

# Facebook Ads Monitor: An Independent Auditing System for Political ads on Facebook

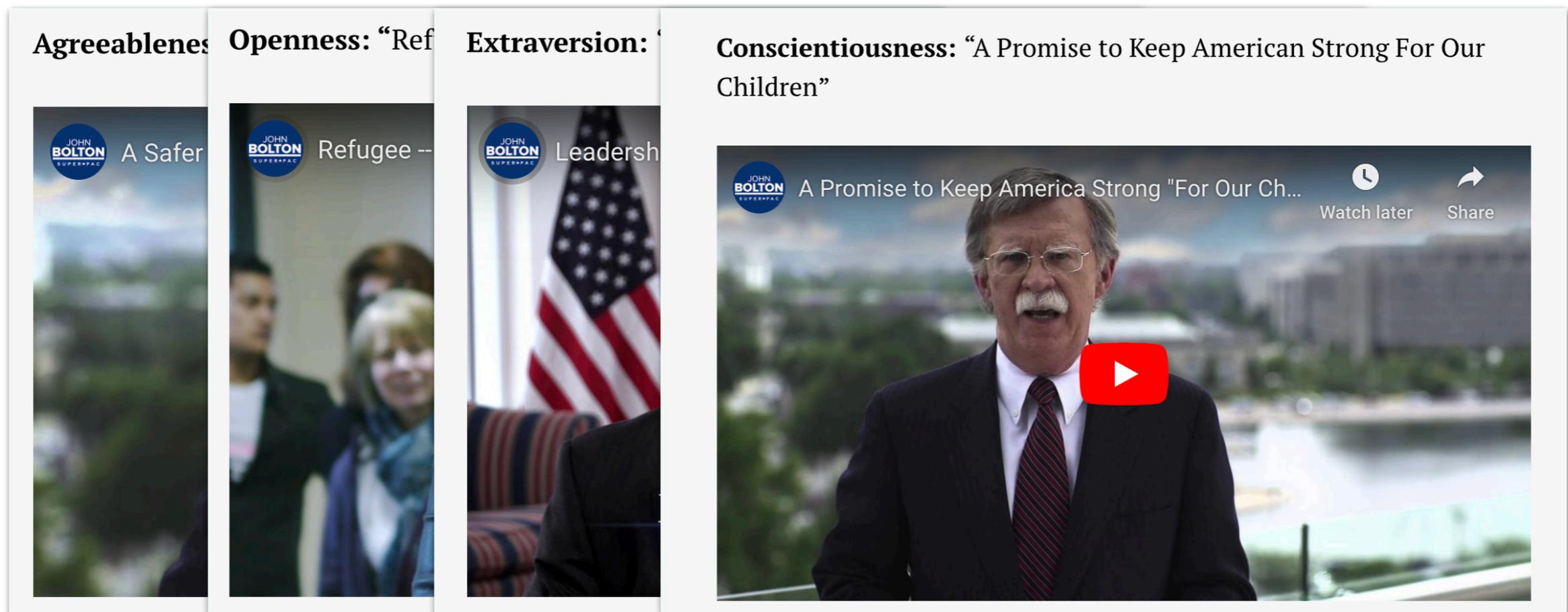
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The Web Conference  
22 April 2020



