FAKE NEWS AND BIG DATA
TRAINING COMPUTERS AND HUMANS TO DETECT MISINFORMATION

S. Shyam Sundar

Dongwon Lee
INTERACTIVE MEDIA = FUNDAMENTAL SHIFT IN COMMUNICATION

(Shannon & Weaver, 1949; Berlo, 1960)
RECEIVERS BECAME SOURCES

Source → Message → Medium → Message → Receiver

(Sundar & Nass, 2001)
THEY BECAME CREATORS OF CONTENT
THEY DISSEMINATE WHAT THEY CREATE

Share
Pope Francis Shocks World, Endorses Donald Trump for President, Releases Statement

TOPICS:  Pope Francis Endorses Donald Trump

$375,000 Deposited To The Khan Law Account From The Clinton Foundation

Report: Bill Clinton Wasn’t Only One to Go to ‘Sex Slave Island,’ Hillary Went with Him—’Six Times’

*Hillary went to this sex island with convicted pedophile Jeffrey Epstein*…

Denzel Washington Switches to Trump Shocks Hollywood, Speaks Out Against Obama | Anews24

Denzel Washington Switches to Trump Shocks Hollywood, Speaks Out Against Obama From Anews24
FAKE NEWS
INVASION
1. Fake News Producer
2. Buys ads on Facebook
3. Paid Traffic
4. $ On-Site Ad Revenue
5. Organic Shares
6. Free Traffic
7. Friends Of Fans
8. Fake News Website Page Views
9. Google AdSense
10. Google Ads

Graph showing the flow of interactions:
- Fake News Producer buys ads on Facebook.
- Paid Traffic from the ad.
- Page fans generated from the ad.
- Organic shares from the page fans.
- Free traffic from the friends of fans.
- Revenue from Google AdSense ads on the website.

Chart showing clicks and impressions from May 1, 2015, to June 30, 2015.
One goal of Matched content is to increase user engagement. Your page RPM and other metrics might be affected by this increase.

<table>
<thead>
<tr>
<th>Report type</th>
<th>Days</th>
</tr>
</thead>
<tbody>
<tr>
<td>+ add</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Filter</th>
<th>+ add</th>
</tr>
</thead>
</table>

<table>
<thead>
<tr>
<th>Overview</th>
<th>Clicks</th>
<th>Views</th>
<th>Active Views</th>
<th>Engagements</th>
<th>Matched content</th>
<th>Custom</th>
</tr>
</thead>
<tbody>
<tr>
<td>Estimated earnings</td>
<td>$1,452,901.99</td>
<td>Page views</td>
<td>87,957,943</td>
<td>Impressions</td>
<td>124,073,244</td>
<td>Clicks</td>
</tr>
<tr>
<td></td>
<td>$20,000.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$15,000.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>$10,000.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
FAKE NEWS IS NOT NEW

- This scares me so much.
- How can we sleep at night?
- I wish things were like they used to be when I was a kid.
- TERRIFYING
- Will this ever end?
- This is SO SCARY!!!!
- Scary! Scary! Scary!
Dashboard for Political Rag

<table>
<thead>
<tr>
<th>Revenue</th>
<th>Shares</th>
<th>Article</th>
</tr>
</thead>
<tbody>
<tr>
<td>$0.18</td>
<td>43</td>
<td>Those HAVE TO BE the cutest kittens in the world! Take a look!</td>
</tr>
<tr>
<td>$10.42</td>
<td>1,687</td>
<td>Government BANS Purple Party Protesting</td>
</tr>
<tr>
<td>$0.00</td>
<td>0</td>
<td>This celebrity is dead! You won't believe the goodbye letter!</td>
</tr>
<tr>
<td>$0.00</td>
<td>0</td>
<td>Watch Our Education System FALL APART</td>
</tr>
<tr>
<td>$0.00</td>
<td>0</td>
<td>PROOF - The President Is A Member Of This Religion!</td>
</tr>
<tr>
<td>$0.00</td>
<td>0</td>
<td>Woman secretly steals neighbors' cats and turns them into coats</td>
</tr>
<tr>
<td>$0.00</td>
<td>0</td>
<td>Politicians Slash Health Coverage For Children</td>
</tr>
</tbody>
</table>

