CMP681 - INFORMATION RETRIEVAL
PROJECT PROPOSAL
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NAME : Kevser ÖZDEM
EMAIL: kevserozdem@gazi.edu.tr
TRACK: Research

As the Internet is overflowed by new information every day, searching can become a terrible task if someone does not have the right tools and techniques to find what he/she is looking for. For that reason, contextual search is used to optimize web-based search results based on the context provided by the user. Among many approaches used in contextual search, in most of the recent studies, methods involving neural networks are preferred rather than traditional methods. There are many different types of neural networks (e.g. CNN, RNN, LSTM, RCNN, …) used in contextual searching [1, 2, 3, 4].

However, in the literature, there is no comprehensive research that compares these methods to find the ones, which give more relevant results in contextual search. In this project, especially the deep learning approaches used in the contextual search field will be examined and the methods which give more relevant results will be discussed. The advantages and disadvantages of the methods with respect to each other will be examined.

In order to complete this study, first of all, a wide literature review will be made and different methods will be examined. Then, these methods will be implemented and results will be obtained for the same dataset. In the light of these results, the superior methods will be evaluated and the reasons for this superiority will be questioned.

As a rough timeline for the completion of this study:

06.04.2020 – 26.04.2020	Literature review
27.04.2020 – 15.05.2020	Implementations
16.05.2020 – 29.05.2020	Evaluation of results

REFERENCES

[1] Mohammad Arifur Rahman, Fahad Ahmed and Nafis Ali. 2019. Contextual Deep Search using Long Short Term Memory Recurrent Neural Network. In 2019 International Conference on Robotics, Electrical and Signal Processing Techniques (ICREST), January 2019, IEEE, 39-42.

[2] Zhuyun Daiand Jamie Callan. 2019. Deeper Text Understanding for IR with Contextual Neural Language Modeling. In Proceedings of the 42nd International ACM SIGIR Conference on Research and Development in Information Retrieval (SIGIR '19), July 21–25, 2019, Paris, France. ACM, NewYork, NY, USA, 985-988.

[3] Hamid Palangi, et al. 2016. Deep sentence embedding using long short-term memory networks: Analysis and application to information retrieval. IEEE/ACM Transactions on Audio, Speech, and Language Processing, April 2016, 694-707.

[4] Jia Chen. 2020. Beyond Sessions: Exploiting Hybrid Contextual Information for Web Search. In Proceedings of the 13th International Conference on Web Search and Data Mining ,January, 2020, 915-916.