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"A Model for Assessing Label Quality in Crowdsourced Crisis Mapping Systems: A Case of 2010 Haiti Earthquake"

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TITLE OF THE POSTER

A Model for Assessing Label Quality in Crowdsourced Crisis Mapping Systems: A Case of 2010 Haiti Earthquake

INTRODUCTION TO THE POSTER

This poster is dedicated to present our research work on the application of crowd and crowdsourcing platforms to crisis situations. In particular, it focuses on crowdsourced crisis mapping solutions. Crowdsourcing has become a popular avenue of research dealing with crisis mapping systems. Crisis mapping systems enable collecting and disseminating crisis information. The contribution of this research is to create a model to assess label quality in the context of crowdsourced crisis mapping. The model was devised in three phases: (1) collection of crisis reports from a crisis mapping platform, (2) crowd-sourced empirical approach to capture labels at scale, and (3) a theory-guided approach for feature selection to create a machine learning model. In the first phase, we collected crisis reports from the Ushahidi platform during the 2010 Haiti earthquake. In the second phase, we utilized CrowdFlower – a crowdsourcing platform for labeling crisis reports based on the input from five crowd volunteers. In the third phase, we adopted situation awareness lens for selecting contextual and collaborative features.

POSTER SUBJECT

In the context of crowdsourced crisis mapping, extant literature has focused on labeling of crisis reports (i.e. assigning meaningful tags to crisis reports), including the problem of (low) labeling quality. Much of the prior work in label quality on crisis mapping platforms has focused on the accuracy attribute of labels, which involves comparing labels with known ground truth or “gold” labels. There are other attributes of label quality such as consistency, completeness, usage, purpose. Since ground truth may not be available in the context of crisis mapping, in this paper, we focus on the consistency attribute of label quality, which deals with consensus across labels from multiple crowd volunteers. Prior literature in this area is missing an investigation of how collaborative content (created as a result of crowd volunteer interaction) affects label quality. Utilizing situational awareness as a theoretical lens, we create a model to assess label quality based on contextual and collaborative features derived from the crisis messages from the Ushahidi crisis mapping platform. The model focuses on labels in the context of Haiti earthquake of 2010.

POSTER PRESENTER

This poster extends previous work as identified below:

Valecha, R., Oh, O., Rao, H. R. (2014). Collaborative Information Processing in Crisis Situations: A Study of 2010 Haiti Earthquake. Conference on Information Systems and Technology (CIST) 2014. San Francisco, California.

Valecha, R., Oh, O., Rao, H. R. (2013). An Exploration of Collaboration over Time in Collective Crisis Response during the Haiti 2010 Earthquake. Proceedings of International Conference on Information Systems (ICIS) 2013. Milan, Italy.

Rohit Valecha will be presenting the poster at ISCRAM 2018.

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