Goals

- Create a site with a credibility rating of at least 30
- Add at least two articles to your site
- Have an article with at least 100 shares
- Have an article that has earned at least $10
- Plant an article that triggers happiness
- □ Plant an article that triggers fear
IT MATTERS IN POLITICS…

- Conspiracy Theories
- Confirmation Bias
- Selective Exposure
- Selective Perception
- Filter Bubbles
FAKE NEWS IS NOT NEW

The Downing of TWA Flight 800

The Shocking Truth Behind the Worst Airplane Disaster in U.S. History

by James Sanders

Hundreds of Eyewitnesses
Know the FBI and CIA Lied!

We Saw TWA Flight 800
Shot Down by Missiles
And We Won’t Be Silenced Any Longer

Feds deny claim that Navy shot down TWA 800

But investigators have said on several occasions Navy is no evidence to support the friendly fire theory.

And again in a bold statement Friday the FBI and the Air Force said they will investigate the claim. "The so-called "friendly fire" examination has been thoroughly pursued with all the cooperation of the FBI Department of Defense and has been found to be totally without foundation.

Assistant Director Steller showed reporters his document as was circulated among department and he wouldn’t let them read the file. He said it was dated Aug. 1 and given to him very recently. He also said the report was not classified and he couldn’t release it.

Lt. Col. Tom Senior, a Navy spokesman at the Pentagon, said the Navy has no jurisdiction in the case and it’s up to the FBI. Senior did not confirm or deny the statements. The FBI has not confirmed or denied the report.

A document circulating among department and it’s not clear who wrote it. The report was written by an American who was fired in the U.S. Secret Service and has important contacts in the U.S. Navy.

The report has been circulating for several years and it’s not clear who wrote it. The report was written by an American who was fired in the U.S. Secret Service and has important contacts in the U.S. Navy.

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Total Facebook Engagements for Top 20 Election Stories

ENGAGEMENT REFERS TO THE TOTAL NUMBER OF SHARES, REACTIONS, AND COMMENTS FOR A PIECE OF CONTENT ON FACEBOOK SOURCE: FACEBOOK DATA VIA BUZZSUMO
Do consumers of news distinguish between fake and real news?

Do they distinguish between professional source and layperson source?
Background:
Dr. Cramer showed students a fake news site covering a story about Obama wanting to pass an executive order banning fake news and asked their opinion about it.

Results:
4 out of 26 students discovered it was fake!
AN EXPERIMENT WITH STANFORD UNDERGRADUATES
(Sundar & Nass, 2001)

Study participants exposed to the same six news stories on a news website
ostensibly selected by either

- a) news editors, or
- b) computer terminal, or
- c) other online users, or
- d) user himself/herself.

- Measured DVs: perception of story credibility, liking, quality, and
  representativeness/newsworthiness
STORY RATINGS AS A FUNCTION OF SOURCES

Credibility

<table>
<thead>
<tr>
<th>Type of Source</th>
<th>N</th>
<th>C</th>
<th>O</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Credibility</td>
<td>5.99</td>
<td>6.17</td>
<td>5.96</td>
<td>5.97</td>
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Liking

<table>
<thead>
<tr>
<th>Type of Source</th>
<th>N</th>
<th>C</th>
<th>O</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Liking</td>
<td>4.18</td>
<td>4.39</td>
<td>4.9</td>
<td>4.22</td>
</tr>
</tbody>
</table>

Quality

<table>
<thead>
<tr>
<th>Type of Source</th>
<th>C</th>
<th>O</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>5.33</td>
<td>6.11</td>
<td>6.21</td>
</tr>
</tbody>
</table>

Representativeness

<table>
<thead>
<tr>
<th>Type of Source</th>
<th>C</th>
<th>O</th>
<th>S</th>
</tr>
</thead>
<tbody>
<tr>
<td>Representativeness</td>
<td>4.96</td>
<td>5.37</td>
<td>5.28</td>
</tr>
</tbody>
</table>
SOURCE LAYERING AND PROXIMATE SOURCES

- The reality of Source Layering:
  - Imagine checking your Facebook news feed and seeing something your friend has shared, a politician’s tweet of a newspaper story.
  - Who or What is the Source? Newspaper, Politician, Twitter, Friend or Facebook?
Our studies show that only the proximate source matters.

