NYU | TANDON SCHOOL OF ENGINEERING

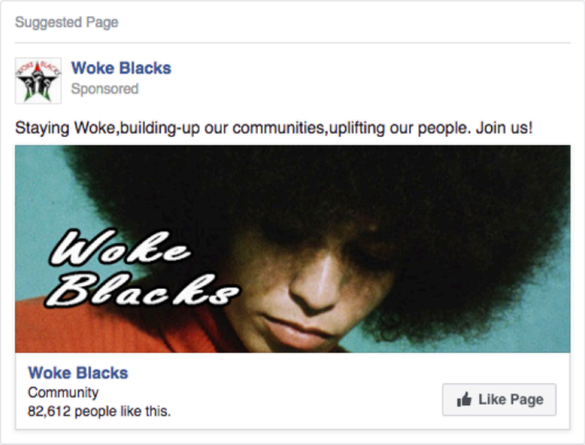
A Security Analysis of Facebook's Political Ad Library

Laura Edelson
11/13/2019

Background

Background

Russian Disinformation on Facebook during 2016 election



Suggested Page

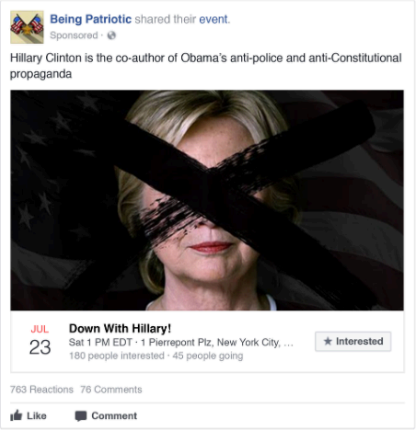
Woke Blacks
Sponsored

Staying Woke,building-up our communities,uplifting our people. Join us!

Woke Blacks

Woke Blacks
Community
82,612 people like this.

Like Page



Being Patriotic shared their event.
Sponsored ·

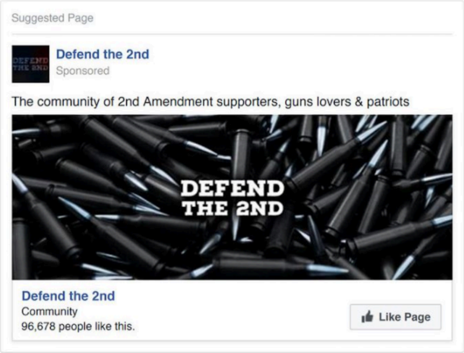
Hillary Clinton is the co-author of Obama's anti-police and anti-Constitutional propaganda

JUL
23
Down With Hillary!
Sat 1 PM EDT · 1 Pierrepont Plz, New York City, …
180 people interested · 45 people going

★ Interested

763 Reactions 76 Comments

Like
Comment



Suggested Page

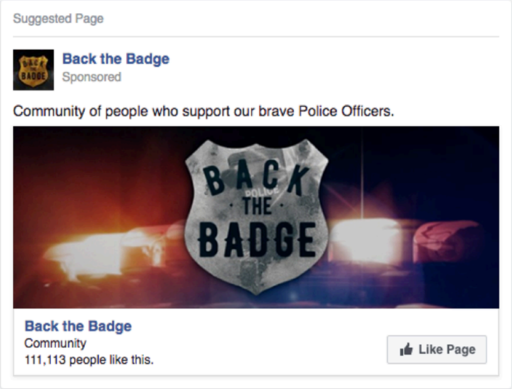
Defend the 2nd
Sponsored

The community of 2nd Amendment supporters, guns lovers & patriots

DEFEND THE 2ND

Defend the 2nd
Community
96,678 people like this.

Like Page



Suggested Page

Back the Badge
Sponsored

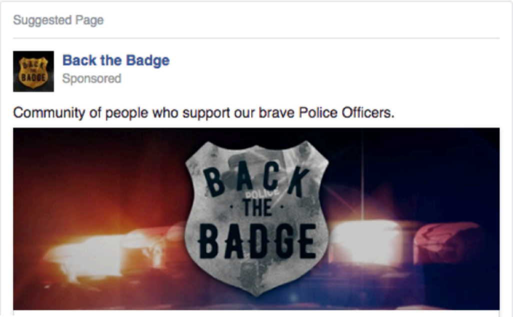
Community of people who support our brave Police Officers.

BACK THE BADGE

Back the Badge
Community
111,113 people like this.

Like Page

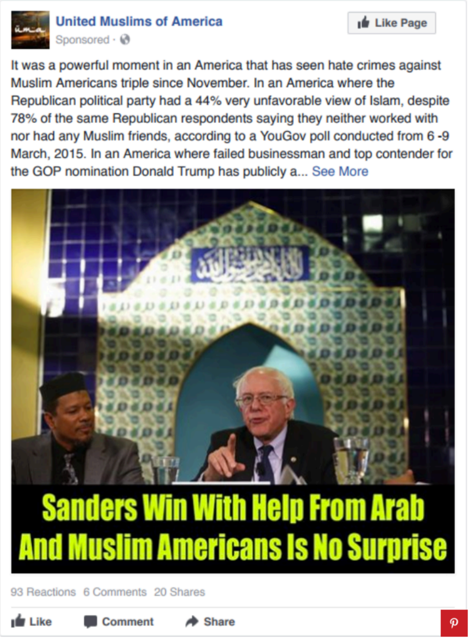
Russian Disinformation on Facebook during 2016 election


Like Page
BACK THE BADGE
POLICE

Suggested Page

Back the Badge
Sponsored

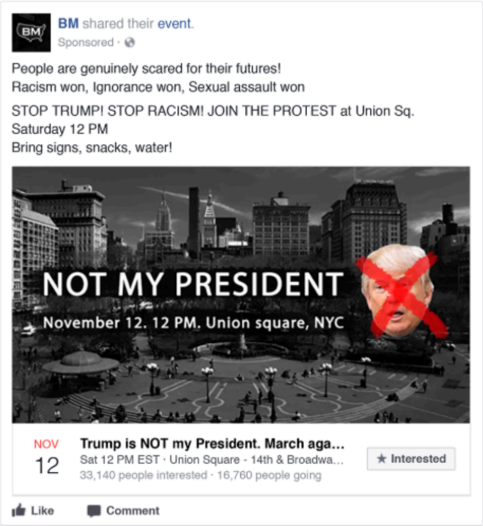
Community of people who support our brave Police Officers.


Like Page
Sanders Win With Help From Arab And Muslim Americans Is No Surprise
Like
Comment
Share

United Muslims of America
Sponsored ·

It was a powerful moment in an America that has seen hate crimes against Muslim Americans triple since November. In an America where the Republican political party had a 44% very unfavorable view of Islam, despite 78% of the same Republican respondents saying they neither worked with nor had any Muslim friends, according to a YouGov poll conducted from 6 -9 March, 2015. In an America where failed businessman and top contender for the GOP nomination Donald Trump has publicly a... See More

93 Reactions 6 Comments 20 Shares

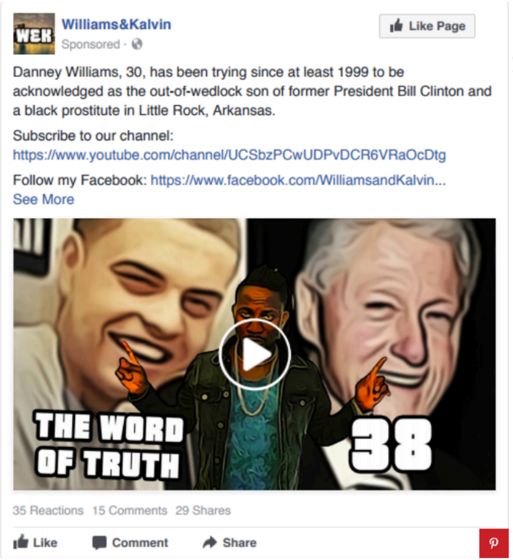

NOT MY PRESIDENT
November 12. 12 PM. Union square, NYC
★ Interested
Like
Comment

BM shared their event.
Sponsored ·

People are genuinely scared for their futures!
Racism won, Ignorance won, Sexual assault won

STOP TRUMP! STOP RACISM! JOIN THE PROTEST at Union Sq.
Saturday 12 PM
Bring signs, snacks, water!