# Political ads targeted based on personality

- Cambridge Analytica & 2016 US election

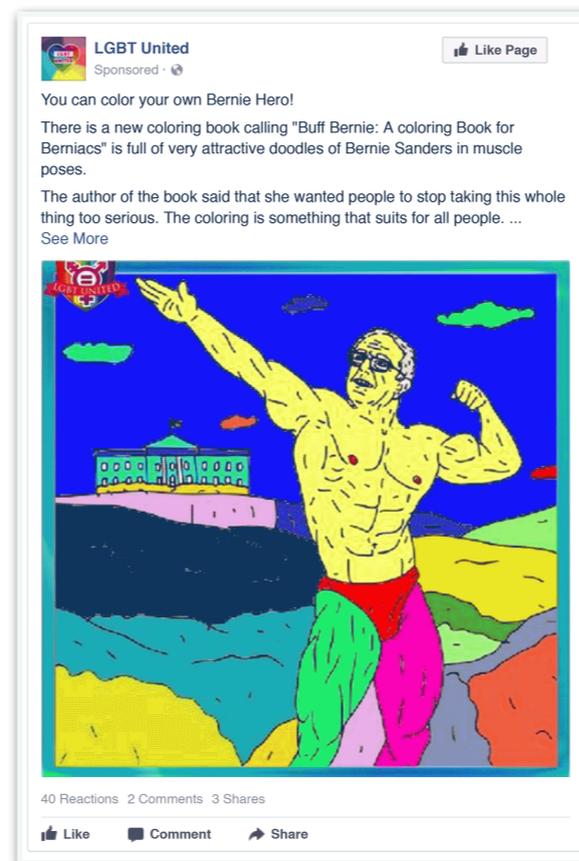


<https://qz.com/1782348/cambridge-analytica-used-these-5-political-ads-to-target-voters/>

- The effectiveness of these campaigns is disputed

# Foreign interference in elections

- Internet Research Agency (IRA) & 2016 US election



- 10 times the average click through rate
- Content on polarizing topics, campaign spread over 2 years
- Targeting attributes: African-American history, latin hip hop, black nationalism

[FAT\*'18]

# Political ads featuring fake news

 **Daily Vine**  
Sponsored • Paid for by Right Wing News

**BREAKING: \$1.8 BIL Of Soros' Money Just Intercepted - He Could Officially Go To Prison For Years**



**BREAKING: \$1.8 BIL Of Soros' Money Just Intercepted - He Could Officially Go To Prison**  
Do not pass Go. Do not collect \$200. [Learn More](#)

RWNOFFICIAL.COM

 **Team President Donald J Trump**  
Sponsored • Paid for by Right Wing News

**Trump Has HAD IT! Sarah Sanders Announces They're ALL Banned From WH Effective NOW!**



**Trump Has HAD IT! Sarah Sanders Announces They're ALL Banned From WH Effective NOW!**  
The announcement came right after a book... [Learn More](#)

RWNOFFICIAL.COM

**Trump campaign runs hundreds of misleading Facebook ads warning of Super Bowl censorship**



**Defiant Mark Zuckerberg defends Facebook policy to allow false ads**

**Zuckerberg says 'people should be able to judge for themselves the character of politicians' and compares alternative to censorship**

# Weaponization of ad technology

- Engineer polarization
- Voter disengagement
- Voter manipulation

Important problem with no satisfying solutions!