Increasingly, these proximate sources are not news organizations, but

- Aggregator sites (Comcast, Verizon) and
- Social networking sites (where your friends are sources)
IMPORTANCE OF SELF AS SOURCE

Personalize Google News

- 연예(한국)
- U.S.
- Business
- Elections
- Sci/Tech
- Entertainment
- Sports
- Health
- World
- Technology
- Science

Add any news topic +
Examples: Astronomy, New England Patriots, White House
Advanced »
NEGATIVE EFFECTS ON SYSTEMATIC PROCESSING

**Self as Source in Customization**

**Perceived Control**

**Perceived Identity**

**Systematic processing (Sunscreen & Milk)**

Covariates: Involvement with issue, message order, source credibility, and power usage
IT MATTERS BEYOND POLITICS...

- Internet Credibility
- Media Literacy
- Information Literacy
- Research
- Education
HOW CAN WE DETECT FAKE NEWS? – OUR PROJECT

Step 1: Identifying defining characteristics of fake news

Step 2: Develop an algorithm to detect fake news

Step 3: Trained humans vs. machine algorithm: Who can identify fake news better?
STEP 1 – IDENTIFYING CHARACTERISTICS OF FAKE NEWS
TYPOLOGY OF ONLINE INFORMATION

- Real News
- Commentary / Feature Writing
- Misreporting
- Native Advertisement
- Professional Political Content
- Citizen Journalism
- Satire
- Polarizing and Sensationalist Content
- Fake News/Hoaxes
“Attempt at exercising reliability, selecting the important over the trivial while avoiding sensationalism” (Bordem & Te w, 2007, p. 304).

“The Opinion Journalist has permission and is licensed to express opinions. His/her job is to select facts to form an argument” (Digital Resource Center, 2017).

Reports from “official sources”

Adheres to AP style

Lexical and Syntactic structure: Use of past tense reporting

Labeled as opinion

Lexical use: “should”

Emotionally charged linguistic markers

The New York Times

Suspecting Russian Meddling in ‘Brexit’ Vote, Lawmaker Seeks Inquiry

LONDON — An opposition lawmaker called on the British government on Thursday to investigate allegations of Russian interference in Britain’s referendum on exiting the European Union, adding that there were “questions” about links Russia, one of the sponsors of the Leave campaign.

Speaking in Parliament, the lawmaker, Ben Bradshaw of the Labour Party, said there was “widespread concern over foreign, and particularly Russian, interference in Western democracies.” He asked for reassurance that “all the resources spent on the referendum campaign were free of potential corruption.”

For decades, conservatives believed that they must make their movement more legitimate. Rand Paul put a new twist on conservative politics — more Dula Carnegie than Ayn Rand. George H.W. Bush promised a “kinder, gentler” America, while Ronald Reagan ran on “compassionate conservatism.” As a progressive, I support many of these specific proposals. But as a country, we have benefited from a debate between competing ideas — liberal and conservative — as both sides nudged the hard edges of American life and created a more inclusive country.

That was then. Today, we are liking the Politics of “Us.” In the Trump presidency, with its daily acts of cruelty, punching down in a tantrum, not a hug. And the only thing more disgusting than a president who practices the Politics of “Us” are the voters who elect him.

President Trump’s decision to put some very “disloyal” in limbo, his smug statement that athletes protecting police are “turns of blacks” his opposition to bipartisan efforts to maintain health care...
Misinformation/unintentional misreporting

- Articles written by journalists and reputable sources, but misreported.
- Example: In late 2016, the Washington Post ran a fake story about Russian hackers penetrating the electric grid through a utility company.
  - The utility company immediately issued a statement saying a malware was found in one laptop, and this was not connected to the rest of the organization.
Satire & Citizen Journalism

Satire

"A story [intentionally false] generated in a non-professional social context that uses the style of news either to parody that style, satirize issues and personalities in the news, or perpetrate a hoax or prank." (Frank, 2015, p. 317).

Citizen Journalism

"Blogs, websites, and posts dedicated to citizen journalism, citizen generated petitions, personal activism, and other forms of civic expression that display originality and creation more than curation or aggregation" (Howard et al., 2017).