NOV 12 **Trump is NOT my President. March aga...**
Sat 12 PM EST · Union Square - 14th & Broadwa...
33,140 people interested · 16,760 people going


WEK
Like Page
THE WORD OF TRUTH
38
Like
Comment
Share

Williams&Kalvin
Sponsored ·

Danney Williams, 30, has been trying since at least 1999 to be acknowledged as the out-of-wedlock son of former President Bill Clinton and a black prostitute in Little Rock, Arkansas.

Subscribe to our channel:
https://www.youtube.com/channel/UCSbzPCwUDPvDCR6VRaOcDtg

Follow my Facebook: https://www.facebook.com/WilliamsandKalvin...
See More

35 Reactions 15 Comments 29 Shares

Background

- **Restrictions on Political Advertisers**
  - Facebook, Google, and Twitter begin some form of disclosure of payers for political advertising
  - Major platforms began some form of verification of identity of political advertisers
  - Major platforms place restrictions on who can pay for political advertising, usually geographic

- **Transparency Archives for Political Content**
  - Facebook Ad Archive launched May 7th, 2018
  - Google Political Ad Transparency dataset launched May 31st, 2018
  - Twitter Ad Transparency Center launched June 28th, 2018

Facebook

- Platforms: Web Portal and API
- Accessible to any ID verified user who agrees to Terms of Service
- Data available:
  - Ad Creative Text/Image/Video
  - Impression & Spend (Bucketed)
  - Demographic & Geographic distribution of impressions
  - Advertiser-specified start date, end date, disclosure string
  - Page that the ad ran against

Google

- Platforms: Web Portal and Big Query dataset
- Accessible to anyone, no login required
- Data available:
  - Link to composed Ad for non-Third Party ads
  - Impression & Spend (Bucketed)
  - Demographic & Geographic targeted groups
  - Start & End date
  - Vetted Advertiser identifying information (FEC id, EIN)

Twitter

- Platforms: Web Portal only
- Accessible to anyone, no login required
- Data available:
  - Ad Creative Text/Image/Video
  - Exact Impression & Spend
  - Demographic & Geographic distribution of impressions
  - Start & End date
  - Billing information for Ad payer
- **No longer accepting political advertising as of Nov. 22nd, 2019**

Overview

Facebook:

- **$888M since May, 2018 in the United States**

Google:

- **$126M since May, 2018 in the United States**

Twitter:

- **<$5M since June, 2018 in the United States**

Facebook Ad Archive Overview

Facebook Ad Library

In the United States, advertisers are required to

- Disclose ads about “Social Issues, Elections, or Politics”[1]
- Provide an accurate disclosure string naming the entity that paid for the ad, conforming to a standard format

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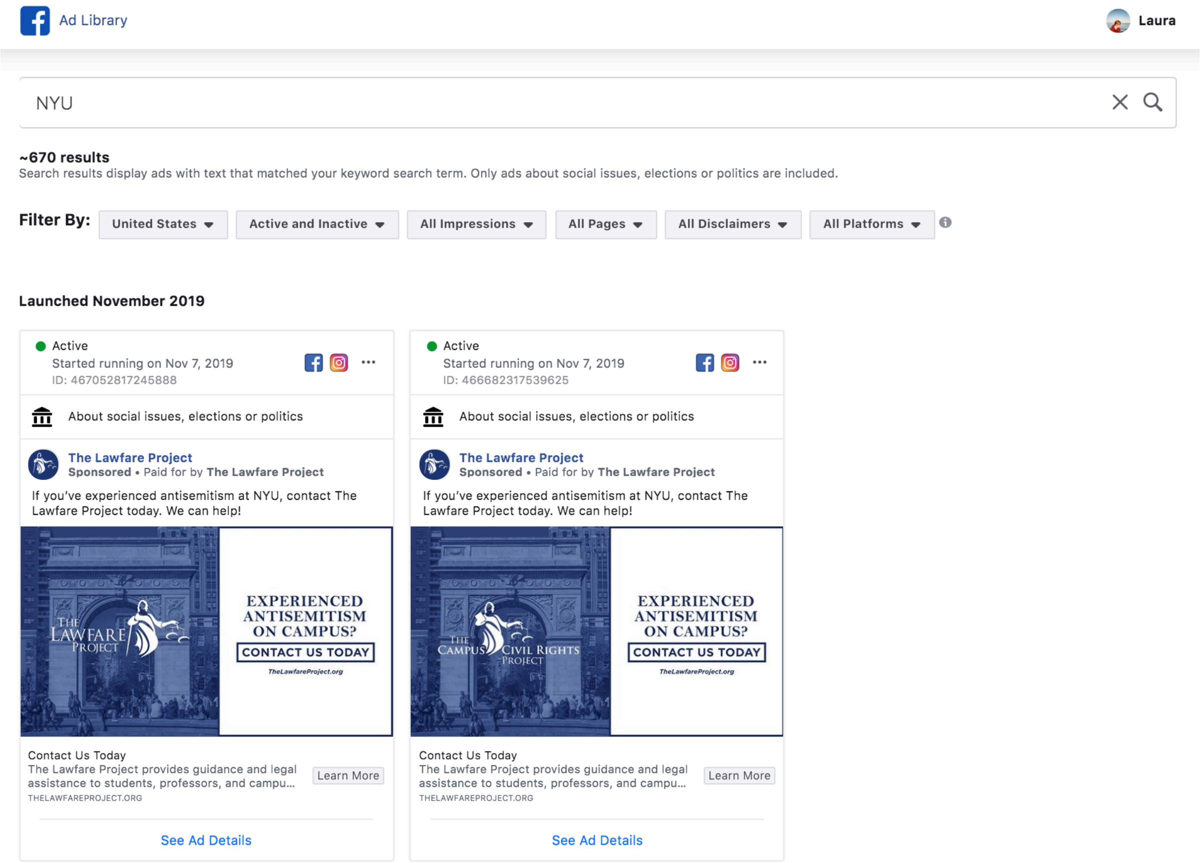
[1] https://www.facebook.com/business/help/198009284345835

Facebook Ad Library



Ad Library

Laura

NYU

~670 results

Search results display ads with text that matched your keyword search term. Only ads about social issues, elections or politics are included.

Filter By: United States ▾ Active and Inactive ▾ All Impressions ▾ All Pages ▾ All Disclaimers ▾ All Platforms ▾

Launched November 2019

● Active
Started running on Nov 7, 2019
ID: 467052817245888

About social issues, elections or politics

The Lawfare Project
Sponsored • Paid for by **The Lawfare Project**

If you've experienced antisemitism at NYU, contact The Lawfare Project today. We can help!

THE LAWFARE PROJECT

EXPERIENCED ANTISEMITISM ON CAMPUS?
CONTACT US TODAY
TheLawfareProject.org

Contact Us Today
The Lawfare Project provides guidance and legal assistance to students, professors, and campu...
THELAWFAREPROJECT.ORG
Learn More

See Ad Details

● Active
Started running on Nov 7, 2019
ID: 466682317539625

About social issues, elections or politics

The Lawfare Project
Sponsored • Paid for by **The Lawfare Project**

If you've experienced antisemitism at NYU, contact The Lawfare Project today. We can help!

