

Introduction

❖ Online social networks (OSNs) are today a primary way to spread and consume information.



❖ OSNs are open: users can post anything → proliferation of information with various degrees of truthfulness.

❖ Fake news articles are created and distributed for various purposes, and their use and availability have become mainstream.

❖ Goal: analyze if characteristic patterns exist in fake news spreading; use to identify and stop.

❖ Start by analyzing spreading pattern of pro vs. con vaccine-related tweets.

Experiments

Goal: Find a comprehensive list of highly relevant keywords to create the best sample representing the diverse opinions of the public on vaccines.

Procedure:

❖ Collected tweets for 60 minutes filtering by a set $K_{initial}$ of 83 keywords (such as "vaccine", "immunize", "MMR")

❖ The 60 minute collection yielded 7316 tweets, each containing one or more keywords.

❖ Each of 4 researchers analyzed the first 50 tweets for each keyword, annotating them as relevant or irrelevant to the topic of vaccines.

❖ All keywords which yielded less than 10 relevant tweets are discarded from the list of candidate relevant keywords:

$$K = K_{initial} - \{\text{keyword with } <10 \text{ relevant tweets}\}$$

❖ Retain in K only keywords with 25%+ relevancy ratio, within the collection of tweets with full-agreement (either relevant or irrelevant) among all 4 annotators:

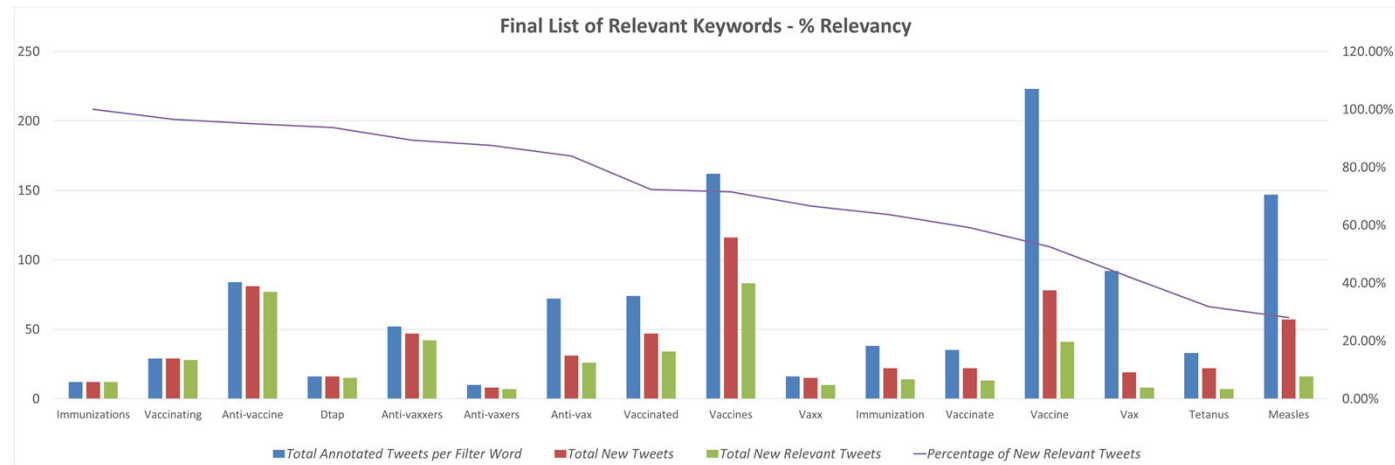
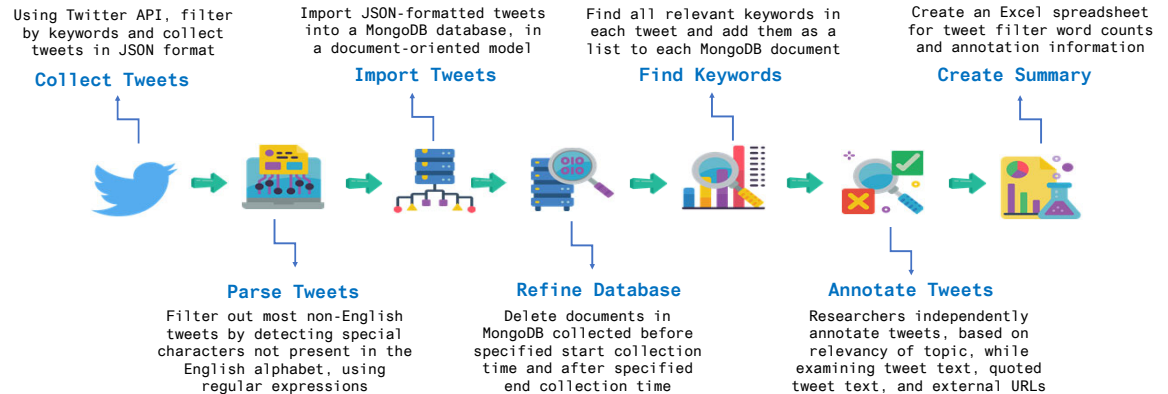
$$K = K - \{\text{keyword with } <25\% \text{ relevant tweets}\}$$

❖ Order remaining keywords by percent relevancy: $K = (k_1, k_2, \dots, k_n)$ ordered set.

❖ For each keyword $k_i \in K$, discard the tweets that were already relevant for any words $k_j \in K, j < i$.

❖ This process gives the final relevancy ratio values and the final list of relevant keywords K_{final} (16 keywords).

Experiments Workflow



Future Work

❖ Upon completion of comprehensive list of most relevant keywords, collect new dataset and use it to build classification model to automatically assign tweets to one of 4 classes pro-vaccines, anti-vaccines, neutral, or irrelevant.

❖ Analyze spreading patterns of pro-/anti- vaccine tweets.

References

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