Paper 1 - Yousefi-Azar, M. & Hamey, L., 2017. Text summarization using unsupervised deep learning. Expert Systems With Applications, 68(C), pp.93–105.

Abstract,

Yousefi et al use an Auto Encoder (AE) a type of unsupervised deep learning neural network to refine the features in the term frequencies of a document for summarization, using local and global vocabularies. The paper investigates the effect of adding noise to the term frequency before processing it with the encoder, creating a set of AEs’ called the Ensemble Noisy Auto Encoder (ENAE). This ensemble adds random noise to the input term frequencies this changes the network from a feed forward model to a stochastic run model. AE’s with local vocabularies are useful in finding the most important features and the ENAE will improve this. This model is run on a corpus of emails known as ROUGE and ROUGE2.

Introduction,

It is difficult to understand the relevance of a large document so a condensed writeup can be particularly helpful, summaries require unbiased reviewers to read the document which can take time. The implementation of automated summarization on large corpora of documents can help in the dissemination of information across the internet by reducing time searching vast sources of information.

The two types of text summarization is abstractive and extractive, abstractive focused on the individual words and re generates texts and content while extractive instead ranks sentences by prominence. Research in automated summarization has come to the consensus that summarization models work best on documents with similar topical content, or more general, less effective models can be created instead. These models can be adjusted to summarize based on a query or to work on a single document of a collection of documents, the paper proposes a query based extractive single document summarization technique.

Deep learning was used in this model as it showed promise in NLP applications, the proposed unsupervised model finds latent representations of a given query and sentences in the document. The main aim of the model is organizing the features and extracting important features from low level features without any human interaction. Unlike NLP implementations the proposed model avoids sparsity in its text representation by created a local vocabulary to reconstruct the input text and by adding random noise to the word representation vector.

Running a single noisy AE would give a ranking of the most important sentences to gain a more accurate ranking multiple AE runs with different randomised noise components are performed and the component summaries are cross referenced against each other and the most popular sentences are used in the final summary.

Previously unsupervised and supervised deep learning have been used in summarization implementations both abstractive and extractive, at first straight forward neural network implementations were used with promising result and then research into fine tuning the type of deep learning model for summarization began.

Models,

Experiments,

Evaluation

Conclusions

Paper 2 -

Abstract,

Introduction,

Models,

Experiments,

Evaluation

Conclusions