Clickbait headline

About us section

Amateur mistakes

Not fact-checked

URL and about us

Might not follow journalistic practices

Can be emotionally charged
NATIVE ADVERTISING & PROFESSIONAL POLITICAL CONTENT

Native Advertisement
- Promotional material disguised as news article
- (Frank, 2015)

Professional Political Content
- Information from government, political parties, or public agencies.
- No sources, or sources related to the brand
- Paid by brand: logo or name of company
- Lack of source, or sources are from members of the group.
- Lexical used: present tense
TYPOLOGY OF ONLINE INFORMATION

Polarizing and Sensationalist content

- Intentionally and verifiably false information
  - characterized by ideological extremism, misinformation and the intention to persuade readers to respect or hate a candidate or policy based on emotional appeals (Howard et al. 2017)

Fake Sites

- Articles that are intentionally false, and have no basis in reality. These are often malicious stories that propagate conspiracy theories

Attention grabbing techniques.

- Emotionally charged
- Absence of quotes
- Lexical structure: first person

Emotional linguistic markers, and attention grabbing techniques

Ephemeral

Structural inconsistencies: URL registration
Such degree of “fakeness” allows for developing a typology of fake news, each with distinct **characteristics of message, structure, network, and sources/intent**, that can eventually be fed into a machine learning algorithm.

<table>
<thead>
<tr>
<th>Characteristic of the message</th>
<th>Characteristics of structure</th>
<th>Characteristics of network</th>
<th>Characteristics of the source/intent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lexical structure:</td>
<td>URL:</td>
<td>Author:</td>
<td>Sources:</td>
</tr>
<tr>
<td>“you” vs. “I”</td>
<td>com vs. com.co</td>
<td>Bot or journalist.</td>
<td>Verified vs. unverified sources</td>
</tr>
<tr>
<td>Syntactic structure:</td>
<td>URL registration date.</td>
<td>Metadata indicators of deception:</td>
<td></td>
</tr>
<tr>
<td>past vs. present tense</td>
<td>Contact us information:</td>
<td>“history of previous deceptive behavior</td>
<td></td>
</tr>
<tr>
<td>Hyperpartisan vs. mainstream:</td>
<td>Reputable email vs. Gmail</td>
<td>Network and sharing structure</td>
<td></td>
</tr>
<tr>
<td>Word count</td>
<td></td>
<td></td>
<td>Quotes:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Use of quotes or absence of quotes</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Intentionality</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>About us</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Source of origin:</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>Reputability of site.</td>
</tr>
</tbody>
</table>
HOW CAN WE USE SUCH FEATURES TO IDENTIFY FAKE NEWS?

<table>
<thead>
<tr>
<th>Feature</th>
<th>Fake News Indicator</th>
<th>Real News Indicator</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Lexical structure</strong></td>
<td>“you”</td>
<td>“today”</td>
</tr>
<tr>
<td></td>
<td>“should”</td>
<td></td>
</tr>
<tr>
<td><strong>Syntactic structure</strong></td>
<td>Present tense</td>
<td>Past tense</td>
</tr>
<tr>
<td><strong>Message quality</strong></td>
<td>Amateur mistakes:</td>
<td>Goes through proof reading and editing process and adheres to AP style.</td>
</tr>
<tr>
<td></td>
<td>- Spelling mistakes</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- Not in AP style</td>
<td></td>
</tr>
<tr>
<td></td>
<td>- No last names when citing</td>
<td></td>
</tr>
<tr>
<td><strong>Pedigree</strong></td>
<td>Originated in an obscure site or social media post.</td>
<td>Originated from a well-known site.</td>
</tr>
<tr>
<td><strong>Quotes</strong></td>
<td>Unverified sources</td>
<td>Verified quotes (real people and quotes).</td>
</tr>
<tr>
<td></td>
<td>Absence of quotes</td>
<td>Always has quotes, if not it is a commentary</td>
</tr>
<tr>
<td><strong>Photos</strong></td>
<td>Altered pixel structure.</td>
<td>Normal pixel structure.</td>
</tr>
<tr>
<td></td>
<td>Picture is out of context with the event</td>
<td>Pictures will correspond to the event at hand.</td>
</tr>
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</table>
COMPUTATIONAL CHALLENGE
STEP II – BUILDING MACHINE LEARNING MODELS TO DETECT FAKE NEWS
WHAT IS (SUPERVISED) MACHINE LEARNING?

