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Deep Neural Network With the Hmm To Judge the Observation Probabilities

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ABSTRACT: Method of query oriented summarization on the single document by using unsupervised auto-encoder for extracting the features and did not require the query at any stage of training with small local vocabulary and reduced training and deployment computational costs. For their experiment, they used SKE and BC3 email datasets and concluded that AE provided a more discriminating feature space and improved the local term frequency.

KEYWORDS: summarization, SKE, BC3

I. TEXT/DOCUMENT SUMMARIZATION

To forward a novel query oriented approach by using deep learning techniques applicable to the multi document summarization. They observed and exposed the extraction ability in the real world applications by using dynamic programming. The model contains three parts, i.e. the concept extraction, the summary generation and the reconstruction validity. Then transformation of the whole deep architecture was done by reducing the data loss in the reconstruction validation. They did not require the training stage and was the most suitable architecture for the industrial applications. For their experiment they employed three benchmark datasets DUC 2005, 2006, 2007 and proved that this method outperforms the other extraction methods.

- Voice Activity Detection

The main responsibility of a voice activity detector is to isolate the speech signal from the disturbing background noise. [3] proposed an advanced version of deep belief networks for the voice activity detection (VAD) that separate noise from the speech signals. Deep belief networks proved a sufficient model for extracting features and showing variant functions. Deep belief net- works helped VAD to select and produce a different and a novel feature that sufficiently explained the benefits of acoustic features through multiple nonlinear hidden layers. In their experimental work, they used extensive AURORA dataset and seven noisy test samples of AURORA for the performance analysis.

- Word Spotting

[5] proposed a word spotting system that extracts keywords in handwritten documents. They considered both the segmentation and recognition decisions. They used deep neural network with the HMM to judge the observation probabilities. The experiment was conducted on the handwritten database called the RIMES database. The experimental results proved the superiority and improved accuracies as compared to their hybrid approaches. [6] presented a method that is suited for handwritten keyword spotting with the deep learning features. A new feature extraction system was generated based on the CNN. Sliding window features were skilled from the word images in an unsupervised manner. The proposed features were calculated for the template word spotting and for the learning based word spotting. Here dynamic test wrapping and HMM were used. Experiment was conducted on the three datasets with modern and historical handwriting. The proposed system clearly showed the high performance from the different baselines and showing a robust performance under all tested conditions. They presented a configuration that was stable even with the diverse data sets. Lastly, augmenting data set with synthetic distortions also produced more robust features.

- Writer Identification

7. presented a method that used deep neural network for the writer identification. They proposed a method that was based not only on the human defined features but dependent on the automatically generated word level features given by deep neural network. Based on the word level features, they generated writing similarity that occurred in the paragraphs. This would also help in the development of writing style of a person and the differences between the writing styles of a number of persons. The method also proved how the writing styles of children changed with the age and other factors. They used CEDAR-FOX tool for getting the results and concluded that the results depend upon the

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size of training dataset. [8] proposed a method for online writer identification using deep neural network. They used beta elliptic model for the text independent writer identification. The method computed efficiently the writing movements of the author using profile entities. They worked on the beta impulses and elliptical arcs. Results of the feature extraction methods were used as the input to the classifier. Results obtained clearly showed the improvement and the robustness.

[9] presented a new approach for identification of an author based on the deep learning. They used deep learning for the extraction of the features of the documents which represent variable sized characters. They used stack de-noising auto-encoder for the purpose of extracting features with different scenarios. And used support vector machine classifier. [11] proposed a deep learning model based on multilevel triplet for person re-identification. They extracted coarse and very fine information from the layers for feature extraction. This model produced end to end training features for the execution and achieved better performance than other re-identification methods.

II. CONCLUSION

Four signal-to-noise ratios (SNR) levels of the audio signals are selected. So, in total, 28 test samples were used for evaluation with ten different features and a linear classifier and believed that with deep learning networks, it would be possible to approach the real time detection demands of VAD. They realized that the deep model would definitely be successful in combining numerous features in a nonlinear way and the uniformity among the features.

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