

Impact of Venezuela-Guyana Border Dispute Misinformation on Sentiments Toward Venezuelan Migrants in Guyana

REU Final Presentation

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Map highlighting the Guayana Esequiba region, which is disputed between Venezuela and Guyana.

Source: Encyclopædia Britannica, Inc.

Graphic Creator: Kenny Chmielewski

- ▶ Venezuela's economic collapse under President Nicolás Maduro's regime has driven millions of Venezuelans to flee their homeland, primarily seeking refuge in neighboring countries, including Colombia, Peru, and Brazil. However, there is a smaller population of approximately 29,000 migrants residing in Guyana.
- ▶ In the midst of these circumstance, there is also a longstanding border dispute between Venezuela and Guyana over a resource-rich region in Guyana named the Essequibo.
- ▶ The 1899 Paris Arbitration Award granted the Essequibo region to British Guiana (now Guyana), and the region is internationally recognized as part of Guyana. However, Venezuela has consistently rejected this award, leading to ongoing tensions.



Map highlighting the Guayana Esequiba region, which is disputed between Venezuela and Guyana.

Source: Encyclopædia Britannica, Inc.

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- ▶ The discovery of vast oil reserves in the Essequibo region in 2015 intensified Venezuela's territorial claims, culminating in a referendum on December 3, 2023, to assert its claim over the disputed region.
- ▶ The Venezuelan government actively spreads misinformation to bolster its territorial claims by distorting historical facts, manipulating public opinion through state-controlled media, and promoting false narratives on social media.
- ▶ This study investigates the impact of this misinformation on public sentiment towards Venezuelan migrants in Guyana by analyzing YouTube comments.

Research Questions

Primary

- What is the prevailing sentiment of YouTube comments from videos regarding the Venezuela-Guyana Border Dispute and Venezuelan migrants in Guyana?

Secondary

- Do sentiments expressed in YouTube comments about Venezuelan migrants in Guyana correlate with sentiments expressed in YouTube comments about the Venezuela-Guyana border dispute?
- How does misinformation about the Venezuela-Guyana border dispute impact sentiments towards Venezuelan migrants in Guyana?

Relevant Videos for Sentiment Analysis										
Video Name	Video ID	Channel Name	Verified Channel	Channel Subscribers	Upload Date	Video Duration	Number of Comments	Like Count	View Count	Region
Update by President Dr. Irfaan Ali on the Guyana-Venezuela border controversy	wTObz0TPuw0	Peoples Progressive Party/Civic	No	36.9 K	09/23/2023	4 Mins 20 Secs	271	380	32, 826	Guyana, South America, Global
FACT CHECK: Venezuelan Maduro Baselessly Accuses Guyana's Ali of Violating the Treaty of Geneva	VkZZQOJGHSw	Voice of America	Yes	3.32 M	10/03/2023	2 Mins 32 Secs	402	533	85, 267	United States, Global
Guyana-Venezuela Land Dispute worries locals	LWmsRmwobZE	Associated Press News	Yes	2.89 M	11/28/2023	3 Mins 26 Secs	347	837	100, 365	United States, Global
THE GROWING VENEZUELAN MIGRANTS SQUATTING SETTLEMENT AT GROVE SEA DAM	7up-b0RHFMl	News Room Guyana	No	51.3 K	2/19/2021	3 Mins 10 Secs	27	100	13, 561	Guyana, South America
Untold Stories: struggles of Venezuelans and Guyanese living at the Tuschen Sea Dam	ZUcvPIMIY5g	The Shabna Show	No	8.13 K	4/27/2023	18 Mins 16 Secs	101		62, 947	Guyana, Venezuela, South America
Venezuela Expands Military Operations at Guyana Border Threatening Essequibo Firstpost America	mBcN-AVqJA	Firstpost	Yes	4.77 M	5/15/2024	3 Mins 23 Secs	167	646	88,971	United States, Global
Presidents of Guyana and Venezuela meet to discuss territorial dispute	Fw40_WZYTzw	NBC News	Yes	10 M	12/14/2023	3 Mins 37 Secs	253	551	91, 427	United States, Global
22,000 VENEZUELAN MIGRANTS SOUGHT REFUGE IN GUYANA IN THE LAST FIVE YEARS	cF0NaTCJVol	HGPTV (Channel 16)	No	92.1 K	06/23/2021	3 Mins 55 Secs	36	57	7, 686	United States, Global
Dozens of Venezuelans detained after arriving in boat at Tuschen	I4YsVUJS8vc	The Shabna Show	No	8.13 K	09/29/2023	25 Mins 15 Secs	417	1.1 K	170, 984	Guyana, Venezuela, South America
Life in Guyana for Venezuelan Migrants	yIJTZ0jE2vw	Leana Bradshaw	No	3.22 K	10/08/2021	5 Mins 20 Secs	137	1.2 K	117, 941	Guyana, Venezuela, South America

Source: Created by Jessica S. Melton

Data Collection

- Selected 30 YouTube videos using keyword phrases like "Venezuela-Guyana Border Dispute," "Oil Found in Guyana Essequibo," "2023 Referendum in Venezuela," "Venezuelan Migrants in Guyana," and "Guyana Essequibo.”
- Information about the videos were collected on a chart. This included: video titles, IDs, channel names, verification status, subscriber counts, upload dates, video durations, comment counts, like counts, view counts, and intended audience regions.
- The YouTube Data API was used to then scrape comments from the selected videos. This created an initial dataset of 21,241 comments spanning from July 23, 2015, to June 9, 2024.