Features

<table>
<thead>
<tr>
<th>Tid</th>
<th>Attr1</th>
<th>Attr2</th>
<th>Attr3</th>
<th>Class</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Yes</td>
<td>Large</td>
<td>125K</td>
<td>No</td>
</tr>
<tr>
<td>2</td>
<td>No</td>
<td>Medium</td>
<td>100K</td>
<td>No</td>
</tr>
<tr>
<td>3</td>
<td>No</td>
<td>Small</td>
<td>70K</td>
<td>No</td>
</tr>
<tr>
<td>4</td>
<td>Yes</td>
<td>Medium</td>
<td>120K</td>
<td>No</td>
</tr>
<tr>
<td>5</td>
<td>No</td>
<td>Large</td>
<td>95K</td>
<td>Yes</td>
</tr>
<tr>
<td>6</td>
<td>No</td>
<td>Medium</td>
<td>60K</td>
<td>No</td>
</tr>
<tr>
<td>7</td>
<td>Yes</td>
<td>Large</td>
<td>220K</td>
<td>No</td>
</tr>
<tr>
<td>8</td>
<td>No</td>
<td>Small</td>
<td>85K</td>
<td>Yes</td>
</tr>
<tr>
<td>9</td>
<td>No</td>
<td>Medium</td>
<td>75K</td>
<td>No</td>
</tr>
<tr>
<td>10</td>
<td>No</td>
<td>Small</td>
<td>90K</td>
<td>No</td>
</tr>
</tbody>
</table>

Fake or legit stories

Training Set

Test Set

Learning algorithm

Induction

Deduction

Apply Model

Model
EXPERIMENT: CLICKBAIT DETECTION

- Clickbait challenge dataset → 762 clickbaits and 1,697 non-clickbaits, with clickbait score [0,1]
EXPERIMENT: CLICKBAIT DETECTION

Whether the post starts with a number

15 hilarious tweets of stupid people that makes you think 'Do these people even exist?'

25 people, places and things Donald Trump has denounced
"I have a Gucci store worth more than Romney."

washingtonpost.com
EXPERIMENT: CLICKBAIT DETECTION

Are you smarter than a chimpanzee?

What makes humans special, and what makes us different from animals?

Royal...

Are you smarter than a chimpanzee?
Do humans have more brain power than animals? Find out! 6.00pm to 7.15pm
rigb.org
EXPERIMENT: CLICKBAIT DETECTION

Whether the post starts with 5WIH (Why)

Why did authorities allow him to leave country just days after shooting while the investigation was still chaotic? dailycaller.com/2017/10/25/tuc...

Whether the post starts with 5WIH (How)

Get Fit After 50: 5 Tips for Men
How to feel younger and live longer.
health.clevelandclinic.org
EXPERIMENT: CLICKBAIT DETECTION

Linguistic features

[Anonymous] May 12

Replying to @realDonaldTrump

**Trump** showing his love of Russia over USA. **Sad**. Lock **Trump** up before he gets more **insane**. Unfit! Show **tax** returns! Impeach!

[Anonymous] 22h

Perhaps foreign Russian investors? **Trump's tax** plan could give a bigger boost to foreign investors. [read.bi/2y1e5Ir](read.bi/2y1e5Ir) via @themoneygame

Extreme sentiment

Contain opinions & insight
EXPERIMENT: CLICKBAIT DETECTION

- About 60 features (out of 130 raw content-based features)
  - NLP (natural language processing) features
  - Linguistic features
  - Stylistic features

- Dataset: 762 clickbaits (31%) and 1,697 non-clickbaits (69%)
  - Baseline (all-clickbaits): 47% in F1-measure
  - Regression model: 75% -- 81% in F1-measure
  - Random Forest model: 78% -- 83% in F1-measure
LIMITATIONS: CLICKBAIT DETECTION

- Limitations
  - Insufficient features ➔ need to incorporate the features from step 1
  - Limitation of content-based features ➔ network features
    - Node, edge, path, …
  - Small # of datasets ➔ synthetic datasets

By Hoaxy (IU)
NETWORK FEATURE: NODE

Credibility

Influence

Role = 
# followers vs. # following

Originality = 
original tweets vs. retweeted
A Dallas Keuchel vs Justin Turner AB is like watching Luke Harper vs Eric Rowand. Well, from a beard perspective, anyway. #WorldSeries

Championship teams win up front on both sides of the ball.

