

# Select and Augment: Enhanced Dense Retrieval Knowledge Graph Augmentation (Abstract Reprint)

Micheal Abaho<sup>1</sup>, Yousef H. Alfaifi<sup>2</sup>

<sup>1</sup>University of Liverpool, United Kingdom

<sup>2</sup>Faculty of Computers and Information Technology, University of Tabuk, Tabuk, Saudi Arabia

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## Abstract

Injecting textual information into knowledge graph (KG) entity representations has been a worthwhile expedition in terms of improving performance in KG oriented tasks within the NLP community. External knowledge often adopted to enhance KG embeddings ranges from semantically rich lexical dependency parsed features to a set of relevant key words to entire text descriptions supplied from an external corpus such as wikipedia and many more. Despite the gains this innovation (Text-enhanced KG embeddings) has made, the proposal in this work suggests that it can be improved even further. Instead of using a single text description (which would not sufficiently represent an entity because of the inherent lexical ambiguity of text), we propose a multi-task framework that jointly selects a set of text descriptions relevant to KG entities as well as align or augment KG embeddings with text descriptions. Different from prior work that plugs formal entity descriptions declared in knowledge bases, this framework leverages a retriever model to selectively identify richer or highly relevant text descriptions to use in augmenting entities. Furthermore, the framework treats the number of descriptions to use in augmentation process as a parameter, which allows the flexibility of enumerating across several numbers before identifying an appropriate number. Experiment results for Link Prediction demonstrate a 5.5% and 3.5% percentage increase in the Mean Reciprocal Rank (MRR) and Hits@10 scores respectively, in comparison to text-enhanced knowledge graph augmentation methods using traditional CNNs.

## References

Abaho, M.; and Alfaifi, Y. H. 2023. Select and Augment: Enhanced Dense Retrieval Knowledge Graph Augmentation. *Journal of Artificial Intelligence Research*, 78: 269–285.