

VIOLENT EVENT PARTICIPANT INFERENCE USING BAYESIAN MODELS TRAINED ON OPEN-SOURCE INFORMATION

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OVERVIEW

Where sub-national group violence is concerned, accurate assessment of and response to a violent event requires the identification of involved parties. Often this information is not readily available due to conflicting or missing knowledge of responsible groups. Computational methods offer the ability to extrapolate group involvement using various data sources. In this paper, we first formalize the History-Biased Event Participant Inference Problem as the task of identifying the violent groups most likely involved in a given event and then present a methodology that solves this problem. Our approach trains a naïve Bayesian model of violent group behavior using a data set of open-source events with known group involvement. This model is then used to identify groups whose behavioral model is most consistent with an event for which all participants (or culpable parties) are unknown.

METHODOLOGY

The new approach of the paper is applied to ISVG data both globally and specifically in the Mumbai bombing (2008) incident.

FINDINGS

The technique was shown to accurately identify the correct group for over 80% of attacks – in that the group to which the attack was attributed was usually included in a list of the ten most likely culprits as produced by the algorithm.

FUTURE RESEARCH

Future work can rely on the showing in this paper of the effectiveness of open-source data together with simple profiling and clustering techniques.



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