

DETECTING AND IDENTIFYING FAKE NEWS ON TWITTER

Lenna Nashif

New York University - Tandon School of Engineering

lan9199@nyu.edu



NYU



ABOUT THE PRESENTER

Lenna Nashif is a current Product Manager and Data Scientist at a financial services company. She is pursuing her masters at NYU in Cybersecurity. Prior to this, she graduated from the New Jersey Institute of Technology with a degree in Chemical Engineering. Lenna has previous experience in risk, development, and process improvement. Lenna is interested in the intersection between cloud technology, Big Data Analytics, finance, and business.



AGENDA

- Introduction
- Motivating Example
- Hypothesis
- Implementation
- Future Work

INTRODUCTION



Social media has a role in spreading information that might change a user's views



Seen in different areas – ranges from harmless to serious effects

TWITTER

- Twitter is an online social media network that allows users to post Tweets and interact with other users through Retweets, Likes, and Replies
- Allows users to discover people and topics from around the world
- Hashtags tie unique ideas to a specific area that users can find.
- Active Twitter users per month: 330 million
 - Trends towards younger, Democratic, highly educated, higher incomes

MOTIVATION

- 2020 election and covid-19
- Majority of content comes from the minority of users
 - 80% of content from just 10% of accounts
- Intend to improve upon these interactions to verify that the information is correct or known to be otherwise.
- Main approach currently: algorithms to label wide-reaching tweets as incorrect
 - Recently implemented towards the end of 2020

HYPOTHESIS

- Algorithm will use TextBlob's Sentiment Analysis tool to understand the tweets
- A list of reputable and trusted news sources will be cross-referenced to websites that are tweeted or retweeted
- Creates a tool for a fast and effective way to understand data and information



Indicates that both are accurate, and the information is reliable

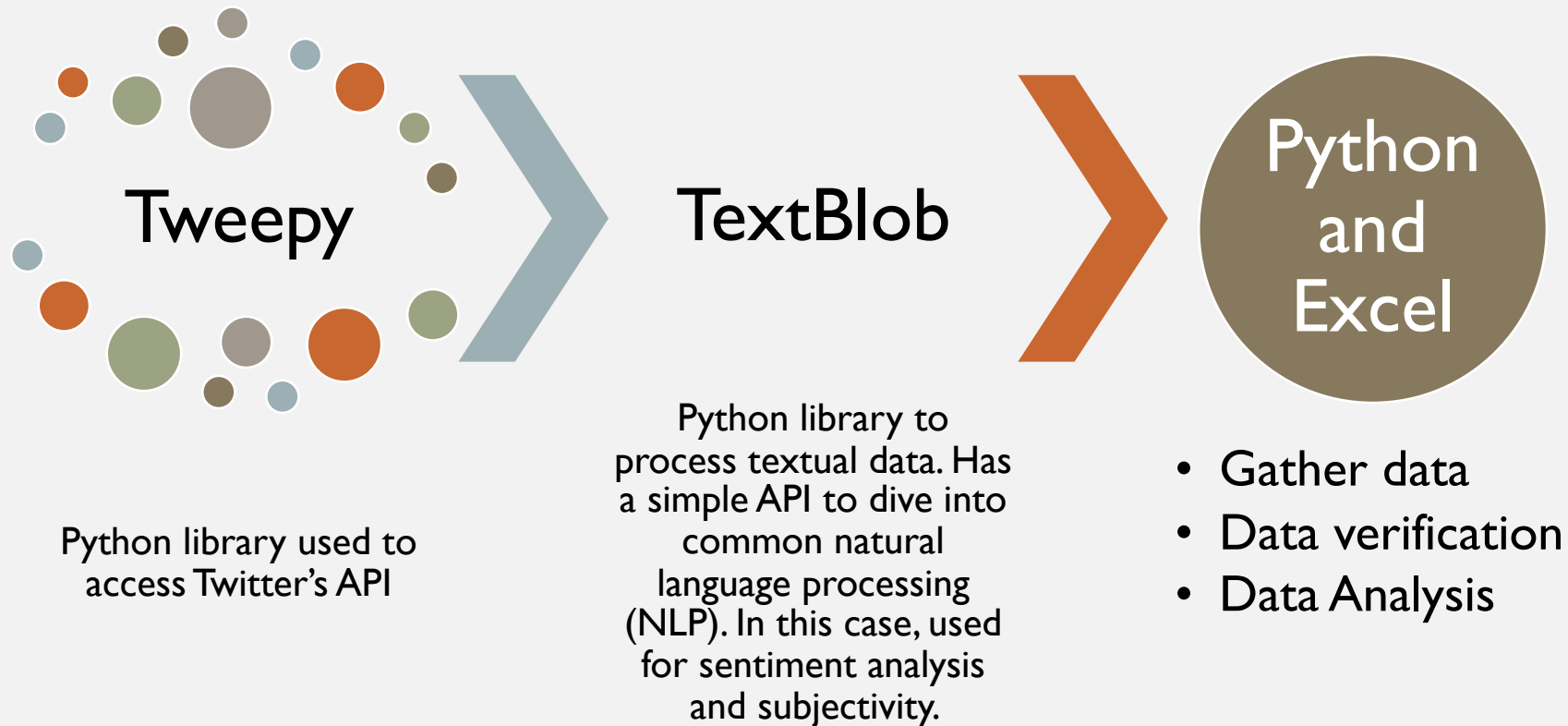


Indicates that one or the other is not accurate and should be taken cautiously



Indicates that neither is accurate, and the information is not reliable

TECHNOLOGY USED



IMPLEMENTATION

Get data from
Twitter using Python
and Tweepy



Analyze for
sentiment analysis
and subjectivity
using TextBlob



Further understand
data using Excel,
cross reference with
Twitter usernames
based on source
reliability



