



Project Pitch Presentation

Team Vaccinated: Alon Bendelac, Alec Helyar, Phillip Ngo



Agenda

- The Problem
- Project Overview
- Heilmeier Questions



The Problem



WHO's Ten Threats to Global Health in 2019



- Air pollution and climate change
- Noncommunicable diseases
- Global influenza pandemic
- Fragile and vulnerable settings
- Antimicrobial resistance
- Ebola and other high-threat pathogens
- Weak primary health care
- **Vaccine hesitancy**
- Dengue
- HIV


Vaccine Hesitancy (or Anti-Vaccination)

- “The reluctance or refusal to vaccinate despite the availability of vaccines”
- Measles outbreak
- Popular on Facebook

Stop Mandatory
Vaccination
Closed group

Activity

897  New posts today 10,000 in the last 30 days	155,251  Members 6,389+ in the last 30 days
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Created about 4 years ago by Larry Cook 

PERMANENT SELECT
COMMITTEE ON INTELLIGENCE
CHAIRMAN

COMMITTEE ON APPROPRIATIONS
EX-OFFICIO MEMBER



ADAM B. SCHIFF
MEMBER OF CONGRESS • 28TH DISTRICT, CALIFORNIA

2269 RAYBURN HOUSE OFFICE BUILDING
WASHINGTON, DC 20515

245 EAST OLIVE AVENUE, SUITE 200
BURBANK, CA 91502

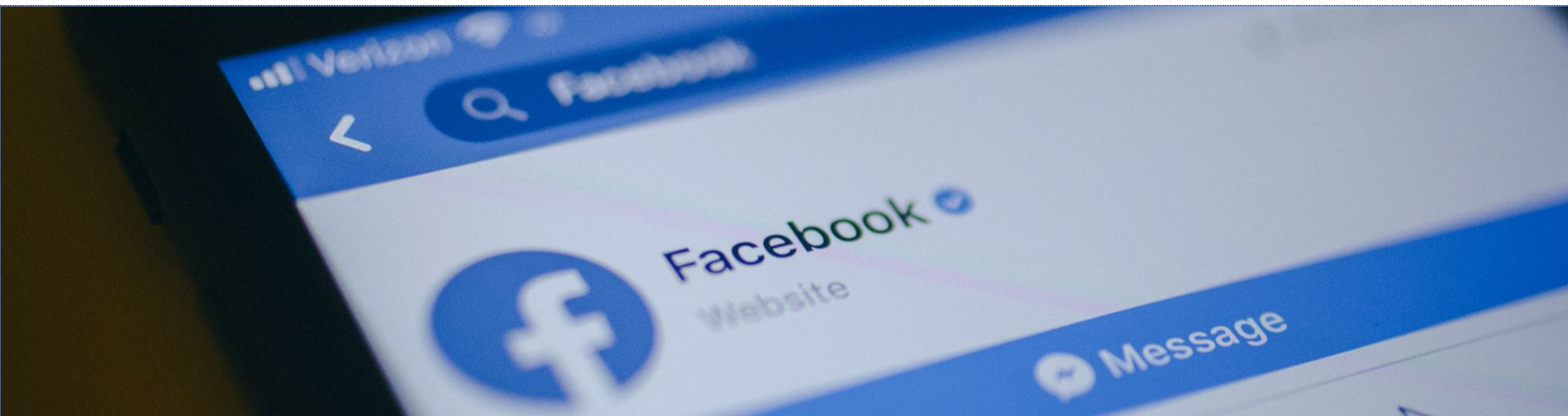
@RepAdamSchiff • schiff.house.gov

February 14, 2019

Mark Zuckerberg
Chairman and Chief Executive Officer
Facebook Inc.
1 Hacker Way
Menlo Park, CA 94025

Dear, Mr. Zuckerberg:

As more Americans use the Internet and social media platforms as their primary source of information, it is important that we explore the quality of the information that they receive, particularly on issues that directly impact the health and well-being of Americans, as well as the billions who use your site around the world. Accordingly, I am writing out of my concern that Facebook and Instagram are surfacing and recommending messages that discourage parents from vaccinating their children, a direct threat to public health, and reversing progress made in tackling vaccine-preventable diseases.



Photographer: Johannes Berg/Bloomberg

Politics

Facebook, Facing Lawmaker Questions, Says It May Remove Anti-Vaccine Recommendations



Project Overview



Research Goals

- Study anti-vaccine misinformation language features in social media (Facebook)
- Develop a classifier to classify content as anti-vaccine or not



Research Plan

1. Data gathering / cleaning
2. Feature Selection
3. Visualization
4. Data Modelling
5. Feature Analysis
6. Project Report



Heilmeier's Questions



What are you trying to do?

Analyze the language used by Anti-Vaccination groups to disseminate their information on Facebook compared to those of normal parental advisory groups.

Why is it hard?

- Anti-Vaccination isn't well defined
- Many groups of Facebook are private
- Large portion of information is image/video-based
- Facebook API might hinder us



How is it done today?

- Twitter / Analysis of Attitudes
 - “Understanding Anti-Vaccination Attitudes in Social Media”
- Comments under a single high profile post
 - “A comparison of language use in pro- and anti-vaccination comments in response to a high profile Facebook post”
- Descriptive Study
 - “Assessment of vaccination-related information for consumers available on Facebook”

What are the limits of current practice?

- Facebook API Limits
- NLP understanding of memes



What's new in your approach and why do you think it will be successful?

- Focus on the language and dissemination style
- Facebook Pages — many users and posts
- Classification of Anti-Vaccine messages
 - Feature analysis
 - Useful tool itself
- Similar research has been done successfully for fake news



Who Cares?

- Social media platforms want to eliminate misinformation
- General public is affected by disease outbreaks caused by vaccination hesitancy
- Data science research could help prevent misinformation on vaccines.



If you are successful what difference will it make?

- An accurate anti-vaccine classifier could help social media platforms efficiently find and remove anti-vaccine content from their platform.
- Understanding what features make misinformation popular could help future research



What are the risks?

- Falsely classifying content as anti-vaccine and unnecessarily removing it from recommendations.
- Chosen features do not lead to finding differences in Anti-Vaccine language
- Facebook API might not allow collection of data



How much will it cost?

- No cost



How long will it take?

- Data gathering / cleaning: 2-3 weeks
- Feature Selection: 1-2 weeks
- Visualization: 1 week

Midterm

- Data Modelling: 1-2 weeks
- Feature Analysis: 1 week
- Project Report: 1 week



What are the “midterm” and “final” exams to test for success? How will progress be measured?

- Midterm Success: Data gathered, preprocessed, visualized; feature selection complete.
- Final Success: Classifier accuracy above baseline of 50% and/or useful information discovered about Anti-Vax language; final report completed.

Questions?