Data Cleaning

- The dataset was cleaned by converting text to lowercase and removing punctuation, special characters, and stop words.
- During the initial data cleaning process, approximately 2,000 comments were found to be in other languages.
- ChatGPT 4o was used to create a translation program that detected the language of each comment, translated them to English, and performed the same data cleaning steps.
- The final cleaned dataset consisted of 20,690 comments.

Data Cleaning

[illegible]

Source: Data cleaning program created using Chat GPT 4o

Exploratory Data Analysis

Performed exploratory data analysis to gather insights about:

Misconceptions About Venezuelan Migrants



Roy, a man who migrated from Venezuela to Guyana with his family of four, describing their struggles while squatting in the makeshift home behind him which sits on land in Tuschen.

Source: The Shabna Show

Photographer: Shabna Rahman

@718gon: "Is not you letting them In and giving them free land and jobs while your own people are suffering! Hypocrisy!"

@crystallayne7599: "I am so sorry about her .but guyanese always ready to give free land and resources to others rather than taking care of their own."

@alexisramsaroop4083: "Struggling is joke! So I am happy that you decided to give away free land to refugees while the locals have to fight for every inch."

@mackaticatang123: "@@Tribuneofthepebs no it's not do you know how many Guyanese families are without land and here we are giving it away for free to outsiders?"

Source: Extracted Youtube comments from users @718gon, @crystallayne7599, @alexisramsaroop4083, and @mackaticatang123

Exploratory Data Analysis

Performed exploratory data analysis to gather insights about:

The Influence of Misinformation on Comments



A member of the Venezuela national assembly holds a map showing the disputed Essequibo region, in Caracas on 6 December 2023 (3 day after the referendum).

Source: The Guardian

Photographer: Leonardo Fernández Vilorio

@azharuddinzahaur7683: "A lot of the information that you have presented here completely ignores the 1899 treaty."

@fahimshamsuddin672: "Update: in 1899 the US represented Venezuela during the arbitration."

@eduardoyespica1130: "It is a good analysis of the situation, and it shows how the Geneva Agreement supports Venezuela's historical claim."

@martindione386: "@@raoulruplal6488 'In January 1900, former President of Venezuela Cipriano Castro declared that the arbitration was biased.'"

@LuccianoBartolini: "+Sebastie Cortes The agreement of Geneva was disregarded by Guyana, ignoring Venezuela's rightful claim."

Source: Extracted Youtube comments from users @azharuddinzahaur7683, @fahimshamsuddin672, @eduardoyespica1130, @martindione386, and LuccianoBartolini

Exploratory Data Analysis

Performed exploratory data analysis to gather insights about:

Distrust of Misinformation Propagated by Venezuelan Government Officials



Venezuelan nationals of Guyanese descendants rally in support of Guyana against the Venezuelan regime's claim on Guyana's Essequibo territory.

Source: i News Guyana

Photographer: Unkown

@Livermore1234: "Nonsense, both on the history and the facts. State media is just pushing their own narrative."

@Vichikuma: "As a Chilean historian, lately I have been truly disturbed by how Venezuelan state-controlled media twists the truth about Essequibo."

@arianneharris7230: "The border dispute was settled. The ICJ is only reviewing the case because of the false claims spread by Venezuela's government media."

@MS-tc2fs: "@@againstviralmisinformation510 Again, you have to understand that Venezuelan official news outlets are just propaganda machines for their territorial ambitions."

Source: Extracted Youtube comments from users @Livermore1234, @Vichikuma, @arianneharris7230, and @MS-tc2fs