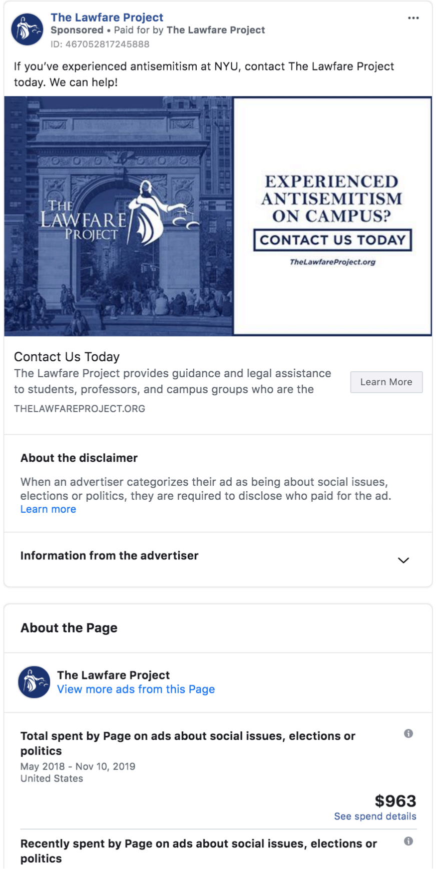
THE CAMPUS CIVIL RIGHTS PROJECT

EXPERIENCED ANTISEMITISM ON CAMPUS?
CONTACT US TODAY
TheLawfareProject.org

Contact Us Today
The Lawfare Project provides guidance and legal assistance to students, professors, and campu...
THELAWFAREPROJECT.ORG
Learn More

See Ad Details

Facebook Ad Library



The Lawfare Project
Sponsored • Paid for by **The Lawfare Project**
ID: 467052817245888

If you've experienced antisemitism at NYU, contact The Lawfare Project today. We can help!

THE LAWFARE PROJECT
EXPERIENCED ANTISEMITISM ON CAMPUS?
CONTACT US TODAY
TheLawfareProject.org

Contact Us Today
The Lawfare Project provides guidance and legal assistance to students, professors, and campus groups who are the
THELAWFAREPROJECT.ORG

Learn More

About the disclaimer

When an advertiser categorizes their ad as being about social issues, elections or politics, they are required to disclose who paid for the ad. Learn more

Information from the advertiser

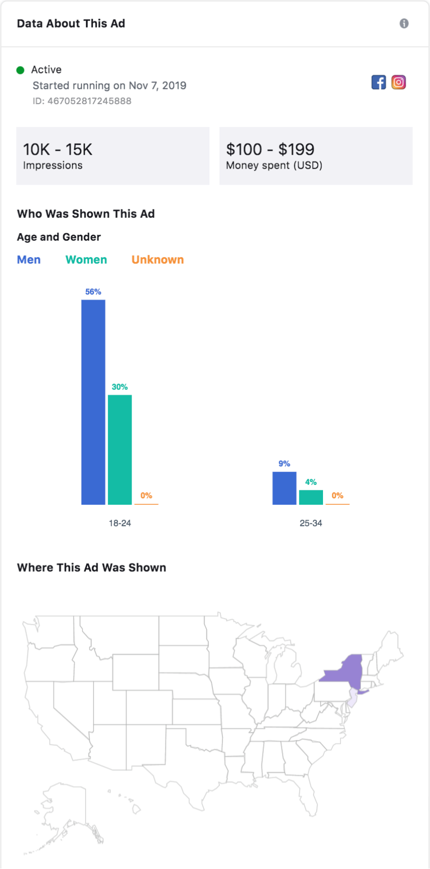
About the Page

The Lawfare Project
View more ads from this Page

Total spent by Page on ads about social issues, elections or politics
May 2018 - Nov 10, 2019
United States

$963
See spend details

Recently spent by Page on ads about social issues, elections or politics



Data About This Ad

Active
Started running on Nov 7, 2019
ID: 467052817245888

10K - 15K	$100 - $199
Impressions	Money spent (USD)

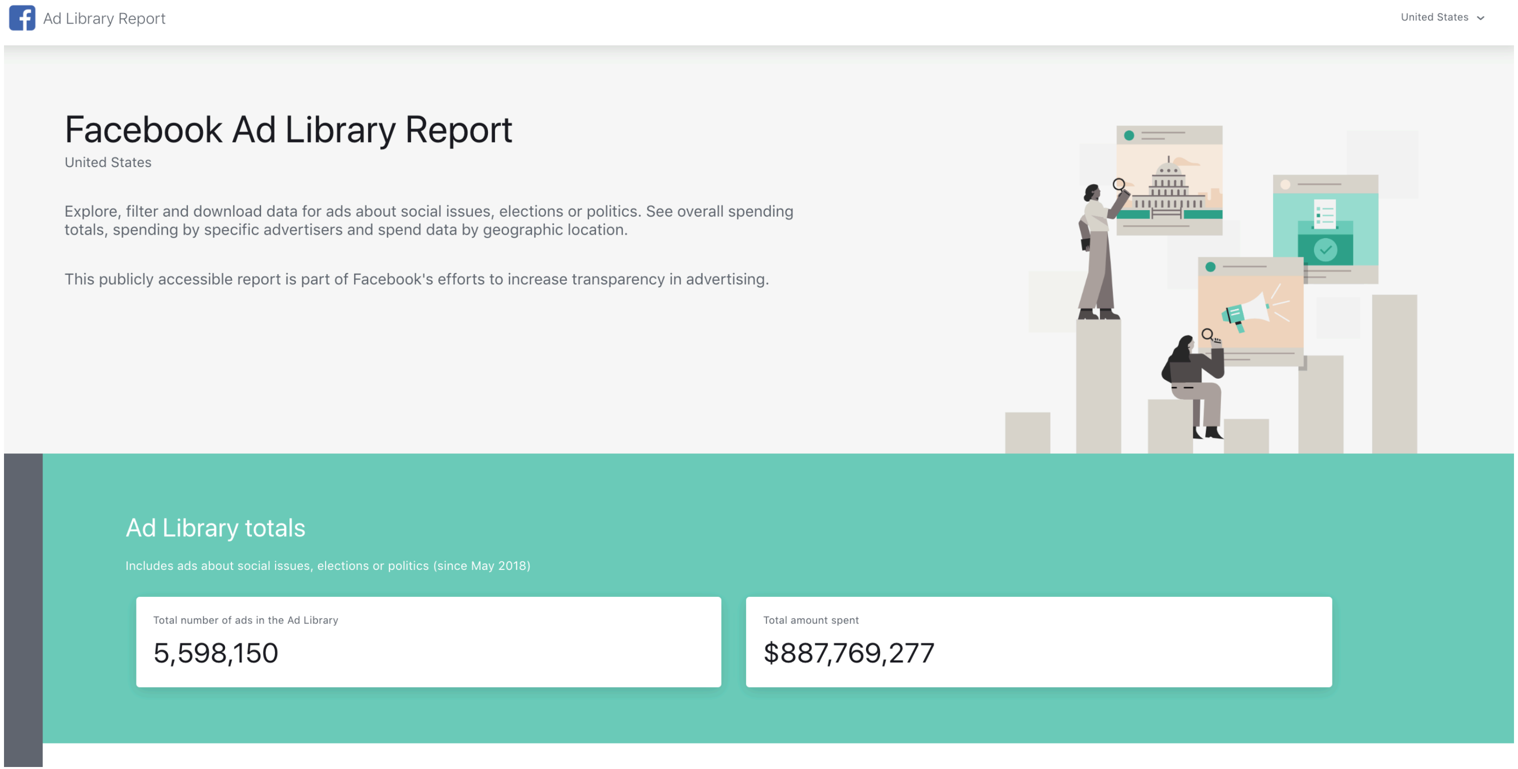
Who Was Shown This Ad

Age and Gender

Men
Women
Unknown
56%
30%
0%
9%
4%
0%
18-24
25-34

Where This Ad Was Shown

Facebook Ad Library



Ad Library Report

United States

Facebook Ad Library Report

United States

Explore, filter and download data for ads about social issues, elections or politics. See overall spending totals, spending by specific advertisers and spend data by geographic location.