Reuben Frank @RoobNBCS
The Eagles have gone 5 games in a row gaining 100 rushing yards and allowing 80 or fewer rushing yards. 6th-longest streak in NFL history.

I cast my Heisman ballot for #SaquonBarkley! Click the player you think deserves the @NissanUSA #HeismanHouse vote!

As crypto grows, centralized systems (banks/gov/etc) will attempt to delegitimize these technologies, their survival depends on it. Buckle up

Replied to @sup
Please do your own research! Just a project I’m excited about :)

This is the first Apple Watch I’m really excited about. Less phone time = better.

Kevin Rose @kreuvrose
I’m tracking a few altcoins, one that I’m liking is ARK, outstanding wallet, community, PoS delegate system, etc. - ark.io

Replying to @patrickbjohnson
Digital currency, it’s inevitable
NETWORK FEATURE: NODE

False Claim A

Low trustworthiness

Click on network nodes to expand.

False Claim B

Low trustworthiness
NETWORK FEATURE: PATH
NETWORK FEATURE: PATH

- Longest chain of retweet among mutual friends
  - 3 in the example
During Boston Marathon bombing, the user on the left was re-tweeted by the user on the right.

- Low-2-high diffusion (Vosoughi et al., TKDD, 2017)
SYNTHETIC DATA FOR IMPROVED LEARNING

- Problem: lack of labeled fake news data
- Ideas: Generate synthetic labeled fake news data
  - Using crowdsourcing
  - Using games (eg, game-with-a-purpose)
  - Using machine learning (eg, generative language model)
WHAT NEXT “AFTER” DETECTING FAKE NEWS?

http://www.thenewportbuzz.com/the-irish-slave-trade-the-slaves-that-time-forgot/7191

The Irish Slave Trade – The Slaves That Time Forgot

Disputed by Snopes.com and Associated Press

The warning message that appears when some Facebook users try to post a fake news article. Photograph: Facebook
WHAT NEXT “AFTER” DETECTING FAKE NEWS?

- How to present fake news labels to users?
  - Tagging fake news by a label “disputed by 3rd party” ➔ little effect (Pennycook & Rand, 2017)
  - Portion of users rating fake news as legit ➔ 29% in unlabeled to 19% with “disputed by 3rd party” label (Blari et al., 2017)

- Ideas
  - Showing content & label ➔ label first then content later
  - Showing more evidences: eg, “disputed by 3rd party” & “agreed by k% readers”
HYBRID: MACHINE LEARNING + DATABASE APPROACHES

Machine Learning Approach

- Hypothesis: there are distinct latent patterns between fake vs. legit news
- Work universally for old and new stories
- Costly for good feature engineering
- Weak for attacks (reverse engineering)

Database Approach

- Build DB about known facts
- Query claims in news to DB
- If found, legit news. Else, fake news
- Fast to determine fake vs. legit
- Costly to build/maintain DB
- Cannot handle new stories well
2016 Third Presidential Debate. Oct. 19, 2016, 9 p.m. EST
Venue: University of Nevada, Las Vegas, Nevada. Broadcasted by: C-SPAN.
Moderators: Chris Wallace
Participants: Hillary Clinton, Donald Trump

Chris Wallace: All right. But just briefly, I want to move on to another segment...

Donald Trump: And, honestly, nobody has business doing what I just said, doing that, as late as one or two or three or four days prior to birth. Nobody has that.

Chris Wallace: All right. Let's move on to the subject of immigration. And there is almost no issue that separates the two of you more than the issue of immigration. Actually, there are a lot of issues that separate the two of you. Mr. Trump, you want to build a wall. Secretary Clinton, you have offered no specific plan for how you want to secure our southern border. Mr. Trump, you are calling for major deportations. Secretary Clinton, you say that within your first 100 days as president you're going to offer a package that includes a pathway to citizenship. The question, really, is, why are you right and your opponent wrong? Mr. Trump, you go first in this segment. You have two minutes.

