:**

Deep Learning is one of the major best possible ways for machine learning techniques used for sentiment analysis.

**Extensive outline:**

Sentiment analysis is nothing but a brief analysis of customers' perspectives of different races, religions, and places. This analysis is performed based on social media comments, and advertising views and also uses natural language processing(NLP). So, we need a powerful technique to perform this task out of many other machine learning techniques deep learning has its accomplishment. Some of the deep learning techniques used for sentiment analysis are neural networks where it performs from neuron to neuron.

In deep learning we use different techniques out of all I prefer the following are good fits word embedding which converts them into numbers format, Autoencoder which works on target, CNN model which Works with computer vision, opinion expression, sentiment composition emotion analysis and there are also some other sophisticated techniques. Coming to the data that we use for this sentiment analysis is mainly in the form of text and also videos. This analysis mainly focuses on the customers' opinion.

**limitations and extensions:**

The major impediment to this analysis is data. All of the data used for this analysis mainly unstructured data which is difficult to collect, store and analyze.

We can overcome these problems by using privacy-protecting data security techniques and ensuring relevant training data.

**Opinion:**

In my opinion, deep learning is the best method for sentiment analysis but the cost of maintenance is high, and lack of experienced analysts.

**References:**

Bengio, Y., Ducharme, R., Vincent, P., & Jauvin, C. (2003). A neural probabilistic language model. *Journal of Machine Learning Research,3*(Feb), 1137–1155.

**Thank You**