



SOCIAL MEDIA ANALYTICAL PROJECT

How US Government could manage Covid-19 Vaccination through Tweets

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The background image shows a person in a white lab coat and black gloves holding a syringe with blue liquid. In the background, a woman is holding a large grey sign. The word 'INTRODUCTION' is written in white capital letters inside a white rectangular frame, which is positioned over the sign.

INTRODUCTION

COVID19

What are the opinions and perceptions of the public to COVID-19 vaccines campaign and what are the potential drivers that affect such opinions?

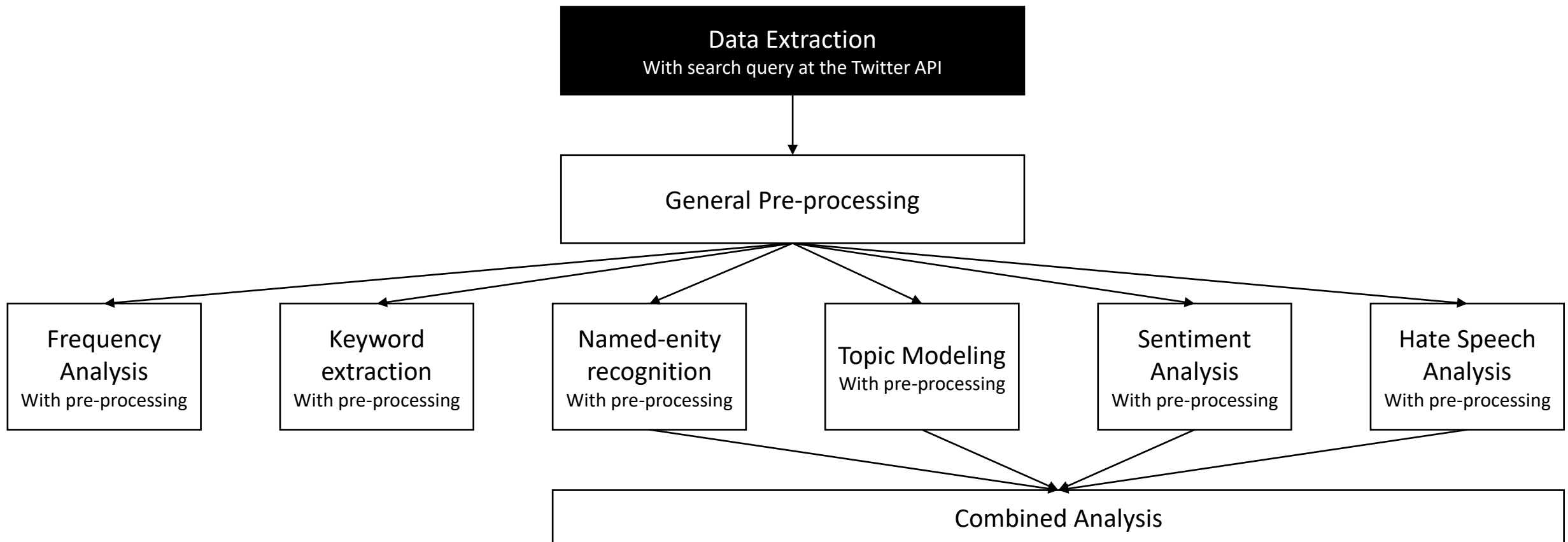


A photograph of four people sitting against a teal background. From left to right: a man with a brown paper bag over his head with a small clear window for his eyes; a woman with a clear plastic bottle over her head; a man with a clear plastic container over his head; and a woman wearing a yellow face mask. A white rectangular box is superimposed over the center of the image, containing the text 'DATA EXTRACTION AND ANALYSIS' in white capital letters.

DATA EXTRACTION AND ANALYSIS

DATA PIPELINE

AFTER EXTRACTING RELEVANT POSTS FROM TWITTER WE FIRST APPLIED GENERAL PRE-PROCESSING AND THEN MULTIPLE INDIVIDUAL ANALYSIS AND PRE-PROCESSING STEPS,WHICH WE LATER USE IN A COMBINED ANALYSIS.