# Facebook countermeasures in 2018

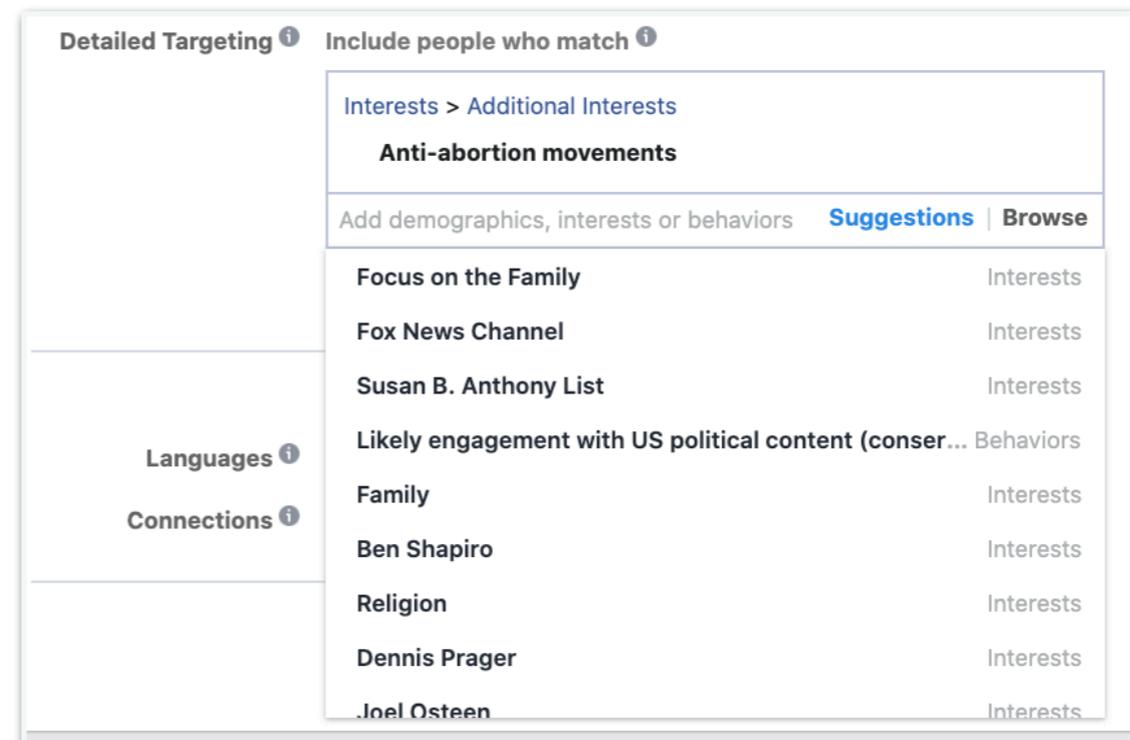
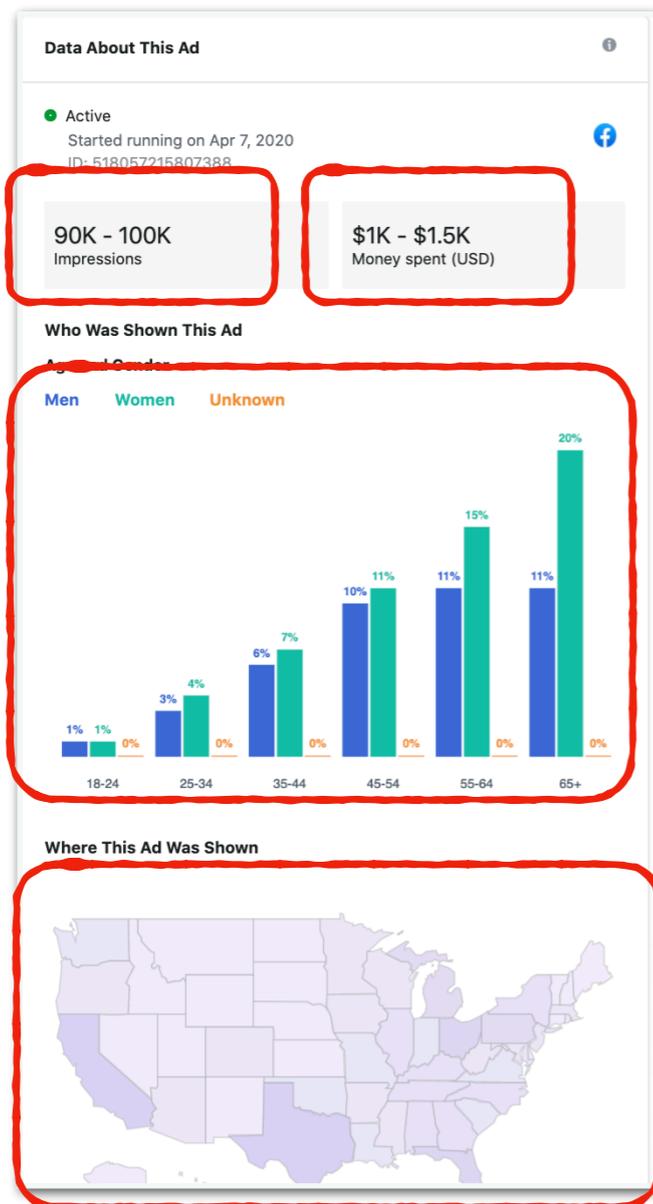
- Political ads can only be send by:
  - Advertisers in the [same country as the targeted users](#)
  - Advertisers who have [verified their account](#) (by providing an identity card or phone number)
- All political ads need to include a “[Paid for by ...](#)” disclosure
- Facebook launched the [Ad Library](#) that contains historic logs of [all political ads](#) that run on the platform

