Full name and semester: Srichandana Chakilam, Spring 2023

Title: Social media's take on the climate change.

Word Count: Social media's take on the climate change. (493 words)

Research Question: The paper aims to answer the following research question:
How does social media help understand and tackle climate change?

Background: Climate change is a more serious topic than we think. It refers to the long-term changes in the global environment and the earth's atmospheric conditions that are not only hazardous but also lethal if not taken care of. It is a challenge that requires collaborative action alongside adapting to several strategies. [1] Climate change has been linked to increased risks of vector-borne diseases and other health impacts (World Health Organization, 2018). [2] According to The Food and Agriculture Organization of the United Nations (FAO, 2016), the issues related to food are expected to worsen soon if fast and necessary strategies are not adapted to improvise the deploring conditions of the earth. [3] According to the study conducted by Zander et al. (2021), the study "Responses to heat waves: what can Twitter data tell us?", Twitter users discussed heat waves in various contexts and identified the factors that influenced the public responses to heat waves. The authors suggest that social media data can be useful for understanding public attitudes, perceptions, and behaviors related to natural hazards and disasters.

Data: For this project, we are collecting at least 10,000 the posts (referred to as submissions) from across the major subreddits -r/PublicFreakout, r/worldnews, r/climate, and r/environment of the Reddit platform that contains specific keywords related to the climate change. Potential keywords are 'climate', 'heatwaves', 'extreme temperature', 'heat strokes' etc. A time range of two years will be specified which returns the data from two years ago till now. To achieve this, we make use of Python Reddit API Wrapper (PRAW). The sampling strategy used in the research would be purposive sampling, as the dataset is large and diverse, and our goal is to identify themes relevant to climate change.

Method: To conduct this research, we use Topic modelling techniques like LDA (latent Dirichlet allocation), an unsupervised learning algorithm that generates topics based on the word patterns. This will help us understand and analyze what the users are trying to communicate about the climate crisis at that point in time. For instance, it could be an indicator of public awareness or providing strategies for relief. We can further explore deeper by implementing Gibbs Sampling algorithm for Dirichlet Mixture Model (GSDMM) which is much scalable and recommended for clustering short texts.

References:
[1] World Health Organization. (2018). Climate change and health: Impacts, vulnerability, and adaptation. Retrieved from https://www.who.int/news-room/fact-sheets/detail/climate-change-and-health
[2] Food and Agriculture Organization of the United Nations. (2016). Climate change and food security: Risks and responses. Retrieved from http://www.fao.org/3/i6030e/i6030e.pdf

[3] Zander, K. K., Rieskamp, J., Mirbabaie, M., Alazab, M., & Nguyen, D. (2021). Responses to heat waves: what can Twitter data tell us? Natural Hazards, 107(1), 481-502. doi: 10.1007/s11069-020-04356-z.