This publicly accessible report is part of Facebook's efforts to increase transparency in advertising.

Ad Library totals

Includes ads about social issues, elections or politics (since May 2018)

Total number of ads in the Ad Library	Total amount spent
5,598,150	$887,769,277

Facebook Ad Library API gives access to the same dataset as the Web Portal

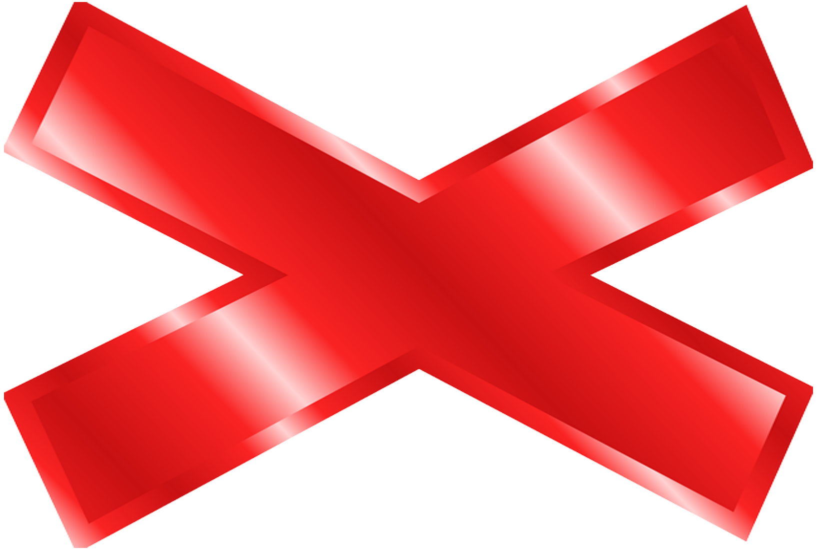
- **Searchable by keyword string or page id**

- **No direct access to images or videos, but these can be collected from a link provided by the API**

- **Most data provided through the Web Portal is available through the API, with the exception of Active status and whether the ad has been removed for a policy violation**

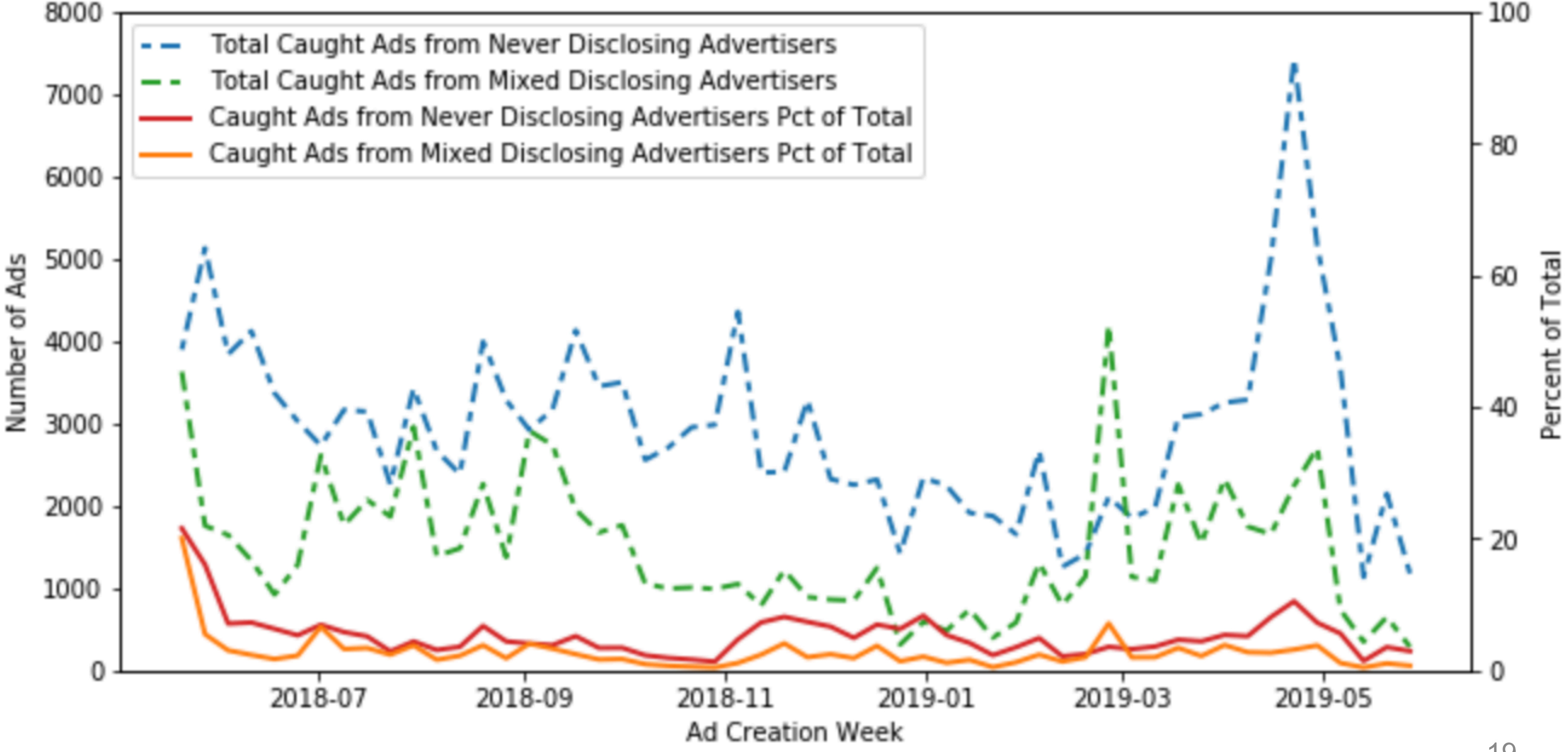
Security of Facebook’s Ad Library

Question 1)
How good is Facebook at enforcing their disclosure policy?



Question 1)
How good are advertisers at voluntarily disclosing ads that meet the criteria for inclusion in the Ad Library?

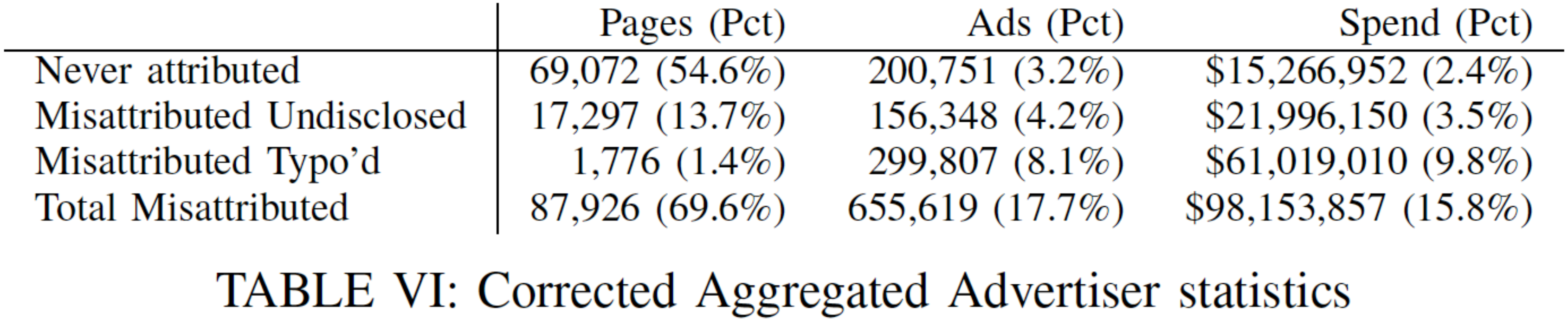
Facebook Ad Library Security



Question 1)
How good are advertisers at voluntarily disclosing ads that meet the criteria for inclusion in the Ad Library?

