

SURF Research Proposal: Analyzing Political Polarization on Twitter During the 2019 Bolivian Political Crisis

(i) Project Goals

This project aims to analyze Tweets during critical points in the timeline of the 2019 Bolivian political crisis to understand how users' political alignment shifted as new information emerged. I will conduct a political ideology analysis on the crisis-related Tweets to understand the political polarization on Twitter. Studying the shifts in Tweet's political ideology alignment throughout the period will provide a detailed understanding of the dynamics of political polarization on Twitter during the crisis.

(ii) Project Background and Significance

The 2019 Bolivian political crisis was a time of high turmoil in the country's history, marked by protests, violence, and the resignation of former president Evo Morales. How the event unfolded was unique, with information being revealed throughout the period that could drastically alter public opinion.

Evo Morales, a Movimiento al Socialismo (MAS) party member, decided to run for a fourth term as president on October 20th, 2019. After a narrow first-round victory, Morales was met by the opposition demanding a second round of voting. Lacking support from the police and army, Morales resigned from his position (*Timeline: Bolivia's Political Crisis*, 2021).

Subsequently, opposition leader Jeanine Áñez was instated as interim president, resulting from a power vacuum when other members of the MAS party resigned. Later, the Organization of American States (OAS) claimed that the October election was purposefully rigged, leading to

a warrant for Morales' arrest on terrorism grounds. However, the warrant was later annulled (*Timeline: Bolivia's Political Crisis, 2021*).

After a long delay in the next election, MAS candidate Luis Arce won. Later, Áñez was arrested and charged with terrorism for organizing an alleged coup that led to the resignation and investigation of Morales (*Timeline: Bolivia's Political Crisis, 2021*).

This project is significant as it delves deep into the Twitter conversations during the 2019 Bolivian political crisis, providing a detailed understanding of the dynamics of political polarization on the platform. By analyzing Tweet content and political standing, we can understand how social media platforms like Twitter can influence and exacerbate political polarization. Additionally, studying political polarization in this specific case is essential as it sheds light on the role of social media in political crises and how it can be used to understand and respond to them. Furthermore, this project fills a gap in the literature on the Bolivian political crisis by assessing the role of social media in the crisis. Twitter is a valuable data source for this research as it is one of the most widely used and highly connected social media platforms, making it an excellent lens through which to view political polarization—both in the case of Bolivia and generally. The insights gained from this research will be helpful to scholars in political science, communication, and social media studies.

(iii) Methods

This project will use computational and qualitative methods to analyze the extent of political polarization on Twitter during the 2019 Bolivian political crisis.

(a) Data Collection (*Week 1*)

The first step is to compile a comprehensive list of hashtags and relevant phrases that will allow for a Twitter API query that results in a broad and encompassing set of Tweets related to

the 2019 Bolivian political crisis. The selected points during the timeline will limit the Tweets queried from the API. There will be approximately three sets of Tweets (from different periods).

(b) Data Preprocessing (*Week 2 - 3*)

Once the dataset has been collected, it must be cleaned and preprocessed to remove any irregularities. For example, Tweets made by Twitter bot accounts would have to be disregarded, as this study is attempting to understand the polarization of people, not robots.

Since ideology alignment analysis is a supervised learning algorithm, it requires labeled data. To obtain this labeled data, I will use a publicly available corpus of Twitter data labeled with political ideology alignment.

(c) Data Analysis (*Week 4 - 5*)

After preprocessing, the dataset will be analyzed. A model must be trained on Tweet political ideology alignment data to begin analysis. For the model, I will use a convolutional and bi-directional long short-term memory (CB-LSTM) neural network (Li et al., 2017). It will be trained on the publicly available dataset. However, since this project is event-specific, there will be classifications by the model that have a low confidence value due to being trained on general data. Therefore, my solution is to implement an active-learning aspect to the model. This will allow the neural network to query me whenever it has a classification confidence that is too low. As I help the network, it will learn from my correct classification and update accordingly. As per the Li et al. paper's suggestion, the labeled dataset will be split into 80% training and 20% validation and testing (2017).

(d) Data Interpretation (*Week 5 - 6*)

Finally, the results of the data analysis will be visualized and interpreted in the context of the events happening during that period. The paper will explain shifts in political ideology

alignment at the distinct points on the timeline, possibly attributing the change to a particular event that may have happened during that day or time.

The remaining weeks will be for any mistakes and changes I make to the study, as well as writing and editing the paper.

(iv) Preliminary Work and Experience

There is confirmation that there was an influx of Tweets related to Bolivia at a few points along the timeline. Some trending topics on Twitter during the time were *Bolivia*, *Evo Morales*, and *Golpe de Estado*, which means *coup d'etat*.

Previously, during the summer before my senior year in high school, I was a research assistant at the George Mason University Aspiring Scientist's Summer Internship Program (ASSIP). I worked under Dr. [REDACTED], Dr. [REDACTED], and Dr. [REDACTED]. We were studying the factors that make local community gatherings successful through data collected from Meetup.com. I was involved with data mining from the site, data preprocessing and programming a Random Forest Classifier model for a system that could predict a future event to be successful or unsuccessful.

Currently, I am a research assistant at the UNC Department of Sociology under Professor [REDACTED]. We are studying political mobilization, specifically through the lens of protest. We have been scraping news article data related to protest. Recently, I utilized the roBERTa model to identify protest-related articles. Now, I'm working with spaCy's Prodigy tool to perform named entity recognition (NER) on the articles based on ground truth data. This will extract data from the articles, such as protest size, organizers, location, and more.

Additionally, I can read Spanish, allowing me to classify Tweets correctly in Spanish.

(v) Prospective Final Product

The final product of this project will be a research paper. However, this will be one part of a larger research project. In addition to political ideology alignment, I want to perform network analysis and topic modeling on the data to understand further the leading agents and conversation focus regarding the Bolivian political crisis. Once the entire research project is completed, the paper will be submitted to a peer-reviewed journal in the field of political science or other political studies topic. The goal is to publish it in a reputable journal, allowing for broader dissemination of the findings and contributing to the existing literature on the subject.

References

Li, X., Chen, W., Wang, T., & Huang, W. (2017). Target-Specific Convolutional Bi-directional

LSTM Neural Network for Political Ideology Analysis. *Web And Big Data*, 64–72.

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Timeline: Bolivia's political crisis. (2021, March 13). RFI.

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