Donald Trump: Well, first of all, she wants to give amnesty, which is a disaster and very unfair to all of the people that are waiting on line for many, many years. We need strong borders. In the audience tonight, we have four mothers of -- I mean, these are unbelievable people that I've gotten to know over a period of years whose children have been killed, brutally killed by people that came into the country illegally. You have thousands of mothers and fathers and relatives all over the country. They're coming in illegally. Drugs are pouring in through the border. We have no country if we have no border. Hillary wants to give amnesty. She wants to have open borders. The border -- as you know, the Border Patrol agents, 16,500 plus ICE last week, endorsed me. First time they've ever endorsed a candidate. It means their job is tougher. But they know what's going on. They know it better than anybody. They want strong borders. They feel we have
STEP III – HUMAN VS. MACHINE IN DETECTING FAKE NEWS
HUMAN VS. MACHINE

Fake and legit news (test data)

- Who can detect fake news better?
  - Eg, Difference in types of fake news? Demographics of people?
- Argument for the utility of ML model
Faculty members earn NSF grant for training machines detect fake news

Institute for CyberScience announces 2017 ICS Seed Grant recipients

April 12, 2017
Penn State professors get $300,000 to create fake-news detector

Fake news? Not if 2 PSU profs can help it
A pair of professors from Penn State University received a $300,000 grant in an effort to help produce technology — specifically “devices” — that would be able to efficiently detect fake news, according to the Associated Press.
The university says information sciences and technology professor Dongwon Lee and communications professor S. Shyam Sundar are working on the project.

Lee says fake news “has been around for decades” but has been “exacerbated” on the Internet and social media platforms.

The professors plan to investigate “characteristic indicators of fake news” and develop complex formulas that will enable digital devices to recognize those indicators and purge stories that contain them.
These types of solutions will certainly help online, but I wish we could go back to a time where our
FCC wouldn’t allow just completely bogus and outright lies to be spewed on our airwaves. This
would be pretty easy to enforce. I watch Fox’ quite often. And it’s their Opinion shows that lie tru
their teeth constantly, but the news is just right on the line, many times over the line or constantly
insinuating. It can be done. You lie, you pay.

3 world when someone watches an opinion show, its just that the person’s opinion. I wish they
would remove Monday night wrestling cause we know that’s not real right? and how about the
“Real” Housewives of Orange County. New York, etc. they need to be removed also. don’t you think
cause they’re not really real same with HGTV I see the same actors pretending to be fake house
buyers on other shows lets get them off the air also.

Don’t forget “Finding Sasquatch” and ghost hunters. They need an “F” rating.

Just use the keyword “Trump” “Greatest” “Best”

Just turn on FOX and send me the 300K.

Another step to regulate free speech and shape the narrative/brainwash the public
Professors Get $300,000 Grant for Digital Fake-News Detector

Show all 16 recipients

To: fcordova@nsf.gov;
Cc: dsellers@nsf.gov; jferrini@nsf.gov; bstone@nsf.gov; fkorsmo@nsf.gov; weward@nsf.gov; jhamos@nsf.gov; vross@nsf.gov; ...


As an American citizen that has supported the NSF, I am surprised that so much money ($300K) is being used to create algorithms for "fake news" "detection". $300K can be used to support real projects that have a measurable benefit to society such as other types of robotics or medicine.

Chasing unicorns and rabbits called "fake news" is a fantasy that will NEVER change human behavior. Biased media has been purging news stories since the printing press was invented. Psychological biases are how we all tolerate endless streams of input data. Since most forms of media are driven by advertising dollars and donations, truth is less important than the self-sustaining dollars that perpetuate the host media.

When Trump speaks of "fake news", that is nothing more than hostile verbiage designed to discredit his political enemies, of which he has many.

I can author algorithms that sort news stories stored in a complex matrix library containing any number of subjective parameters, tags, flags and origins. Those libraries are created

Mark as unread
Many challenges ahead

- How to build accurate and general ML model?
- How to convince users to trust labels from ML model?
- Need your help for step III (human vs. machine) user study