Machine Learning for Disaster Detection through Twitter Analysis

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Outline

- Introduction

Our research work: Using Natural Language Processing accurately identify real-time disaster announcements amidst linguistic complexities.

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Why this research is important

How can machine learning frameworks be utilized to effectively distinguish between metaphorical language and genuine crisis-related information within tweets during critical events on Twitter?

What we know and don't know

The challenge lies in accurately identifying and differentiating metaphorical expressions from authentic crisis-related information within the vast amount of real-time data flowing through Twitter feeds during critical events. Metaphors, although powerful linguistic tools, introduce ambiguity and complexity, posing a considerable hurdle in the quest for reliable crisis detection.

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Our experiment

Twitter has become a ubiquitous platform for event reporting, particularly during critical events such as disasters, facilitated by the widespread use of smartphones. This dynamic environment offers unparalleled opportunities for immediate and decentralized communication, underscoring the pressing need for effective crisis communication strategies to harness the potential of Twitter as a valuable tool for situational awareness and emergency response.

Our hypothesis

By developing a sophisticated machine learning framework that incorporates natural language processing (NLP) models to capture contextual nuances, it is possible to enhance the understanding of metaphorical language within tweets and accurately distinguish metaphorical expressions from genuine crisis-related information. Leveraging established machine learning classification algorithms and rigorous evaluation metrics, this framework can significantly contribute to improving crisis communication strategies in the digital age.