Answer:
They’ve gotten a bit better, but there is a problem with persistent non-disclosure

Question 2)
How useful are disclosure strings for understanding which entities are spending money on political advertising?



	Pages (Pct)	Ads (Pct)	Spend (Pct)
Never attributed	69,072 (54.6%)	200,751 (3.2%)	$15,266,952 (2.4%)
Misattributed Undisclosed	17,297 (13.7%)	156,348 (4.2%)	$21,996,150 (3.5%)
Misattributed Typo'd	1,776 (1.4%)	299,807 (8.1%)	$61,019,010 (9.8%)
Total Misattributed	87,926 (69.6%)	655,619 (17.7%)	$98,153,857 (15.8%)

TABLE VI: Corrected Aggregated Advertiser statistics

Question 2)
How useful are disclosure strings for understanding which entities are spending money on political advertising?

Answer:
They… aren't.

Question 3)
Can we use the information that has been made transparent to find violations of Facebook’s policies?

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Undisclosed Coordinated Activity

What is Undisclosed Coordinated Activity?

Advertisers are required to truthfully disclose who pays for ads that meet the criteria for inclusion in the Ad Library. Facebook has periodically banned advertisers who engage in "Coordinated Inauthentic Behavior"[1]

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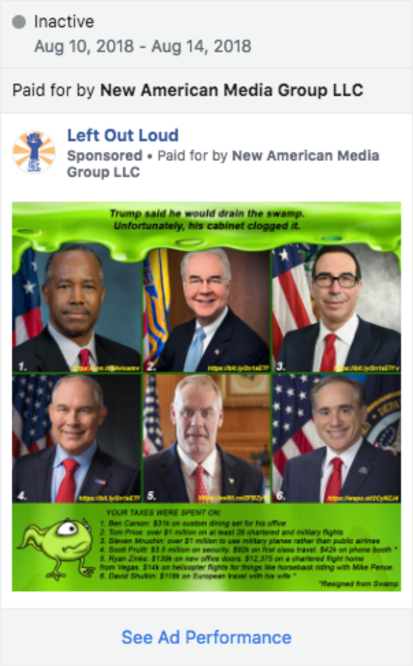
[1] https://about.fb.com/news/2018/12/inside-feed-coordinated-inauthentic-behavior/

Example of disclosed coordinated activity:



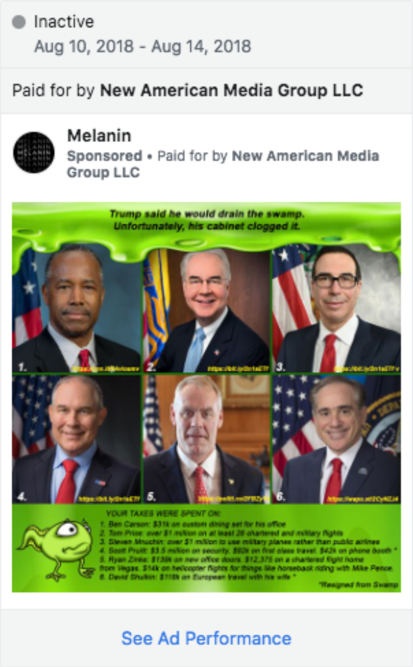
● Inactive
Aug 10, 2018 - Aug 14, 2018

Paid for by **New American Media Group LLC**

Left Out Loud
Sponsored • Paid for by **New American Media Group LLC**

Trump said he would drain the swamp.
Unfortunately, his cabinet clogged it.

See Ad Performance



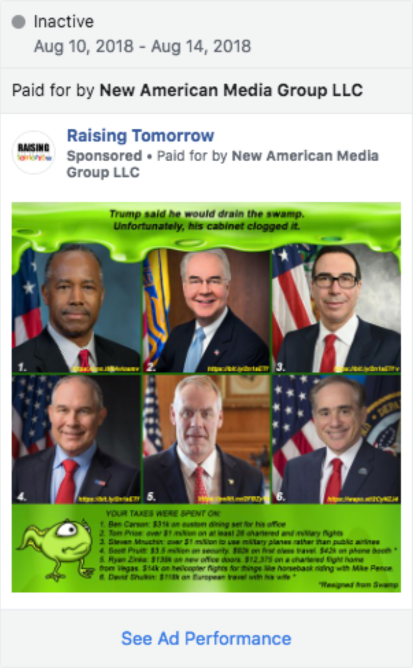
● Inactive
Aug 10, 2018 - Aug 14, 2018

Paid for by **New American Media Group LLC**

Melanin
Sponsored • Paid for by **New American Media Group LLC**

Trump said he would drain the swamp.
Unfortunately, his cabinet clogged it.

See Ad Performance



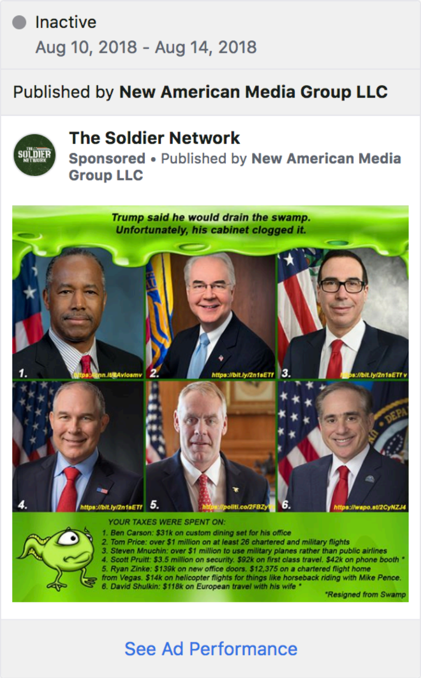
● Inactive
Aug 10, 2018 - Aug 14, 2018

Paid for by **New American Media Group LLC**

Raising Tomorrow
Sponsored • Paid for by **New American Media Group LLC**

Trump said he would drain the swamp.
Unfortunately, his cabinet clogged it.

