

NETWORK INFERENCE FROM MIXTURE OF DIFFUSION MODELS FOR FAKE NEWS MITIGATION

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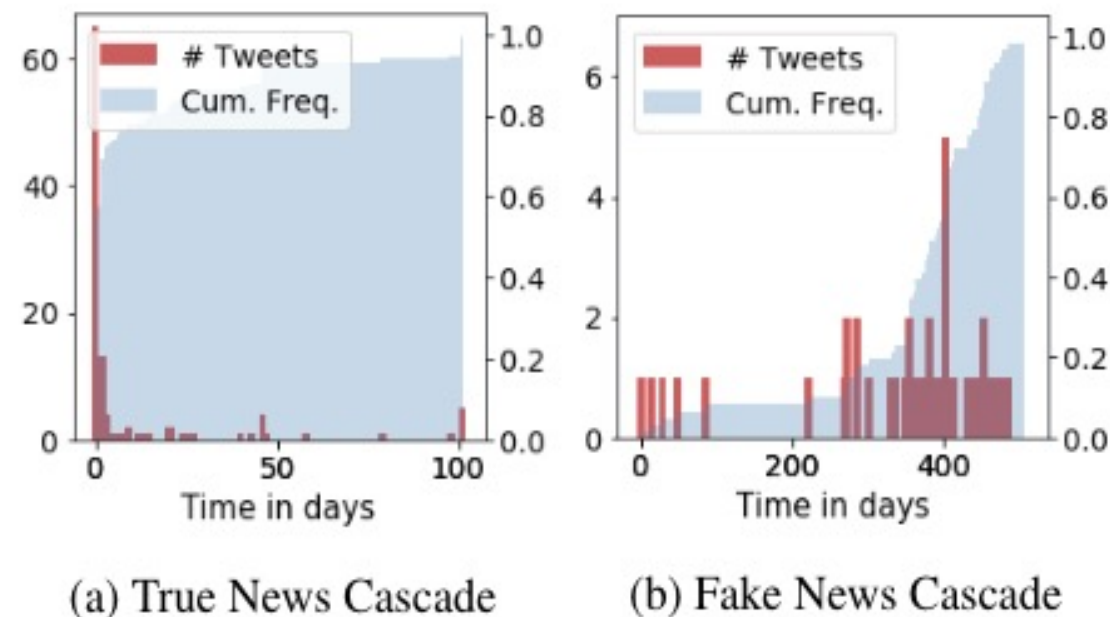


Figure 1: Example of diffusion cascades on Twitter (# tweets per day) for (a) emergency landing of an airliner in Hudson river in 2009 (b) information suggesting that the combination of Coke and Mentos can lead to death in 2006.

- Diffusion patterns of fake and true news have statistically significant differences.
 - Fake news has higher time between engagements.
 - Proportion of connected components is higher in fake cascades.
- We model the non-homogeneous sharing behaviors of users on social media using a Mixture of Independent Cascades model (MIC).
- Provide unsupervised estimation of MIC using EM.
- We leverage diffusion dynamics to facilitate network interventions for fake news mitigation.
- Offline experiments demonstrate increased reduction in fake news cascade sizes (spread) by network interventions on nodes and edges of the social network using MIC.