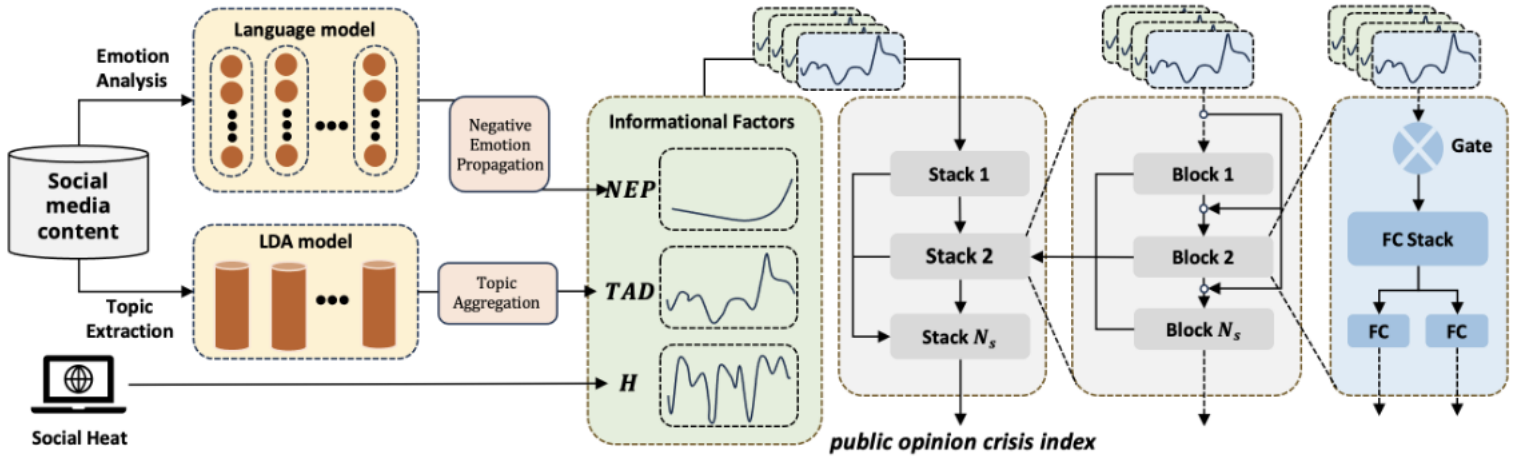
A Comprehensive framework for Predicting Public Opinion by Tracking Multi-Informational Dynamics

Mingtao SUN, Yan WEI, Shan JIANG, Guozhu JIA

Frontiers of Computer Science, DOI: 10.1007/s11704-024-3873-y

Problems & Ideas

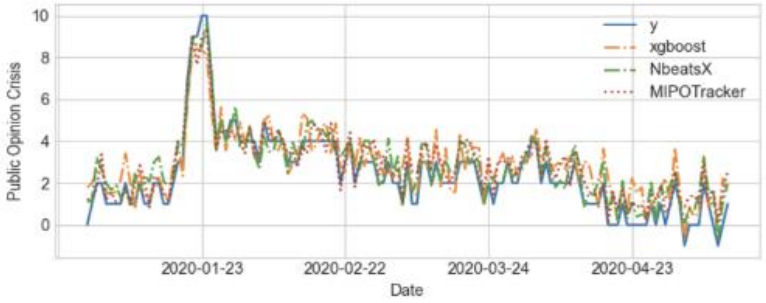
- Problems:
  - Existing methods often fail to thoroughly investigate multiple informational factors and their timely interactions, thereby limiting their efficacy in analysing public opinion.
- Ideas:
  - A novel framework, MIPOTracker, designed to predict public opinion crises by tracking multiple information factors, by using the NbertsX model to predict the public opinion crisis index, integrating exogenous variables like emotions.



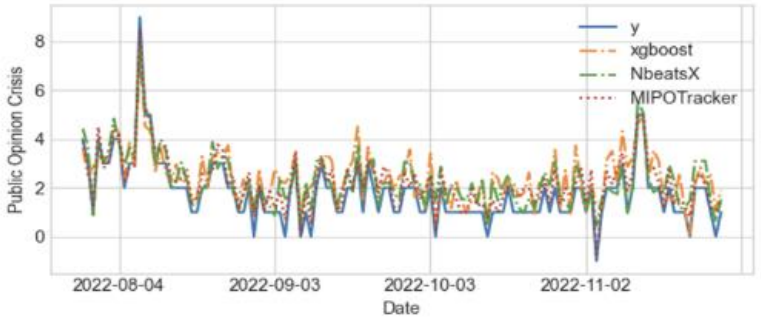
The structural diagram of MIPOTracker, which is a framework to track public opinion events from the three dimensions of theme, emotion and heat, and generates a warning about final public opinion crisis.

Main Contributions

- Contributions:
  - An integrated collection of factors linked to public opinion includes topic aggregation, negative emotion proportion, and discussion heat index.
  - The MIPOTracker framework, which incorporates these factors and employs a gating mechanism to regulate extraneous influences.
  - Real-world data experiments that demonstrate the effectiveness of our model and offer valuable insights into the dynamics of public opinion crises through an interpretable analysis of multiple external information factors.



(a) The COVID-19 dataset



(b) The Sino-US dataset

The comparison of predictions for the Public Opinion Crisis Index