See Ad Performance



● Inactive
Aug 10, 2018 - Aug 14, 2018

Published by **New American Media Group LLC**

The Soldier Network
Sponsored • Published by **New American Media Group LLC**

Trump said he would drain the swamp.
Unfortunately, his cabinet clogged it.
1.
https://cnn.it/2Avlosmv
2.
https://bit.ly/2n1sETf
3.
https://bit.ly/2n1sETf v
4.
https://bit.ly/2n1sETf
5.
https://politi.co/2FBZy
6.
https://wapo.st/2CyNZJ4

YOUR TAXES WERE SPENT ON:
1. Ben Carson: $31k on custom dining set for his office
2. Tom Price: over $1 million on at least 26 chartered and military flights
3. Steven Mnuchin: over $1 million to use military planes rather than public airlines
4. Scott Pruitt: $3.5 million on security. $92k on first class travel. $42k on phone booth *
5. Ryan Zinke: $139k on new office doors. $12,375 on a chartered flight home from Vegas. $14k on helicopter flights for things like horseback riding with Mike Pence.
6. David Shulkin: $118k on European travel with his wife *

*Resigned from Swamp

See Ad Performance

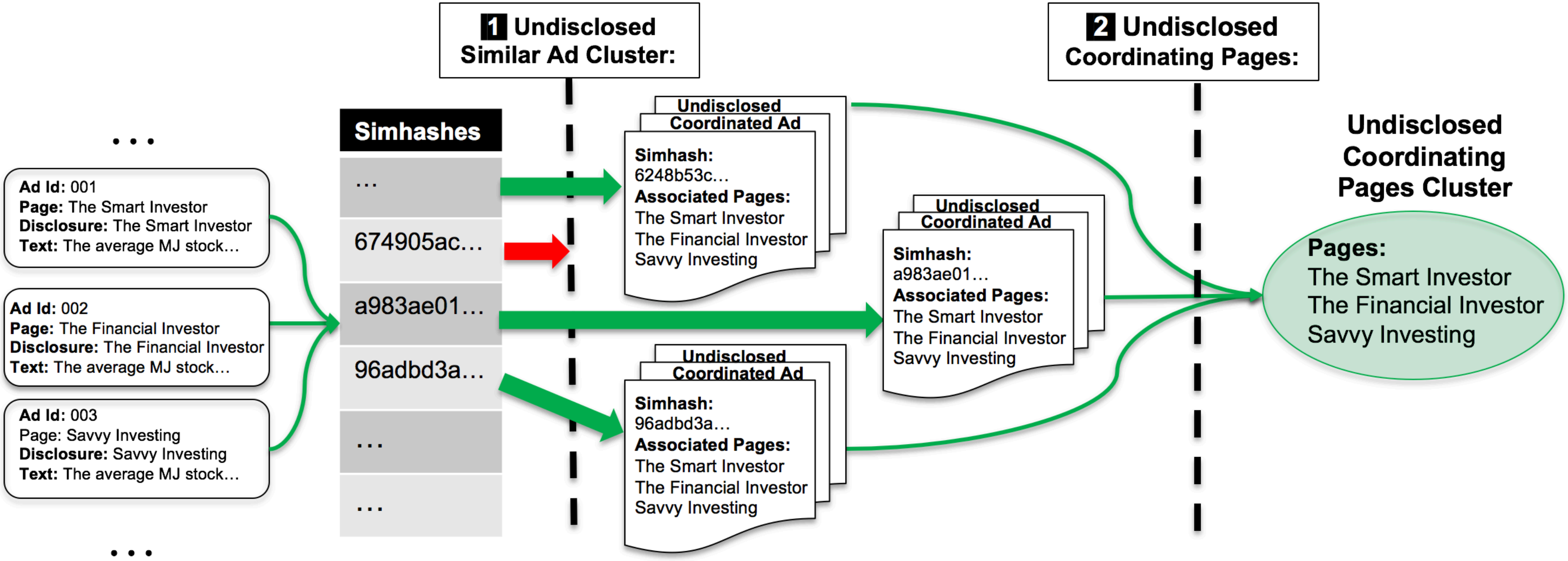
Target:

Undisclosed Coordinated Activity

Tool:

Simhashing: A locality sensitive hashing technique that creates hash values such that the difference between two hashes is equivalent to the Hamming distance of the two texts the hashes were created from

Target: Undisclosed Coordinated Behavior



1 Undisclosed Similar Ad Cluster:

2 Undisclosed Coordinating Pages:

…

Ad Id: 001
Page: The Smart Investor
Disclosure: The Smart Investor
Text: The average MJ stock…

Ad Id: 002
Page: The Financial Investor
Disclosure: The Financial Investor
Text: The average MJ stock…

Ad Id: 003
Page: Savvy Investing
Disclosure: Savvy Investing
Text: The average MJ stock…

…

Simhashes
…
674905ac…
a983ae01…
96adbd3a…
…
…

Undisclosed Coordinated Ad
Simhash: 6248b53c…
Associated Pages:
The Smart Investor
The Financial Investor
Savvy Investing

Undisclosed Coordinated Ad
Simhash: a983ae01…
Associated Pages:
The Smart Investor
The Financial Investor
Savvy Investing

Undisclosed Coordinated Ad
Simhash: 96adbd3a…
Associated Pages:
The Smart Investor
The Financial Investor
Savvy Investing

Undisclosed Coordinating Pages Cluster

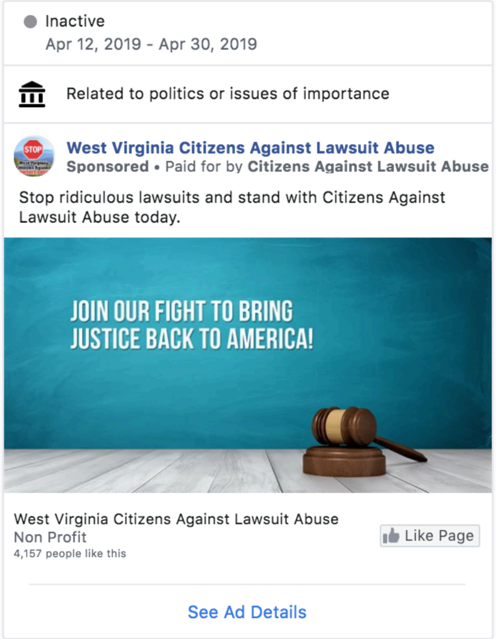
Pages:
The Smart Investor
The Financial Investor
Savvy Investing

Step 1:
Cluster near-identical ads using Simhashing. Determine mean number of disclosure strings per ad cluster. Establish cutoff for outlier clusters of z-score=2 or more.

Step 2:
For ad clusters associated with more than one page, what is mean number of times 2 pages are associated with each other? Establish cutoff for page clusters of z-score=2 or more

Step 3: Identify pages that ran ads in outlier ad clusters. Group those pages together if they also meet the cutoff for page clusters

Corporate Astroturfing



Inactive
Apr 12, 2019 - Apr 30, 2019

Related to politics or issues of importance

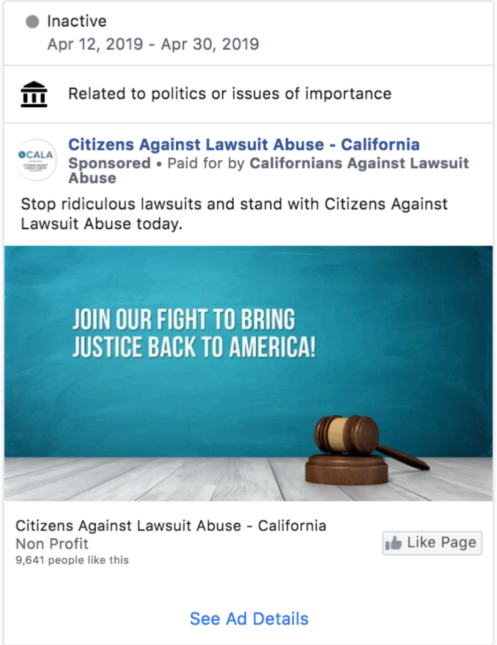
West Virginia Citizens Against Lawsuit Abuse
Sponsored • Paid for by **Citizens Against Lawsuit Abuse**

Stop ridiculous lawsuits and stand with Citizens Against Lawsuit Abuse today.

JOIN OUR FIGHT TO BRING JUSTICE BACK TO AMERICA!

