

REVIEW OF POTENTIAL METHODS AND TOOLS OF NATURAL LANGUAGE PROCESSING FOR DETERMINING RELEVANCY OF TEXT OFFERS FOR TEXT ASKS

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The rapid development of artificial intelligence (AI) and natural language processing (NLP) technologies has profoundly impacted various aspects of human life, from communication and data analysis to automation and decision-making. These advancements have enabled machines to understand, interpret, and generate human language with remarkable precision, paving the way for a myriad of applications and innovative solutions. As AI and NLP technologies continue to advance, we can expect more integration into daily life, with applications ranging from healthcare and education to transportation and entertainment.

More and more problems become solvable with the wide array of tools available nowadays. Problem of determining relevancy of a text offer to a text asks is one of them. Current systems, in attempt to match an ask to an offer, are trying to structurize user input in a way that makes it easy to find a pair with classic methods that don't require advanced technology. For example finding mentor and mentee, finding someone who can help move into a city, finding people with similar experience of job seeking. The number of examples can be endless, but all of them require the system to be suited for specifically one case, with specific input fields and parameters. Matching unstructured text asks and offers is not yet a solved task.

Determining relevancy of a text ask to a text offer (and vice versa) requires extracting valuable information (like topic, subject, location, time) from an arbitrary text then further compared to valuable information from a text of an opposite type. Named Entity Recognition [1] technology can already address this issue at a very high level and precision. While there are many solved low level problems of NLP, matching asks and offers is a high level task that will likely require a combination of those low level solutions. It is still an open question on how to arrange the solution elements to

utilize text sanitizing, topic classification, information extraction then to construct a way to determine match relevancy to achieve the highest rate of correct matches. While it is a vast open problem on its own, with growth of the AI technology, we face entirely different approaches. Large Language Models (LLMs) [2] are one of them. Recent achievements in NLP completely change the way problems are solved. Such models contain all necessary steps of data processing in order to achieve desirable results. The models get so complicated, not even creators are sure how exactly they works anymore. Potential solution to many high level NLP problems already might be just solved with an API of one of LLMs.

While there are a lot of very different potential approaches to solving the problem of matching unstructured asks and offers, it is unclear which one would give best results. Given the fast pace of growth of the technology and how fresh are the recent achievements, there is no clear bias towards one approach or another.

Further research will use empirical methods to gather data on which compositions of classic NLP tools and methods are providing best results on determining relevancy of unstructured text ask to unstructured text offer (and vice versa). It also will be researched how well current LLM tools can solve the same issue, and evaluated what would be the best solution to the considered problem.

References

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BLOCKCHAIN IN SUPPLY CHAIN MANAGEMENT

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