UNIVERSITY OF SOUTH FLORIDA

Defense of a Doctoral Dissertation

A Machine Learning Approach to Predicting Community Engagement on Social Media During Disasters

by

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For the Ph.D. degree in Computer Science and Engineering

Over the last few years, users of social media have played an increasing role in the dissemination of emergency and disaster information. However, social media platforms, especially on Twitter, presents some drawbacks when it comes to gathering information during disasters. These drawbacks include information overload, messages are written in an informal format, the presence of noise and irrelevant information. These factors make gathering accurate information online very challenging and confusing, which in turn may affect public, communities, and organizations to prepare for, respond to, and recover from disasters. To address these challenges, we present an integrated three parts (clustering- classification - ranking) framework, which helps users choose through the masses of Twitter data to find useful information. We present an evaluation of the effectiveness of detecting events using a variety of features derived from Twitter posts, namely: textual content, term frequency-inverse document frequency, Linguistic, sentiment, psychometric, temporal, and spatial. Our framework also provides insights for researchers and developers to build more robust socio-technical disasters for identifying types of online community engagement and ranking high-priority tweets in disaster situations.

Examining Committee

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Monday, June 17, 2019
1:15 PM
ENB 109

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Publications

1. **Alshehri, Adel** proach to Predict High Priority
2. **Alshehri, Adel** ssion in Twitter: Barbados Environmental Health Hazard as 2nd International Conference on Intelligent Human Systems Integration (IHSI) Springer 2019, February 7-10, 2019, San Diego, California, USA
3. **Alshehri, Adel** Predicting Community Engagement on Twitter on Conference on Semantic Computing (ICSC) Newport Beach, CA, USA Jan 30 - Feb 1, 2019
4. **Alshehri, Adel**