Many critiques:



# Limitations of the Ad Library: Data asymmetry

Only limited data made available about micro-targeting !



> 250k free formatted attributes

# Limitations of the Ad Library: Enforcement

- **Declaration** of sending a political ad is on a **voluntary basis**
- No info about how Facebook enforces this policy

How many political ads are missed from the Ad Library?

# Our solution

Build an **independent auditing system** for **political ads**

that

enables the **participation of the society** in the process of uncovering (potential suspicious) political campaigns

by

**donating data** about the **ads** they receive on their Fb timeline

 AdAnalyst

# Ad collector

Chrome and Firefox extension

<https://adanalyst.mpi-sws.org/>

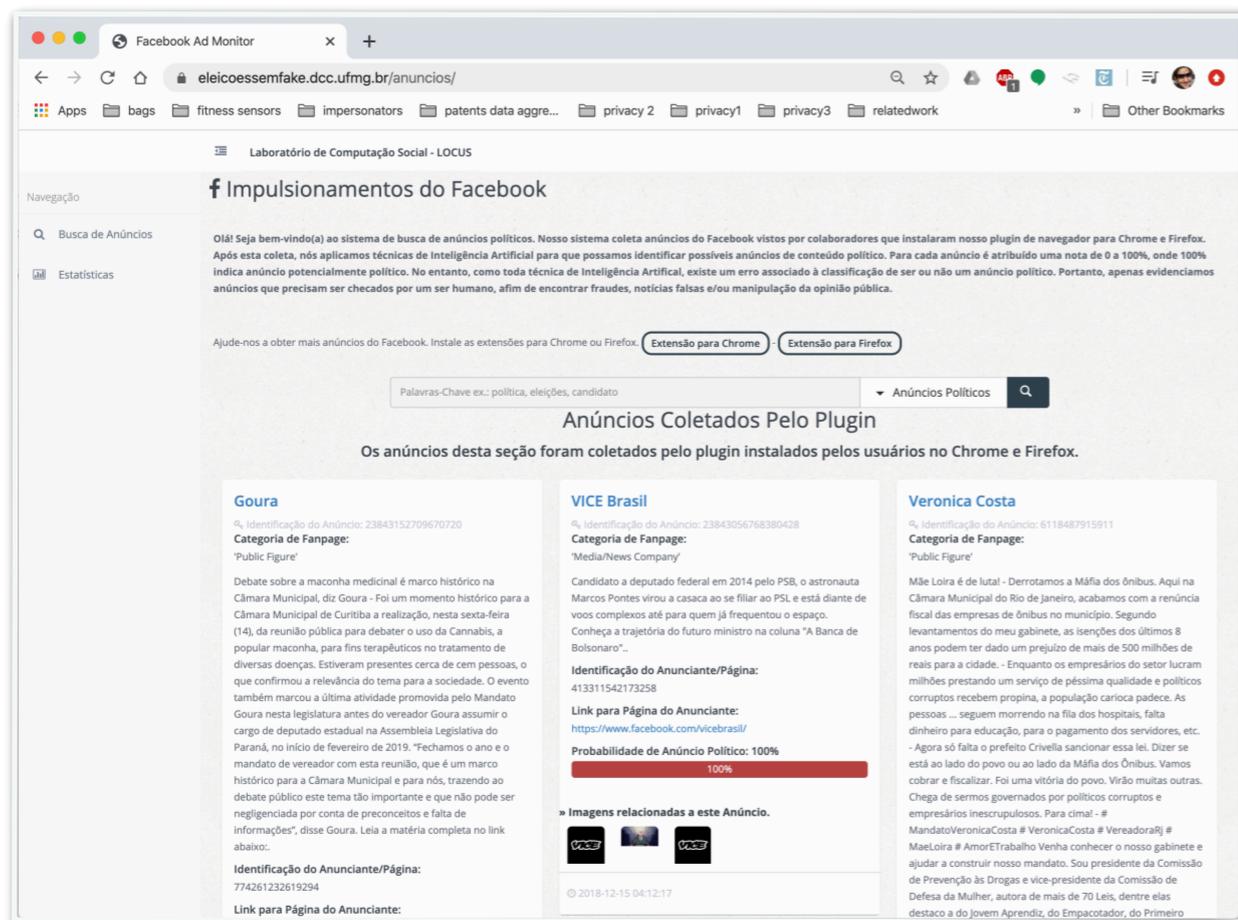
The image shows a Facebook post from 'Secours populaire' with the text 'Plus que jamais, la solidarité avec les plus pauvres s'impose.' and a photo of a person in a yellow vest. A red circle highlights the name 'Secours populaire'. An overlay window titled 'Why You're Seeing This Ad' is open, showing the following reasons:

