**Motivation & Idea**

- Understanding public opinions for crisis events helps to manage the disaster [1].
- Building lexicon of keywords of resource-limited languages rely on the huge feedback from human experts.
- Including the explicit human feedback in probabilistic learning process on new data makes better results.

**Contributions**

- Developed Statistical Interactive Learning of Keywords expansion.
- Showed a significant performance gain with Indonesian tweets.
- Achieved high recall compared to existing methods.

**Limitations**

- No explanation for new keywords.
- Existing methods.
- Pre-defined keywords by crisis event enthusiasts.

**Statistical Interactive Learning of Keywords expansion**

- Statistical topic model (HDSP) [2].
- Make candidate keywords from topics near input keywords.
- Iterative method.
- Reuse the output keywords of the previous iteration as input.
- Interactive learning.
- Filter keywords by human experts.
- Include the filtered keywords in finding the topics in tweets.

**Algorithm Overview**

1. Get tweets by keywords.
2. Run HDSP.
3. Extract topic into keywords.
4. Make keyword candidates.
5. Tag the keywords.
6. Reuse the output keywords of the previous iteration as input.
7. Filter keywords by human experts.
8. Include the filtered keywords in finding the topics in tweets.

**Future Work**

- Make interpretable results (e.g., the reason of suggestions).
- Get more interactive feedback from human.
- Apply various crisis such as earthquake and typhoon.

**Efficiency of Human Annotation**

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</tbody>
</table>

**Visualising SILK Results**

- Tagging efficiency over iterations, #acceptance / #candidates.

**Keywords in Indonesian and their English translations**

- Kabut Asap (smoke)
- Pohon asap (forest fire)
- Allah (God)
- Alhamdulillah (thanksgiving)

- Hujan (rain)
- Sabar (patient)
- Tenggelam (sink)
- Masak (cook)

**Keywords in Indonesian**

- kabut & asap
- panas & kebakaran
- hujan & semoga

**Keywords in English**

- smoke & forest fire
- rain & hopefully

**Image sources:**


**Image sources:**

- http://hazegazer.org/