Sentiment Analysis

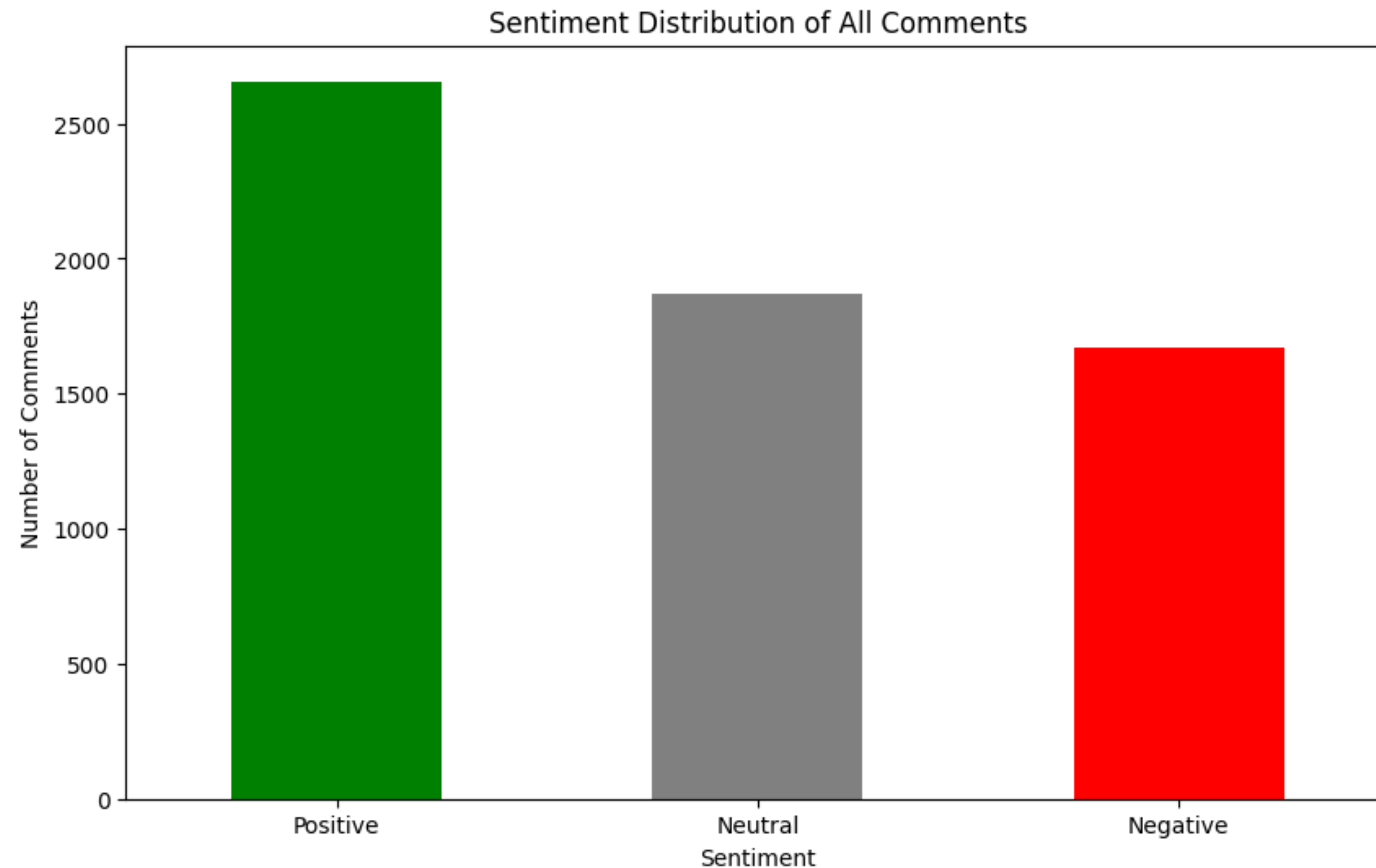
```
keywords = [
    "Guyanese", "border dispute", "border conflict", "territorial dispute", "territorial conflict", "Essequibo", "Essequiba",
    "el Essequiba", "displaced persons", "cross-border migration", "cross border migration",
    "Guayana Esequiba", "Orinoco River", "disputed", "el essequibo", "disputed territory", "sovereignty", "guyanese sovereignty",
    "annexation", "territorial boundaries", "migration policy", "migrant support", "migrant assistance",
    "territorial claim", "land dispute", "Referendum", "refugees", "asylum seekers", "migrants", "refugee", "migrant",
    "humanitarian response", "refugee integration", "migrant safety", "refugee assistance",
    "immigration", "humanitarian crisis", "Venezuelan refugees", "Venezuelan asylum seekers", "migrant crisis",
    "territory", "border", "not a blade of grass", "Demerara", "1812", "1899", "new map",
    "Venezuelan migrants", "refugee camps", "refugee shelters", "refugee settlements", "anti-refugee", "anti refugee", "essequibo territory", "essequiba territory",
    "displacement", "forced migration", "resettlement", "refugee crisis", "misinformation", "regional stability", "200 years",
    "digital workers", "Venezuelan migrant", "Venezuelan refugee", "Venezuelan in Guyana", "Venezuelans in Guyana",
    "fake news", "false information", "propaganda", "disinformation", "rumors", "false claims", "annexing", "maduro dictator",
    "sentiment", "opinion", "view", "attitude", "perception", "reaction", "Guyanese government",
    "Venezuelan government", "President Irfaan Ali", "President Nicolás Maduro", "PPP government", "PPP", "Maduro",
    "Irfaan", "president", "Ali", "President Maduro", "President Nicolas Maduro", "Nicolás Maduro", "President Nicolas Maduro",
    "political stance", "government policy", "immigration policy", "refugee policy", "regional conflict", "media bias", "esequibo belongs venezuela", "esequibo belongs guyana",
    "government action", "humanitarian aid", "diplomatic relations", "news coverage", "news", "border security",
    "media report", "social media", "YouTube comments", "public discourse", "public opinion",
    "community response", "societal impact", "public sentiment", "human rights", "asylum rights", "conflict",
    "refugee rights", "international law", "legal status", "protection", "xenophobia", "dispute", "geneva",
    "discrimination", "violence against refugees", "hate speech", "humanitarian support",
    "Caribbean politics", "Latin America", "South America", "international dispute", "territorial sovereignty", "cross-border issues", "interstate conflict",
    "regional stability", "economic impact", "development aid", "foreign aid", "economic migration", "job market", "labor market",
    "economic stability", "resource allocation", "financial aid", "economic policy", "development projects", "infrastructure development",
]
```

A snippet of the keywords used to filter for relevant comments

Source: Created by Jessica S. Melton

- ▶ Conducted sentiment analysis using TextBlob to categorize comments as positive, negative, or neutral. The program also recorded the polarity of each comment.
- ▶ Initially, the sentiment analysis program used a list of 20 keywords to filter comments for relevancy, resulting in a small dataset of only 1,678 comments.
- ▶ Expanded the list to 392 keywords to capture a broader range of relevant comments.
- ▶ Program filtered through the 20,690 cleaned comments based on these keywords and analyzed the sentiment of the filtered comments.
- ▶ This resulted in a final dataset to 6,201 comments.

Sentiment Analysis Results



Source: Created by Jessica S. Melton

- Sentiment analysis was conducted on 6,201 filtered comments related to either the Venezuela-Guyana border dispute and the Venezuelan migrants residing in Guyana.

