Event detection and evolution in multi-lingual social streams

Yaopeng LIU, Hao PENG, Jianxin LI, Yangqiu SONG, Xiong LI

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Problems & Ideas

- Problems of Event detection and evolution in multi-lingual streams
  - Multi-lingual post integration and social event definition
- Ideas: Streaming abnormal graph detection and clustering
  - Streaming graph-of-words based abnormal detection algorithms
  - Integrating event elements, graph-of-words and incremental word embedding for event similarity measure

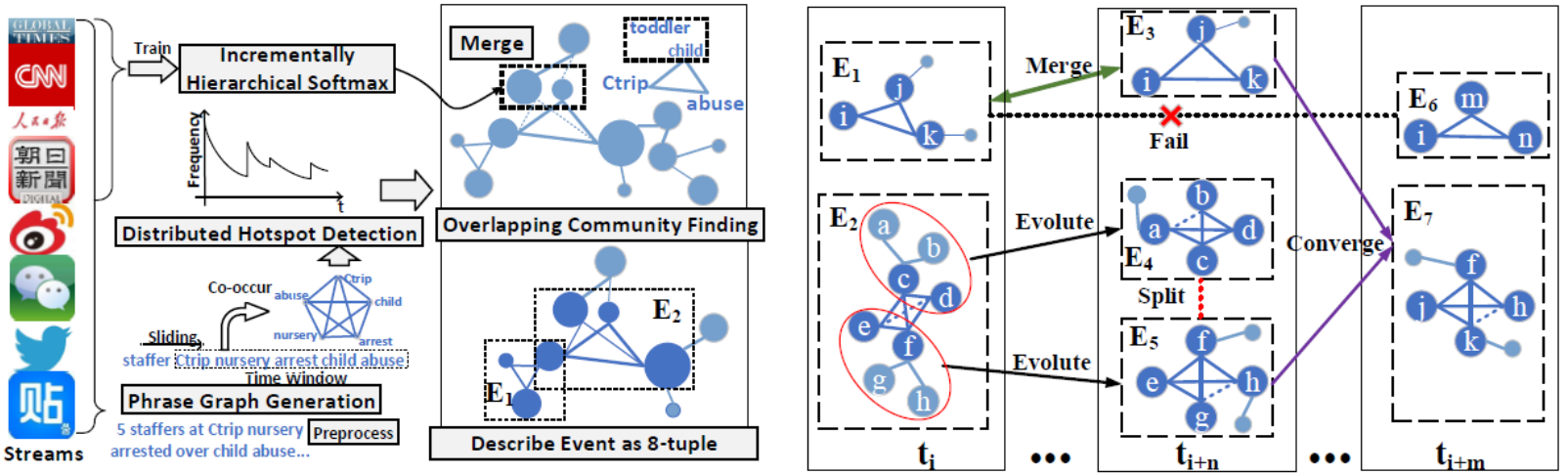

Fig. 1 Illustration of event detection and evolution from multi-lingual text streams.

Main Contributions

There are three main contributions for social event detection and evolution:

1.Based on multi-lingual word alignment technologies, our MLEM model achieved the event detection and evolution from multi-lingual text streams for the first time.

2.By using the proposed streaming abnormal graph detection algorithms in embedding space, the MLEM model improved both effectiveness and efficiency of social event detection.

3.By designing an event similarity that considers both event elements, graph-of-words and incremental word embedding, the MLEM model improved the effectiveness of social event evolution.

Table 3 Detection effectiveness results

Method	P	R	F1	ΔT/min
HashtagPeaks	0.4810	0.3367	0.3961	37.01
RTED	0.5761	0.3533	0.4380	39.27
eTrack	0.5684	0.3600	0.4408	40.09
EECM	0.5833	0.3733	0.4553	36.46
KEM	0.6133	0.6767	0.6434	14.23
MLEM	**0.6891**	**0.7833**	**0.7332**	**10.14**

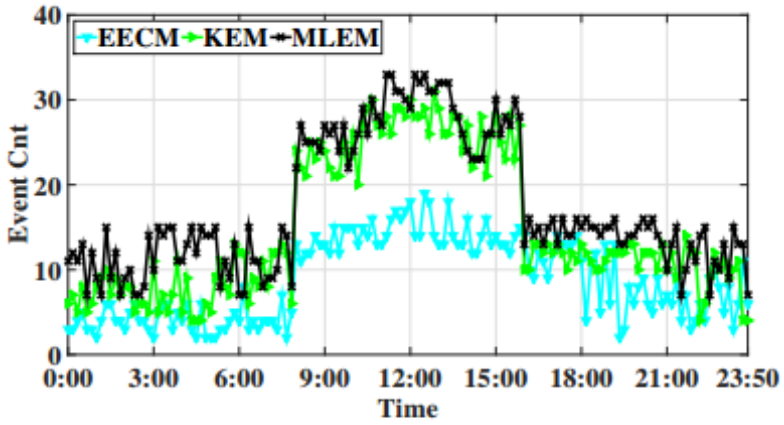

Fig. 5 Comparison of detected event quantity