



Towards Open Environment Event Knowledge Acquisition

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Abstract

Who? What? When? Where? Why? are fundamental questions asked when gathering knowledge about and understanding an event. The answers to these questions underpin the key information conveyed in the overwhelming majority, if not all, of language-based communication. Unfortunately, typical machine learning models and event extraction techniques heavily rely on in-domain annotations, thus cannot be directly applied to open environment scenarios, domains or languages.

In this talk, I will first introduce a new Query-and-Extract framework that takes event schemas (i.e., types and argument roles) as natural language queries to extract candidate triggers and arguments from the input text. With the rich semantics in the queries, our framework benefits from the attention mechanisms to better capture the semantic correlation between the event types or argument roles and the input text, thus allowing our approach to leverage all available event annotations from various ontologies as a unified model. Then, I will further talk about the various strategies to formulate the queries to represent event types, and compare them under supervised, few-shot and zero-shot event extraction. Our study shows that a well-defined and comprehensive event type representation can significantly improve the performance of event extraction, especially when the annotated data is scarce or not available. Finally, I will describe how the query-and-extract framework is incrementally updated with new event types and data while retaining the capability on previously learned old types, yielding lifelong event extraction.