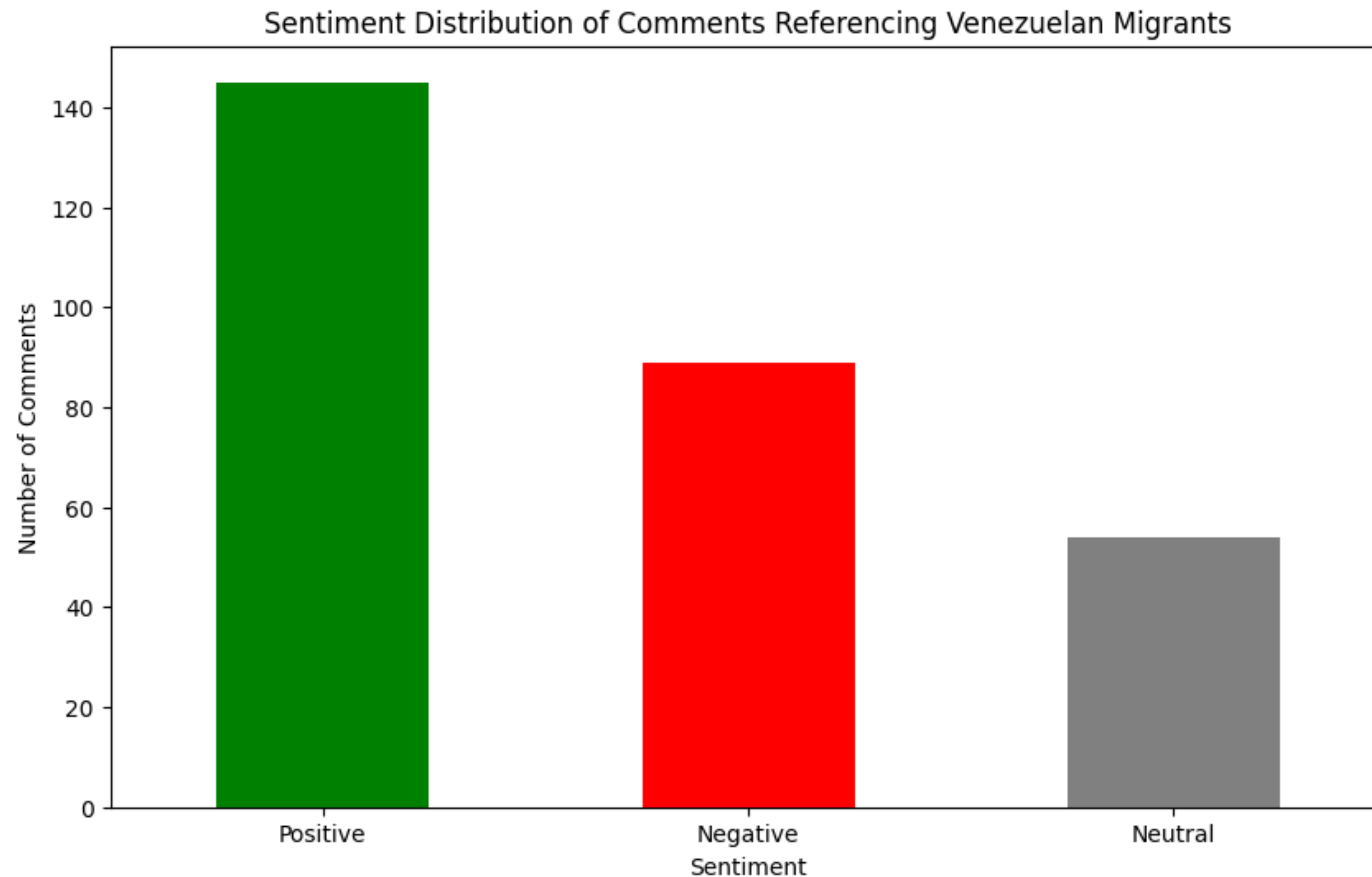
- Sentiment distribution results:

42.8% (2,656 comments) were positive

26.9% (1,672 comments) were negative

30.1% (1,872 comments) were neutral

Sentiment Analysis Results



Source: Created by Jessica S. Melton

- ▶ When focusing on the 289 comments that referenced the Venezuelan migrants in relation to the border dispute, the sentiment distribution resulted in:

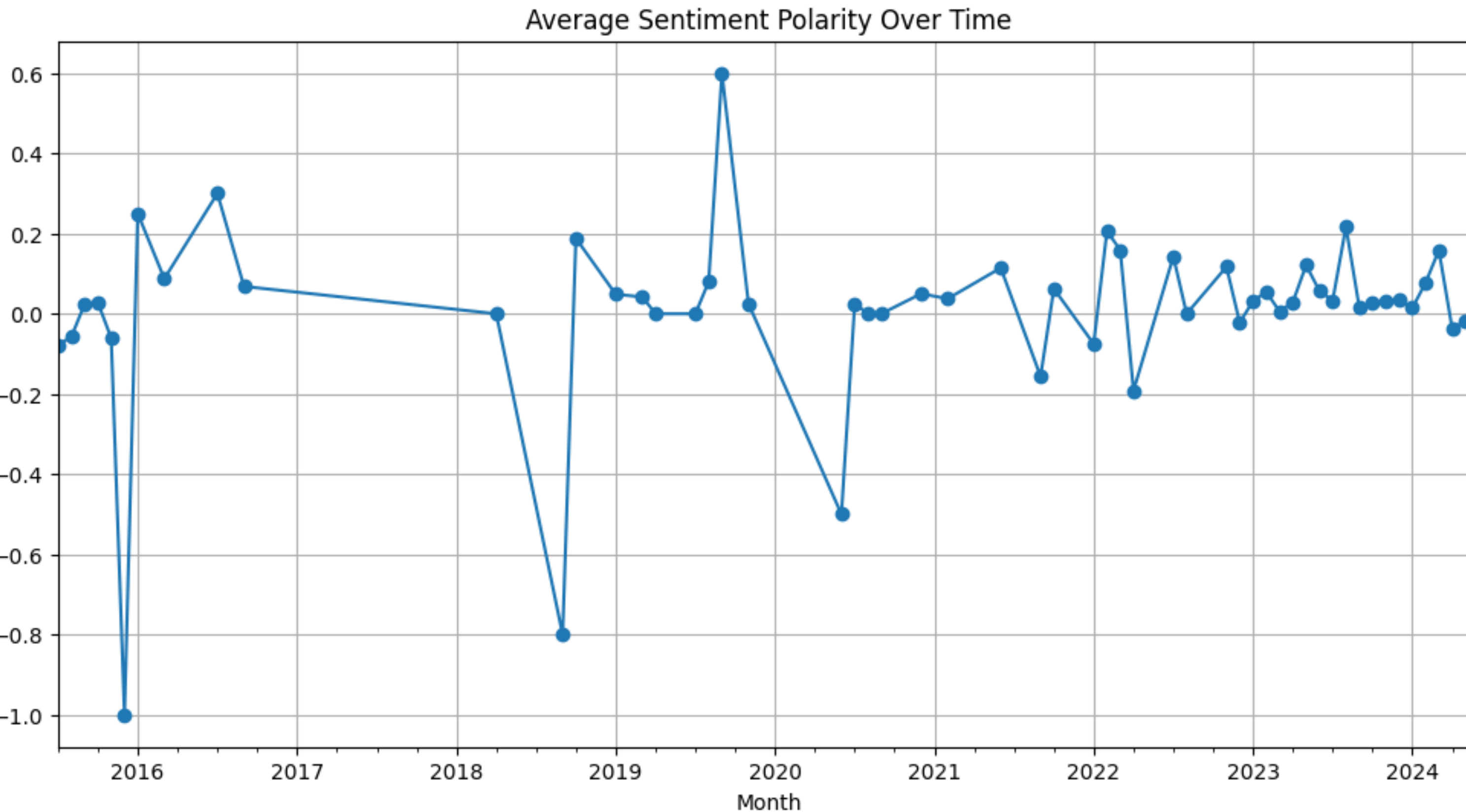
50.3% (145 comments) positive comments

30.9% (89 comments) negative comments

18.7% (54 comments) neutral comments

- ▶ The higher proportion of positive sentiments in this subset suggests that discussions involving both topics may evoke more positive reactions compared to the overall dataset.