- You're seeing this ad because your information matches **Secours populaire's** advertising requests. There could also be more factors not listed here. [Learn More](#)
- Secours populaire wants to reach people who may be similar to their customers.
- Secours populaire is trying to reach people Facebook thinks are interested in Voluntary association.
- Secours populaire is trying to reach people who speak French (Canada) and French (France).
- Secours populaire is trying to reach people, ages 25 and older.
- Secours populaire is trying to reach people whose primary location is France.

The image shows the AdAnalyst website interface. The main heading is 'AdAnalyst' with a navigation menu including 'About', 'Ad Statistics', 'How it works', 'Installation', 'Research', and 'Who are we?'. Below the heading is a section titled 'Ads' with a calendar for October 2017. A sample ad for 'Widdenburg' is displayed, showing a watch and the text 'Minimalist, Elegant & Trendy watch! kickstarter.com'. Below the ad, there is a detailed explanation of why the user is seeing the ad, including 'Advertiser category: Jewelry/Watches', 'Explanation: One reason you're seeing this ad is that Widdenburg added you to a list of people they want to reach on Facebook...', 'Compact explanation: Pill-based targeting', and 'Users also received this ad for: Pill-based targeting'. At the bottom of the page, there is a dark blue banner with the text 'AdAnalyst' and a list of questions: 'Did you know that anyone can target you with ads on Facebook? Political campaigners, low quality shoes shops and even your neighbour? We designed AdAnalyst to help you analyze who targets you with ads and why so that you can detect if an advertiser is trying to deceive you. AdAnalyst allows you to check: What advertisers are targeting you? Who else receives the same ads as you? What does Facebook know about you?'. Below the banner is the word 'Installation'.

# Political ad detector

<https://www.eleicoessemfake.dcc.ufmg.br/anuncios/>



Web application that runs our political ad classifier

Authorities and citizens can check ads classified as political (similar with the Facebook Ad Library)

# The users

OPINIÃO

Ricardo R. Campos, Juliano Maranhão e Fabrício Benevenuto: Fake news e a crônica do caixa 2 anunciado

**FOLHA DE S.PAULO**  **UOL**  
o melhor conteúdo

Opinion

## Fake News Is Poisoning Brazilian Politics. WhatsApp Can Stop It.

By Cristina Tardáguila, Fabrício Benevenuto and Pablo Ortellado

Ms. Tardáguila, Mr. Benevenuto and Mr. Ortellado are the authors of a new report on misinformation in Brazil.