West Virginia Citizens Against Lawsuit Abuse
Non Profit
4,157 people like this

Like Page
See Ad Details



Inactive
Apr 12, 2019 - Apr 30, 2019

Related to politics or issues of importance

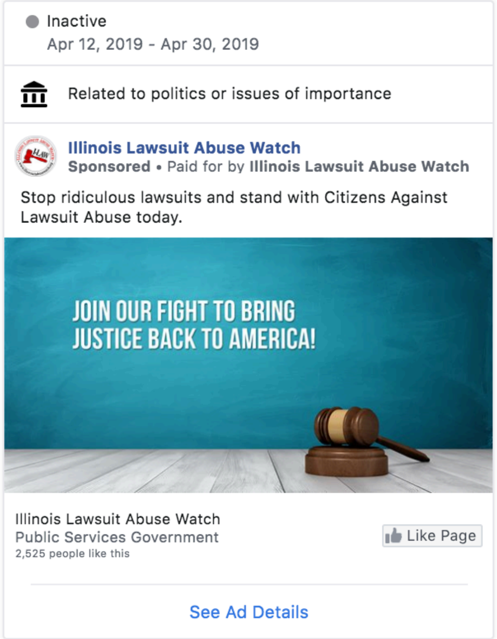
Citizens Against Lawsuit Abuse - California
Sponsored • Paid for by **Californians Against Lawsuit Abuse**

Stop ridiculous lawsuits and stand with Citizens Against Lawsuit Abuse today.

JOIN OUR FIGHT TO BRING JUSTICE BACK TO AMERICA!

Citizens Against Lawsuit Abuse - California
Non Profit
9,641 people like this

Like Page
See Ad Details



Inactive
Apr 12, 2019 - Apr 30, 2019

Related to politics or issues of importance

Illinois Lawsuit Abuse Watch
Sponsored • Paid for by **Illinois Lawsuit Abuse Watch**

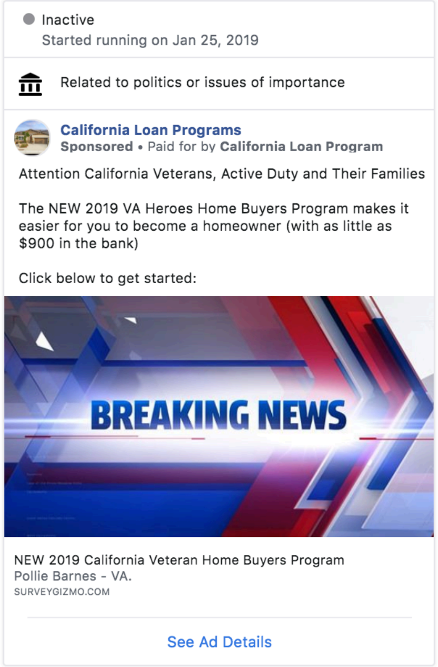
Stop ridiculous lawsuits and stand with Citizens Against Lawsuit Abuse today.

JOIN OUR FIGHT TO BRING JUSTICE BACK TO AMERICA!

Illinois Lawsuit Abuse Watch
Public Services Government
2,525 people like this

Like Page
See Ad Details

Dubious Commercial Activity



● Inactive
Started running on Jan 25, 2019

Related to politics or issues of importance

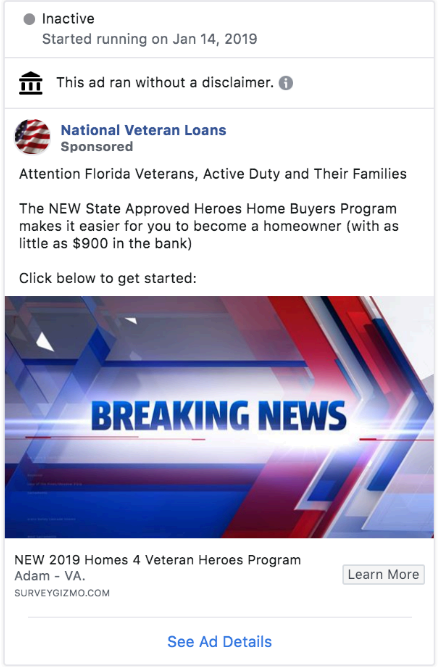
California Loan Programs
Sponsored • Paid for by **California Loan Program**

Attention California Veterans, Active Duty and Their Families

The NEW 2019 VA Heroes Home Buyers Program makes it easier for you to become a homeowner (with as little as $900 in the bank)

Click below to get started:

NEW 2019 California Veteran Home Buyers Program
Pollie Barnes - VA.
SURVEYGIZMO.COM



● Inactive
Started running on Jan 14, 2019

This ad ran without a disclaimer.

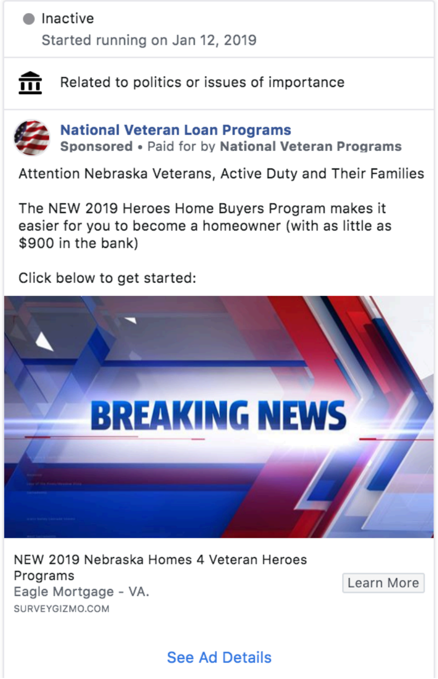
National Veteran Loans
Sponsored

Attention Florida Veterans, Active Duty and Their Families

The NEW State Approved Heroes Home Buyers Program makes it easier for you to become a homeowner (with as little as $900 in the bank)

Click below to get started:

NEW 2019 Homes 4 Veteran Heroes Program
Adam - VA.
SURVEYGIZMO.COM



● Inactive
Started running on Jan 12, 2019

Related to politics or issues of importance

National Veteran Loan Programs
Sponsored • Paid for by **National Veteran Programs**

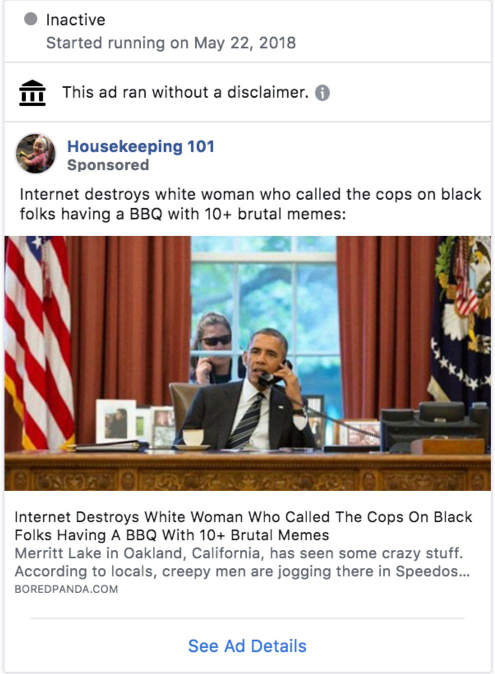
Attention Nebraska Veterans, Active Duty and Their Families

The NEW 2019 Heroes Home Buyers Program makes it easier for you to become a homeowner (with as little as $900 in the bank)

Click below to get started:

NEW 2019 Nebraska Homes 4 Veteran Heroes Programs
Eagle Mortgage - VA.
SURVEYGIZMO.COM