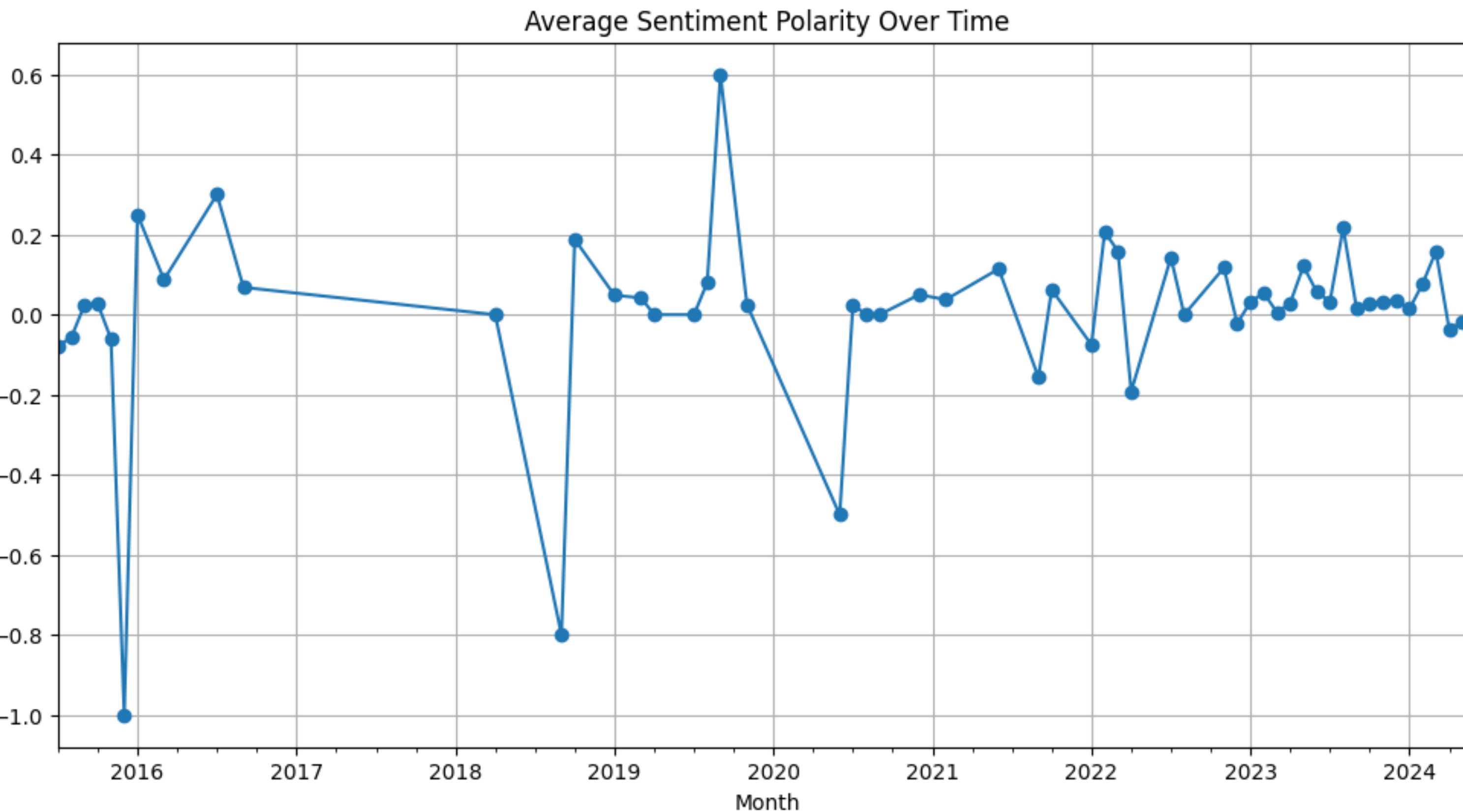
Sentiment Analysis Results



Source: Created by Jessica S. Melton

- **Polarity** is a measure of how positive, negative, or neutral a piece of text is.
- Polarity values typically range from -1 to 1:
 - **-1 (Very Negative)**: Indicates a very negative sentiment. For example, "I hate this product."
 - **0 (Neutral)**: Indicates a neutral sentiment, with no strong feelings either way. For example, "The product arrived."
 - **1 (Very Positive)**: Indicates a very positive sentiment. For example, "I love this product."

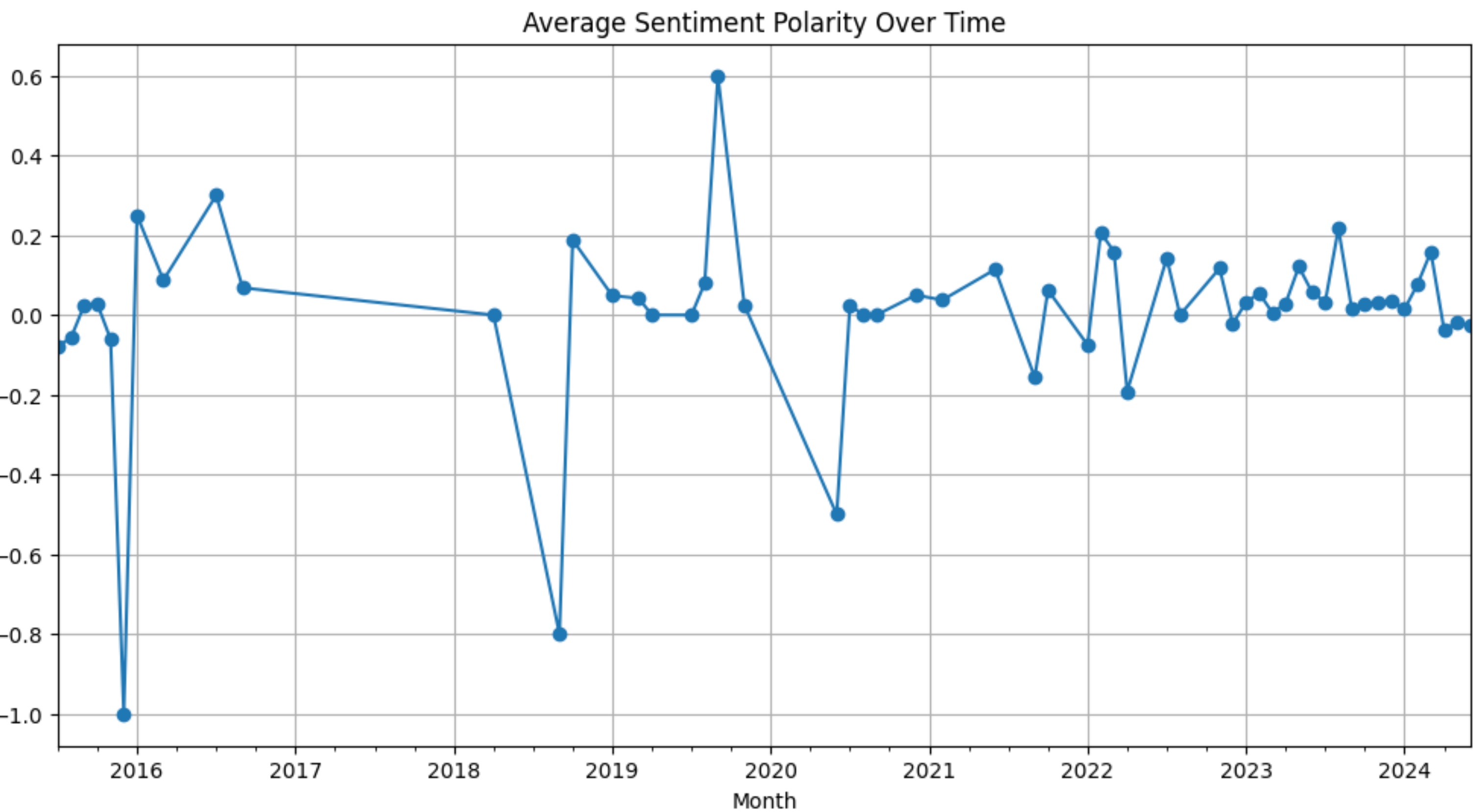
Sentiment Analysis Results



- ▶ Highest average sentiment polarity was recorded in September 2019.
- ▶ Lowest average sentiment polarity was recorded in December 2015.
- ▶ Overall average sentiment polarity was 0.03, indicating generally neutral sentiment which correlates with the sentiment distribution bar chart.

