Graduate School of Science and Technology Master's Thesis Abstract

Laboratory name (Supervisor)	Social Computing (Eiji Aramaki （Professor ）)		
Student ID	2311331	Submission date	2025 / 1 / 21
Name	HAN PEITAO		
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Abstract

In-context learning (ICL) for relation extraction (RE) has achieved promising performance, but still faces a significant challenge regarding the quality of ICL demonstrations. Existing ICL methods retrieve few-shot demonstrations with embedding similarity. However, these approaches often prioritize language embedding similarity over structural embedding similarity, which can lead to overlooking entity relationships. To address this, we propose an AMR-enhanced retrieval-based ICL method for RE. This approach adopts a semantic parser to generate fine-grained semantic graphs, our model retrieves in-context examples based on semantic structure similarity between task inputs and training samples. Evaluations on four RE datasets show that our model outperforms baselines achieving state-of-the-art results on three datasets and competitive results on the fourth in the supervised setting. To further explore its potential, we test our method in a more challenging unsupervised setting, our model significantly surpasses baselines across all datasets. The experiments underscores the effectiveness of combining AMR graph embeddings with LLMs for relation extraction. Additionally, we conduct a fine-grained ablation study and case analysis to explain the advantages of AMR-enhanced retrieval, which effectively selects RE demonstrations that are both semantically and syntactically relevant.