

Title : The Development of Algorithm for Knowledge Graphs Construction through Knowledge Extraction from Large Language Models

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ABSTRACT

Large language models have gained attention for their ability to generate human-like text and provide extensive knowledge from vast datasets. Knowledge extraction from these models is a key area of interest for generating insights. Meanwhile, knowledge graphs offer a flexible way to organize and interpret complex information. This study develops an algorithm to construct knowledge graphs through knowledge extraction from large language models, using ISWC-2024 LM-KBC Challenge dataset.

Our task is to predict objects from given subjects and relations in a Subject-Predicate/Relate-Object format. The ISWC-2024 LM-KBC Challenge provides five distinct relations: awardWonBy, companyTradesAtStockExchange, countryLandBordersCountry, personHasCityOfDeath, and seriesHasNumberOfEpisodes. Our approach leverages large language models with retrieval-augmented generation, web scraping, and web crawling, while also using large language model to filter unrelated data from web scraping.

Our study evaluates the algorithm's performance on both the validation set and the test set. When compared to the baseline, the developed algorithm demonstrates superior performance, achieving Macro-F1 scores of 0.695 and 0.698 on the validation set and test set, respectively, indicating its effectiveness and consistency.

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