**The New York Times**



Over **2,000 users** volunteered to install our browser extension

# Data collection

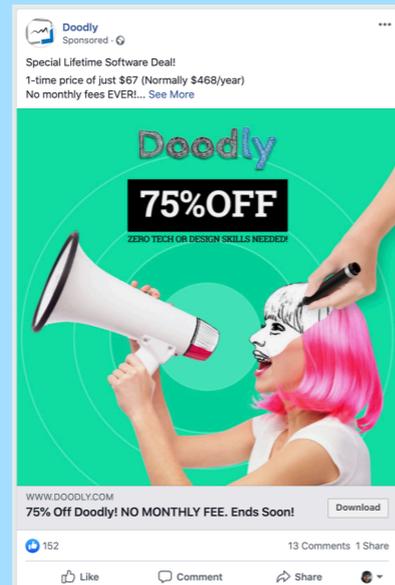
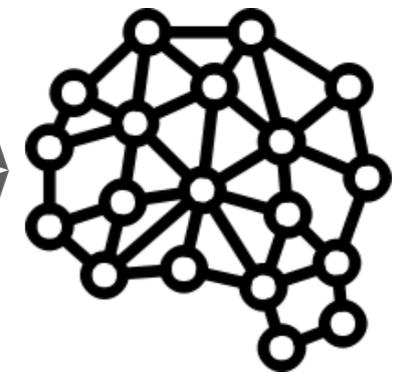
- AdAnalyst dataset ([sample of ads people see - both political and non political](#)):
  - **239k ads** from **40k advertisers**
  - Pre-electoral period (March — August 2018) — 166k ads
  - Electoral period (August — October 2018) — 74k ads
- Facebook Ad Library dataset ([the official political ads in Brazil](#)):
  - **100k ads** from **5k advertisers**
  - Data gathered by a web crawler
  - Electoral period (August — October 2018)
  - Post-electoral period (October 2018 — December 2019)

# Detection of political ads

## Political ads (+)



Supervised ML algo



## Non political ads (-)

# Challenges

*“An ML model is only as good as the data it is fed”*

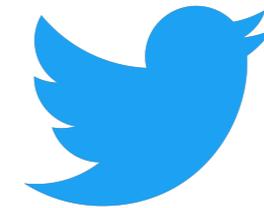
*“Garbage in - Garbage out”*

- Good **quantity** of labeled data
- Good **quality** labels

**What is a political ad?**

# No consensus on a definition

facebook



(i) it is made by, on behalf of or about a **current or former candidate for public office**, a political party, a political action committee or advocates for the outcome of an election to public office; or (ii) **it relates to any election**, referendum or ballot initiative, including "get out the vote" or election information campaigns; or (iii) it relates to any **national legislative issue** of public importance in any place where the ad is being run; or (iv) it is regulated as political advertising. (v) **it is related to issues of public importance: abortion, budget, ...**

We define political content as content that **references a candidate, political party, elected or appointed government official, election, referendum, ballot measure, legislation, regulation, directive, or judicial outcome**. Ads that contain references to political content, including appeals for votes, solicitations of financial support, and advocacy for or against any of the above-listed types of political content, are prohibited under this policy. We also do not allow **ads of any type by candidates, political parties, or elected or appointed government officials**.

# Definitions have tradeoffs

- **Narrow definition:** constrains the types of ads you detect
- **Broad definition:** leaves room for different interpretations

Christians around the world are suffering for their faith, and there is a critical need for Bibles and discipleship training to help them stand strong. Help us meet our goal to reach 10,150 persecuted Christians with God's Word and training to disciple more believers.

Help us force companies to stop the destruction of rainforests caused by the production of palm oil. Greenpeace will see to it that companies keep their promise to use only palm oil that doesn't come at the cost of clearing forests.

If socialism is really so great, why don't socialist professors teach for free??

Political or not?

# Gathering labeled data

Focus on just operationalizing a definition (the Fb def)!