Clickbait



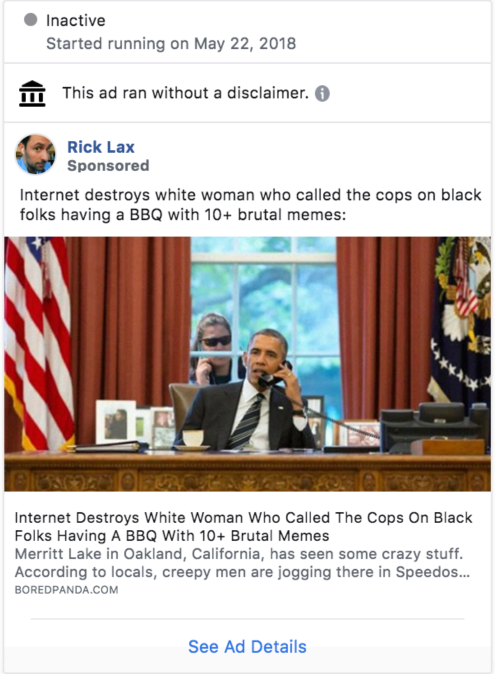
● Inactive
Started running on May 22, 2018

🏛 This ad ran without a disclaimer. ⓘ

Housekeeping 101
Sponsored

Internet destroys white woman who called the cops on black folks having a BBQ with 10+ brutal memes:

Internet Destroys White Woman Who Called The Cops On Black Folks Having A BBQ With 10+ Brutal Memes
Merritt Lake in Oakland, California, has seen some crazy stuff. According to locals, creepy men are jogging there in Speedos...
BOREDPANDA.COM



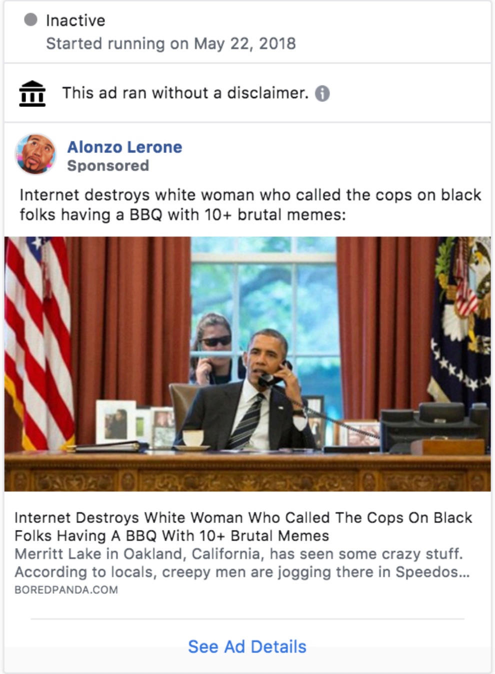
● Inactive
Started running on May 22, 2018

🏛 This ad ran without a disclaimer. ⓘ

Rick Lax
Sponsored

Internet destroys white woman who called the cops on black folks having a BBQ with 10+ brutal memes:

Internet Destroys White Woman Who Called The Cops On Black Folks Having A BBQ With 10+ Brutal Memes
Merritt Lake in Oakland, California, has seen some crazy stuff. According to locals, creepy men are jogging there in Speedos...
BOREDPANDA.COM



● Inactive
Started running on May 22, 2018

🏛 This ad ran without a disclaimer. ⓘ

Alonzo Lerone
Sponsored

Internet destroys white woman who called the cops on black folks having a BBQ with 10+ brutal memes:

Internet Destroys White Woman Who Called The Cops On Black Folks Having A BBQ With 10+ Brutal Memes
Merritt Lake in Oakland, California, has seen some crazy stuff. According to locals, creepy men are jogging there in Speedos...
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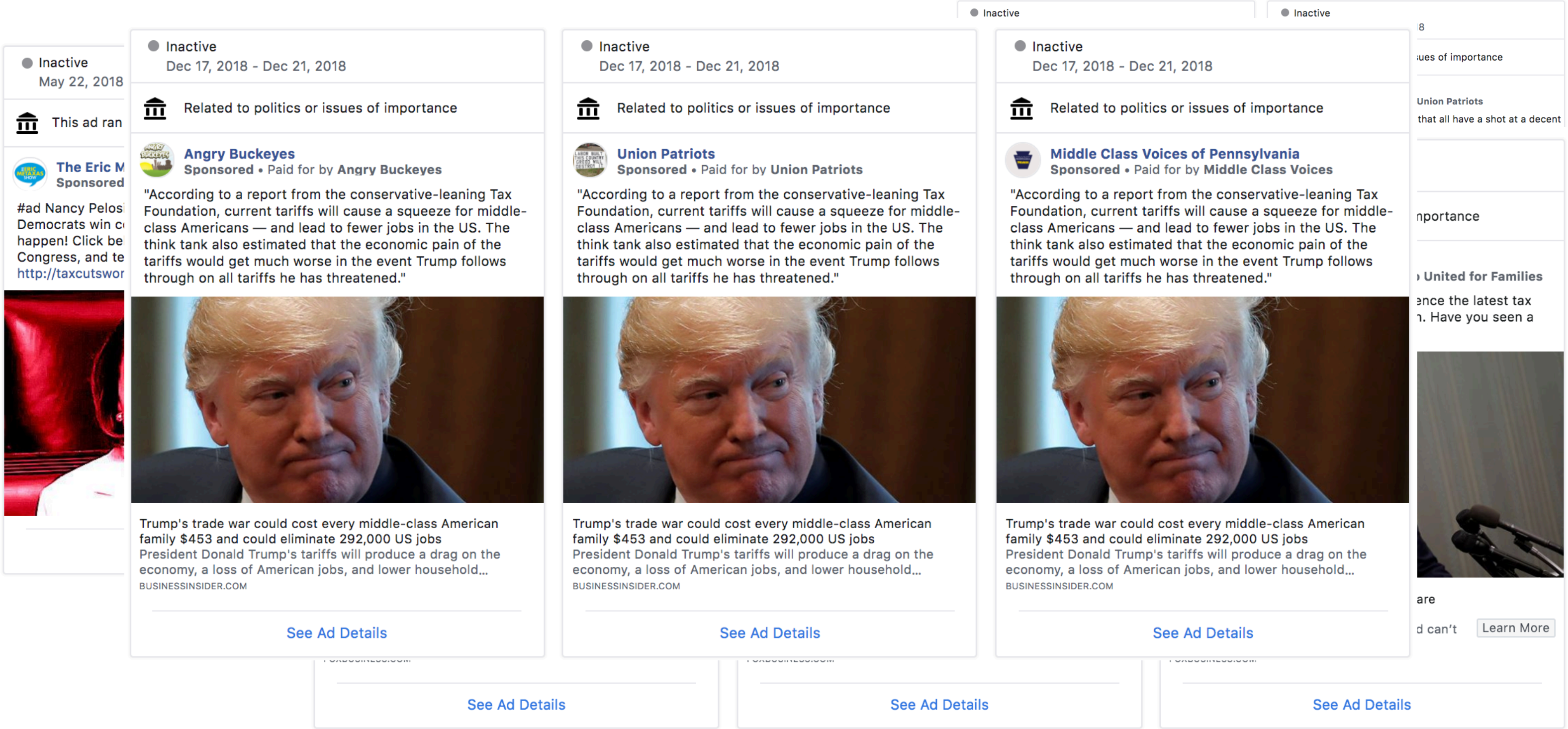

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Future Work

Future Work

- **Cluster Ads by campaign/central idea**

- **Extract more metadata**
  - Named Entity Extraction
  - Sentiment scoring
  - Topic Modeling

- **Use clustering and feature extraction to build a screening system for disinformative content**

Conclusions

Conclusions

- Transparency can work!
- Tactics to spread disinformation are still evolving and we are very early in the lifecycle of this behavior
- All parties need to invest more time and money in solving this problem: Uses, Platforms, and Researchers