Source: Created by Jessica S. Melton

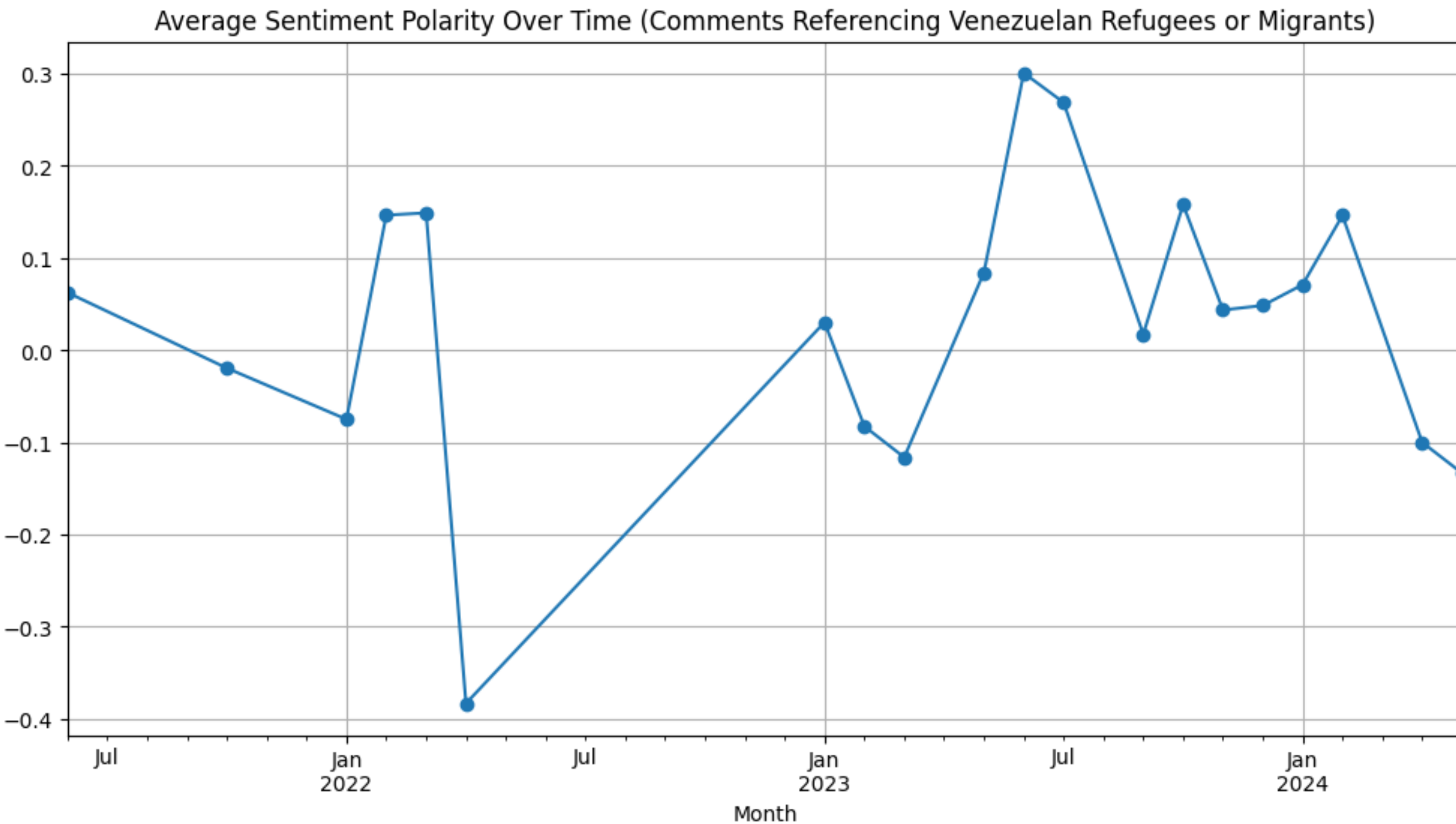
Sentiment Analysis Results



Source: Created by Jessica S. Melton

- Yearly sentiment polarity details:
 - 2015: 65 comments, Average Sentiment: -0.05
 - 2016: 6 comments, Average Sentiment: 0.17
 - 2017: 0 comments, Average Sentiment: N/A
 - 2018: 3 comments, Average Sentiment: -0.20
 - 2019: 18 comments, Average Sentiment: 0.07
 - 2020: 9 comments, Average Sentiment: -0.03
 - 2021: 45 comments, Average Sentiment: 0.06
 - 2022: 22 comments, Average Sentiment: 0.09
 - 2023: 5,349 comments, Average Sentiment: 0.04
 - 2024: 681 comments, Average Sentiment: 0.00
- Increased comments in 2023 are most likely due to the December 3, 2023, referendum and heightened engagement around this event.