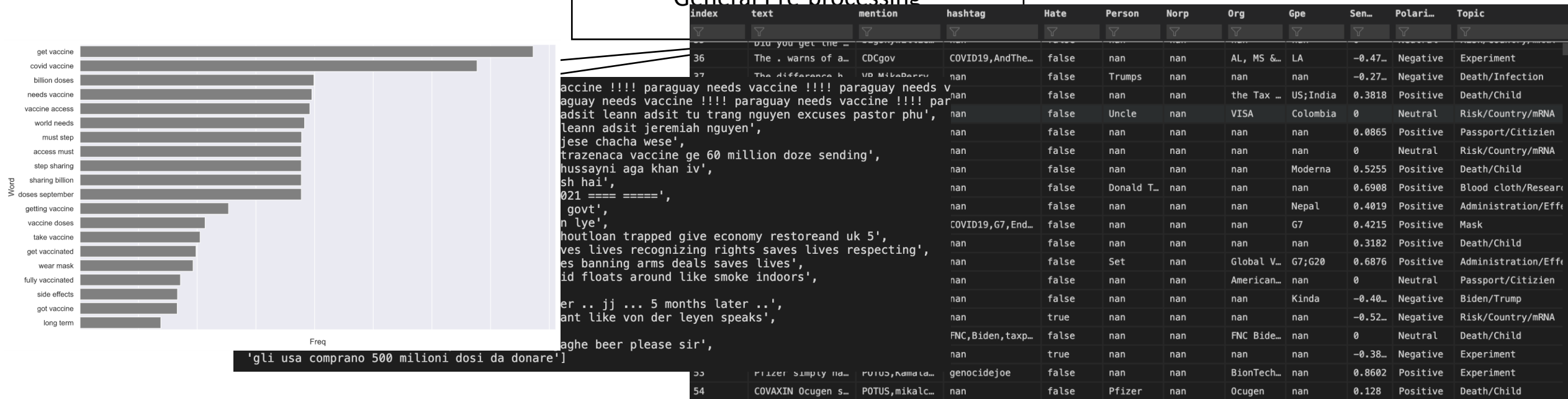


DATA PIPELINE

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Data Extraction
With search query at the Twitter API

General Pre-processing



HATE SPEECH ANALYSIS

FOR THE HATE SPEECH ANALYSIS, WE FIRST DECIDED TO BUILD A CLASSIFIER WITH THE STATE-OF-THE-ART BERT PRETRAINED LANGUAGE MODEL. AS AN ALTERNATIVE WE DECIDED TO USE A SIMPLE APPROACH OF LEXICAL BASED CLASSIFICATION.

FIRST ATTEMPT

WITH BERT LANGUAGE MODEL

- Because of context-sensitive we expected good performance
- Manually testing on our data set showed insufficient results
- Problem: Great difference between train and test set

SECOND ATTEMPT

WITH LEXICON BASED METHOD

- Simple approach gives more reliable results



CONCLUSIONS

EXTRACTED TWEETS

ANALYZING THE TWEETS EXTRACTED, WE HIGHLIGHTED SOME ACCOUNTS THAT BELONG TO RECOGNIZED PEOPLE OR INSTITUTIONS AND ARE CONSIDERED OPINION LEADERS ON TWITTER:



Anti-Vaccine

@AlexBerenson tweets that most people would be better if they don't get vaccinated and usually contests the government recommendations regarding covid protection.



Anti-Government

@RepThomasMassie contests government decisions about vaccination and



Pro-Government

@WHCOS supports government decisions regarding vaccination and is one of the accounts with most liked tweets regarding to Covid topic

SENTIMENT ON ACTORS

CHECKING NOW THE SENTIMENT ANALYSIS TO UNDERSTAND THE PUBLIC OPINION REGARDING SOME POLITICIANS AND ORGANIZATIONS, WE CAN STATE THAT:



President Biden

Slightly above average positive sentiment and Vice President Harris even more positive.



Center of Disease Control and Prevention (CDC)

A negative sentiment with almost no neutral Tweets.



Foreign Politicians

Boris Johnson (UK), Justin Trudeau (PM of Canada), Scott Morrison (PM of Australia) have a positive feeling.

Emmanuel Macron and the Japanese Prime Minister have positive sentiments below average and negative above average.



G7 and EU

International organizations noticeably more positive.

RELEVANT TOPICS

UNDERSTANDING THE PUBLIC OPINION REGARDING POLITICIANS AND ORGANIZATIONS:

1

People tweet a lot about death also related to children however the sentiment and the hate speech rate are surprisingly positive

2

There are many Tweets (11351) that are related to the risk of vaccines especially with the mRNA technology

3

On the other hand, Tweets regarding masks are entirely positive although a much smaller number

4

Tweets regarding the government (Topic Administration/Effectiveness) and the Biden/Trump dispute are more negative.

5

Tweets containing republicans or democrats have a strongly increased amount of hate speech.

Face coverings are
required on public transit.

SUGGESTIONS

SUGGESTIONS

TO DEVELOP MORE CONFIDENCE IN THE VACCINATION, US
GOVERNMENT SHOULD:

- 1) Follow closely the tweets from opinion leaders
- 2) Work with other Governments to develop vaccines
- 3) Boost vaccine access in critical states
- 4) Be transparent and clear about vaccines with the help of Health Specialists to:
 - 1) Clarify the possible side effects
 - 2) Explain the differences of each vaccines
 - 3) Study and share if there any long-term side effect for children
 - 4) Justify the need for immunization





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