Draft a preliminary
benchmark for
which tweets are
reliable and which
ones potentially
spread
misinformation,
shown through the
icons on the tweets

WHAT ARE REPUTABLE SOURCES?

- Report facts over opinions
- Do not maintain biases that affect reporting
- Science-based sources:
 - Focused on scientific methods and understandings
 - Peer-reviewed



#Coronavirus has changed 2020 completely

More good news on the [#Covid19](#) vaccine front. Moderna's mRNA vaccine looks to be 94.5% effective preliminary analysis. All severe Covid cases were in placebo group. We won't know for a while, though, how long protection from any of the vaccines will last.



Moderna's Covid-19 vaccine is strongly effective, early look at data show
The drug maker Moderna said its coronavirus vaccine was 94.5 percent effective, according to an early analysis of data.
[statnews.com](#)

5:09 PM · Dec 9, 2020 · Twitter Web App

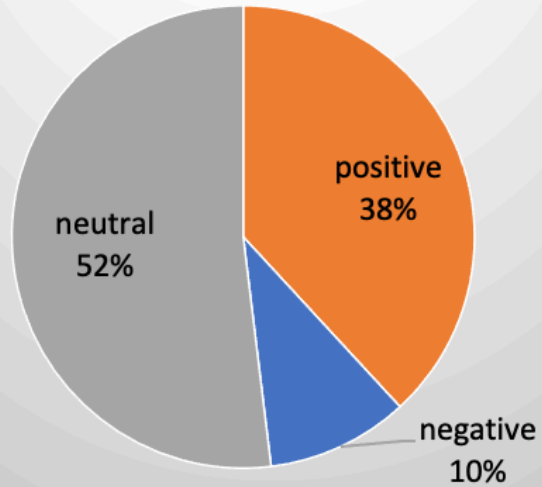
7.7K Retweets 1.9K Quote Tweets 28.2K Likes



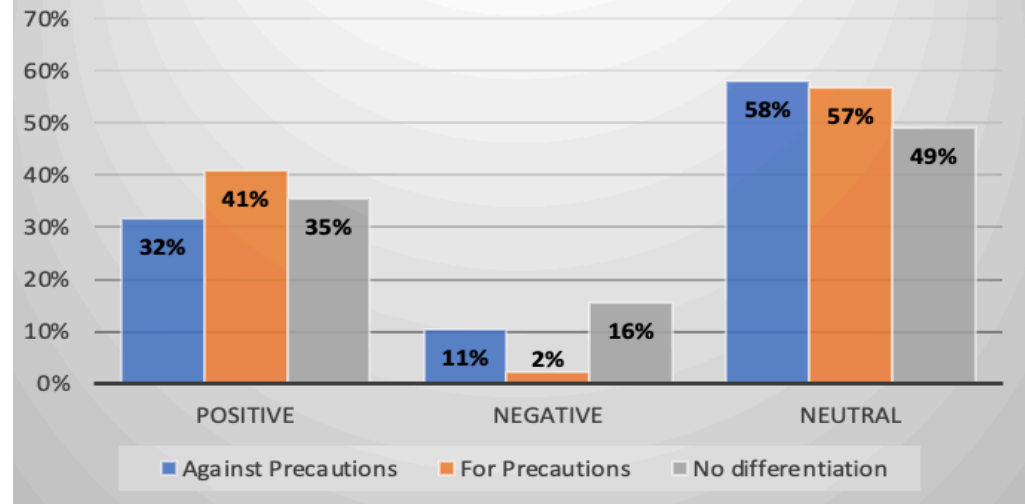
This tweet relates to the coronavirus and may present conflicting information. However, analysis done indicates the tweet is likely to be accurate.

Reply Tweet [#covid19](#)
Reply tweet [#coronavirus](#)
Reply tweet [#wearmask](#)
Reply tweet [#covid-19](#)