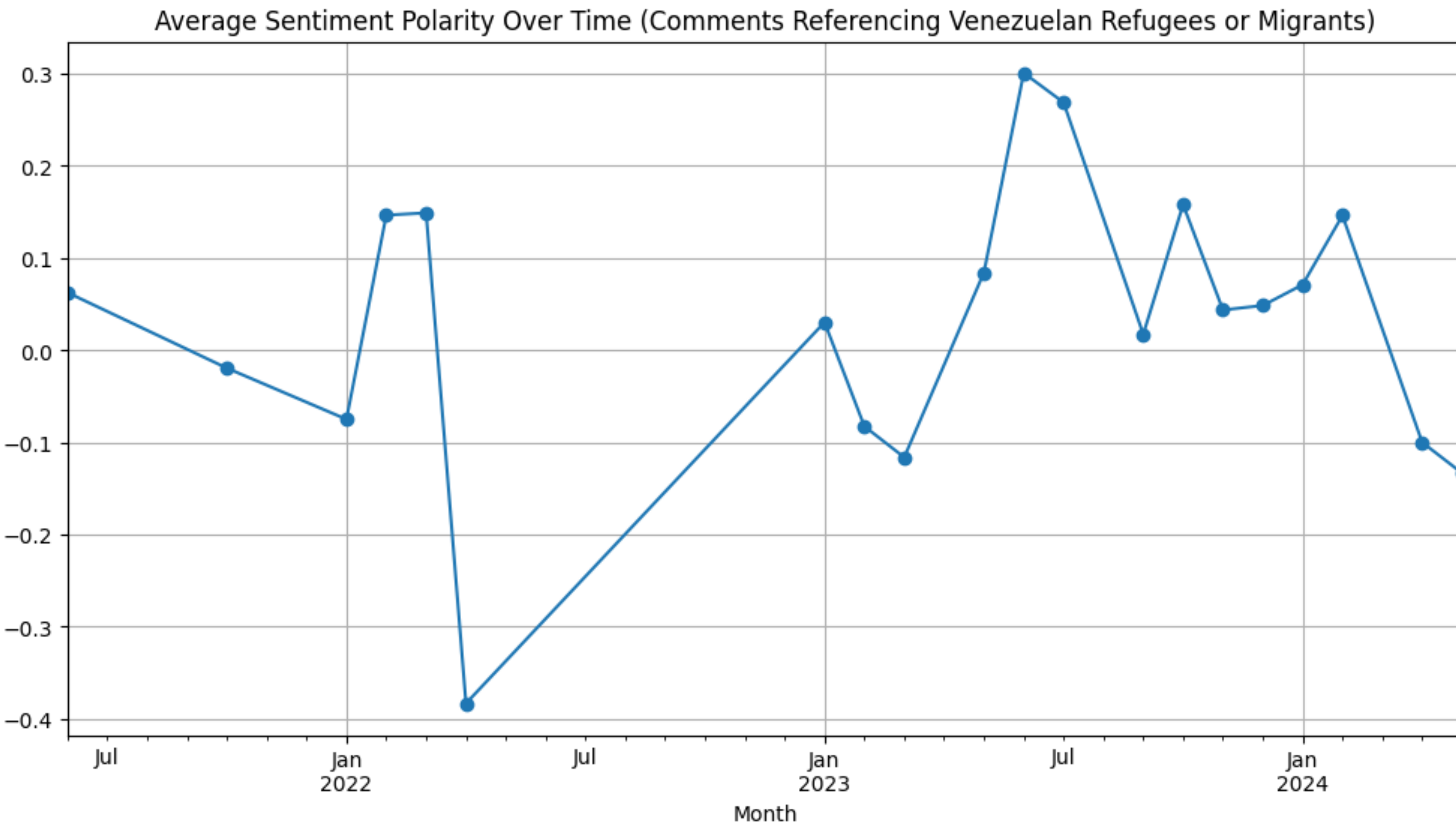
Sentiment Analysis Results



- Highest average sentiment polarity was recorded in June 2023.
- Lowest average sentiment polarity was recorded in April 2022.
- Overall average sentiment polarity was 0.05, slightly more positive.

Source: Created by Jessica S. Melton

Sentiment Analysis Results



Source: Created by Jessica S. Melton

- ▶ When focusing on the 289 comments that referenced the Venezuelan migrants in relation to the border dispute, the yearly sentiment polarity details are:
 - 2015-2020: 0 comments
 - 2021: 16 comments, Average Sentiment: -0.00
 - 2022: 6 comments, Average Sentiment: 0.02
 - 2023: 251 comments, Average Sentiment: 0.06
 - 2024: 15 comments, Average Sentiment: 0.02
- ▶ Absence of comments in 2015-2020 suggests the intersection of the border dispute and migrants was not a major topic until recent years.

Attempted Misinformation Detection Model

- ▶ After conducting the sentiment analysis, I attempted to develop a model to identify comments influenced by misinformation spread by the Venezuelan government.
- ▶ Planned binary labeling of comments as '1' for misinformation and '0' for not.
- ▶ Applied a pre-trained text classification model (BERT) to each comment, trimming text to the model's maximum length.
- ▶ Limited machine learning knowledge made this model challenging to create and initial attempts were unsuccessful; all comments were labeled as misinformation.
- ▶ A custom-trained model is necessary for detecting nuanced misinformation from the Venezuelan government.
- ▶ Creating a reliable training dataset requires advanced machine learning skills and extensive research.

Research Questions

Question 1:

- What is the prevailing sentiment of YouTube comments from videos regarding the Venezuela-Guyana Border Dispute and Venezuelan migrants in Guyana?

The overall sentiment leans towards being positive.

Research Questions

Question 2:

- Do sentiments expressed in YouTube comments about Venezuelan migrants in Guyana correlate with sentiments expressed in YouTube comments about the Venezuela-Guyana border dispute?

Yes, there is a correlation, but it is relatively small. Out of the 6,201 comments analyzed, only 289 (approximately 4.7%) referenced the Venezuelan migrants in relation to the border dispute.

Research Questions

Question 3:

- How does misinformation about the Venezuela-Guyana border dispute impact sentiments towards Venezuelan migrants in Guyana?

The exploratory data analysis suggests that sentiments are indeed influenced by misinformation.

However, due to the incomplete misinformation detection model, the answer to this question remains mostly inconclusive.

Further Work

Enhanced Data Collection:

- Collect more comments to cover a wider range of sentiments and topics.
- Include comments from additional social media platforms for a broader analysis.

Refined Data Cleaning:

- Improve data cleaning processes to enhance accuracy, including better translation tools.
- Implement techniques to handle slang and context specific terms.

Create Misinformation Detection Model:

- Develop a custom-trained model to accurately detect misinformation from the Venezuelan government.
- Create a reliable training dataset with specific phrases and terms used in misinformation.

Explore The Following To Learn More About:

The Venezuelan Migrant Crisis

- unhcr.org/en-us/venezuela-emergency.html

The Venezuela-Guyana Border Dispute

- crisisgroup.org/latin-america-caribbean/guyana/troubled-waters-along-guyana-venezuela-border

The International Organization for Migration

- iom.int/

Special Thanks To:



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