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HeadEx: Real-time Event Extraction and Interlinking from News Headlines

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Abstract:
Linking events extracted from a variety of heterogeneous and unstructured data sources across a temporal interval is a challenging problem. Our approach involves building a knowledge graph with Semantic Web technologies and artificial intelligence. An application of this research is annotating and linking events reported in real-time, unstructured data, such as Twitter news feeds.

Contributions:
- Supports advanced queries in the knowledge graph which result in more relevant information.
- Interlinking data could present a model that informs us more effectively about human interlinking of entities and events.

Methodology:
In addition to data collection and model selection, we propose the following three progressive steps:

1. Event Annotation: To help classify events and provide context to help disambiguate entities, we must develop standard classifications and annotations. (We use off-the-shelf natural language processing (NLP) tools.)
2. Entity Annotation: Entity linking, labeling, inferencing, and disambiguation are accomplished from the context provided from event annotation. (We use the FRED framework from steps (1) and (2).)
3. Event Interlinking: Events are interlinked either through evolutionary updates or cross-media relations. Through the development of a machine-learning model, we learn possible parameters and approaches to interlinking.