- 3 students labeled 10k ads from AdAnalyst: **233 political ads + 9,767 non-political ads**
- **Compliant advertisers are already labeling their ads as political!**

Gold standard collection:

**Political ads/positive examples**

**10k** ads from Facebook Ad  
Library

+

**233** labeled political ads  
from AdAnalyst dataset

**Non political ads/negative examples**

**9,767** labeled non-political ads  
from AdAnalyst dataset

# Evaluation of supervised ML algorithms

- 6 classifiers: Naive Bayes, Random Forest, Logistic Regression, SVM, Gradient Boosting, Convolution Neural Networks (CNN)
- Ads represented using word embeddings
  - Word2Vec with 300 dimensions
- 10 fold-cross validation on the gold standard collection

# Accuracy of ML models

Classifier	Accuracy	TPR for 1% FPR
CNN	0.94 ( $\pm 0.01$ )	78 %
SVM	0.91 ( $\pm 0.01$ )	57 %
L. Regression	0.93 ( $\pm 0.01$ )	58 %
R. Forest	0.90 ( $\pm 0.01$ )	62 %
Naive Bayes	0.94 ( $\pm 0.01$ )	85 %
G. Boosting	0.92 ( $\pm 0.01$ )	57 %

Assume we have 10.000 ads and 5% are political ads (500)

A classifier with 85% TPR for 1% FRP:

- Will **correctly** label **425** of political ads as political
- Will **mistakenly** label **95** of non-political ads as political
- Will miss **75** political ads

# Deploy our classifier in the wild (Brazilian Election)

- CNN classifier with a threshold of 0.97 (78% TPR for 1% FPR)
- CNN classified **835** ads as political out of the **38k** ads we tested



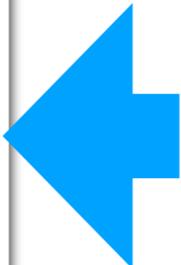
I am meeting friends, making new friends and bringing my message as a state deputy candidate to all residents of Marmelópolis (MG). Let's go together! A NEW LOOK FOR MINDS Political Advertising: CNPJ 31.208.669/001-05 #Marmelópolis #ANewLookingForMines #DrRobertoBob20200.

**2% of ads in people's Fb feeds were political but not labeled as such!**

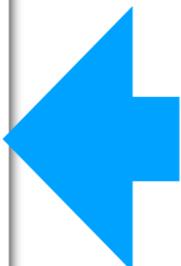
**A considerable amount of political ads (in Brazil during the presidential election) was missing from the Facebook Ad Library**

# Compliance with the Brazilian Election Legislation

- Resolution No. 23,551 of the Superior Electoral Court in Brazil. In the electoral period (August 16 to October 28th):
  - Ads can be send by candidates, political parties or coalitions
  - Ads can be send by any natural person (e.g. a bot or a fake profile is not a natural person), as long as they do not pay for content promotion
  - Ads must specify the National Register of Legal Entities (CNPJ) or the registration number in the Register of Individuals (CPF)
  - Ads must include the text “Electoral Advertising” (in Portuguese: Propaganda Eleitoral).
  - Declare spending at the electoral court



20% of undeclared ads come from advertisers that are not allowed by law to post ads (NGOs, people, news media)



10% of undeclared ads had the appropriate disclaimer in the text of the ad (but ads were not labeled as political on Fb)

# Conclusion

## Bad news:

- Many advertisers (in Brazil) did not label their ads as political
- The Facebook Ad Library is missing many political ads

## Good news:

- We can use labeled ads from compliant advertisers to catch non compliant advertisers with high accuracy
- Feasible to build independent auditing systems that enables the participation of the society

# Food for thought

- How can countries enforce their election legislation?
  - No control over what appears in the Ad Library
  - Not always clear who is the legal entity behind an ad
- What do we want to know about how Facebook is enforcing the declaration of political ads?
- Who should define what a political ad is? How useful is to have a definition?

# Questions?

Thank you!