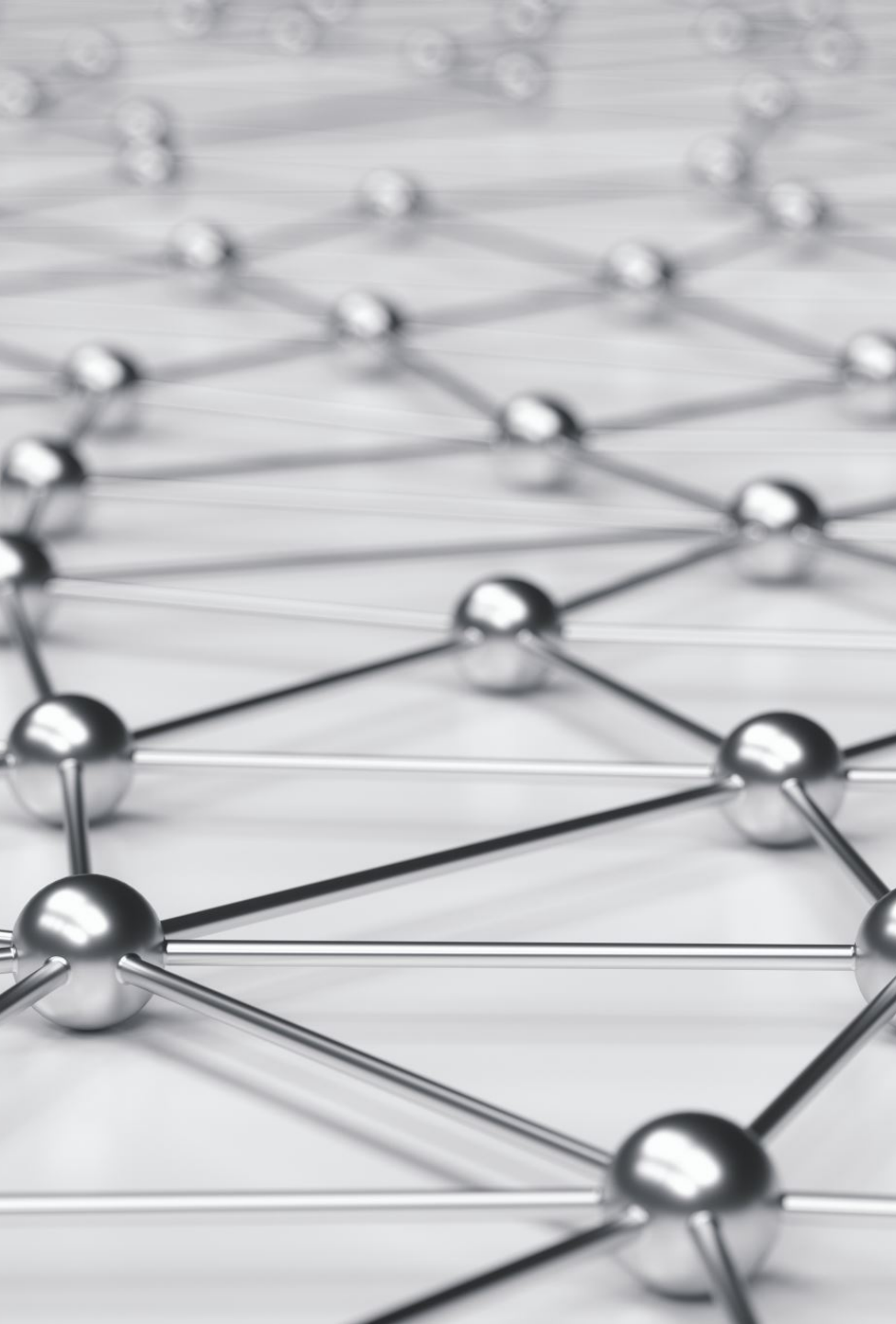
Average Sentiment in Covid-19 Tweets



Covid-19 Tweet Sentiment



ANALYSIS



FUTURE WORK

- Further analysis based on:
 - Cross-reference with different types of news resources
 - Additional and enhanced sentiment analysis
 - Larger datasets from Twitter

REFERENCES

- S. S. Nikam and R. Dalvi, "Machine Learning Algorithm based model for classification of fake news on Twitter," 2020 Fourth International Conference on I-SMAC (IoT in Social, Mobile, Analytics and Cloud) (I-SMAC), Palladam, India, 2020, pp. 1-4, doi: 10.1109/I-SMAC49090.2020.9243385. [Accessed: 21-Nov-2020]
- Z. Thomas, "What is the cost of 'cancel culture'?", *BBC News*, 08-Oct-2020. [Online]. Available: <https://www.bbc.com/news/business-54374824>. [Accessed: 23-Nov-2020].
- S. Wojcik and A. Hughes, "How Twitter Users Compare to the General Public," *Pew Research Center: Internet, Science & Tech*, 30-May-2020. [Online]. Available: <https://www.pewresearch.org/internet/2019/04/24/sizing-up-twitter-users/>. [Accessed: 23-Nov-2020]
- [1] N. X. Nyow and H. N. Chua, "Detecting Fake News with Tweets' Properties," 2019 IEEE Conference on Application, Information and Network Security (AINS), Pulau Pinang, Malaysia, 2019, pp. 24-29, doi: 10.1109/AINS47559.2019.8968706. [Accessed: 21-Nov-2020]
- [2] P. K. Verma, V. Sharma, and S. Agarwal, "Credibility investigation for tweets and its users," 2019 3rd International Conference on Computing Methodologies and Communication (ICCMC), Erode, India, 2019, pp. 925-928, doi: 10.1109/ICCMC.2019.8819809. [Accessed: 21-Nov-2020]