Fake Science

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My friend and I went to the #BlackPanther premier and he was brutally beaten for "not belonging there" by an angry group who did not have tickets. Very sad, night ruined pic.twitter.com/Con2bmU2Ag — . (@WHIT3IV3RS0N_) February 16, 2018

Zeren
@ZionistGangster

Follow

Went to a #BlackPanther 🐾 screening with my girlfriend. 2 white men in MAGA hats jumped me and said the movie was bad and that "blacks are subhumans who deserve to be beaten"... can't believe this happened on such a special night.

4:05 AM - 8 Feb 2018

1 Retweet 3 Likes

Agenda

- Deep Fakes, Cheap Fakes, Disinformation, Misinformation

- Why the Science Community Should Care

- What Can We in R&E Do?

~~Weaponization of Information~~/Cognitive Hacking/Influence Operations

- Any individual or group can communicate and influence large numbers of others online now

- New landscape of influence operations, persuasion, and, more generally, mass manipulation

- Comparisons to a Public Health Crisis

Deep Fakes and Cheap Fakes

- Deep Fake – computation heavy, AI techniques

- Cheap Fake - speeding, slowing, cutting, re-contextualizing footage

- Both can influence the politics of evidence

Deep Fake Example

Disinformation & Misinformation

- Misinformation: false information shared with no intention of harm

- Disinformation: false information shared with intention of deceiving consumer

- What's new?

  - Democratization of content creation

  - Rapid news cycle

  - Filter bubbles

  - Opaque algorithms for news feeds

Primer on Russian Trolls

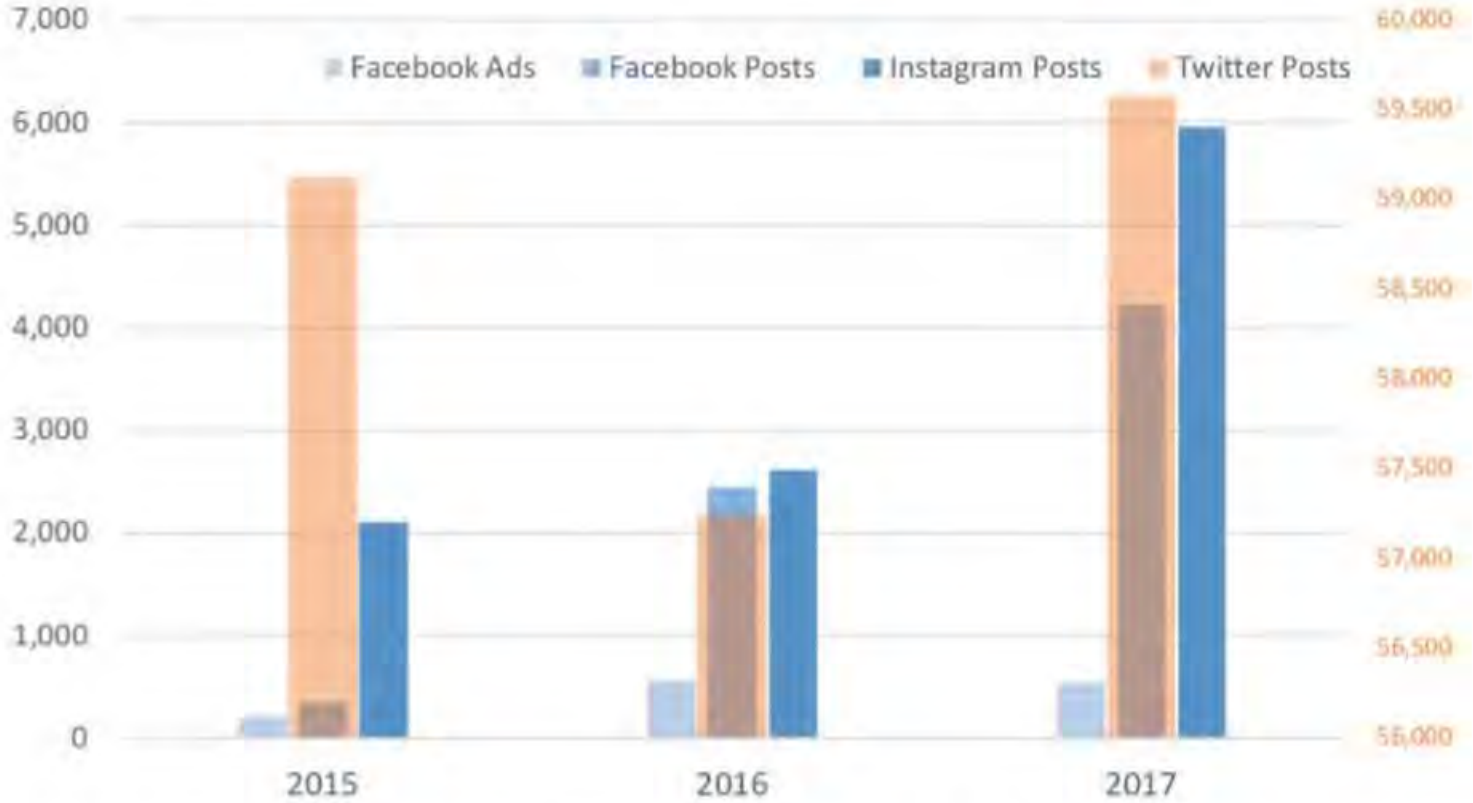
Former IRA building in St. Petersberg

- 30M+ users (2015-17) shared IRA's Facebook and Instagram posts

- Started targeting US in 2012; Russia in 2009

- Most IRA tweets were *not* fake news. 64% of time were used as sources of opinion

- Goal: polarize the US public and interfere in elections by:

  - campaigning for African American voters to boycott elections or follow the wrong voting procedures

  - encourage extreme right-wing voters to be more confrontational

  - spreading sensationalist, conspiratorial, and other forms of junk political news across the political spectrum.

Goals of IRA Misinformation and Disinformation

- Divisiveness.

- Pit Americans against each other.

- Most content effort:

  - Black Lives Matter

  - Gun Control

Volumes of IRA Activity Increased Post 2016 Election

Figure 1: The Volume of IRA Activity, Monthly Average (Twitter on Right Axis)

Note: Facebook, Instagram and YouTube relative to the primary left axis, Twitter relative to the secondary right axis.

Why Are Humans Susceptible

- Cognitive bias

- People are poor judges of true versus false information

- Information overload leads people to take shortcuts in determining trustworthiness of messages

- Familiar themes or messages can be appealing even if they are false.

- Strongly entrenched beliefs ae likely to survive non-supportive evidence
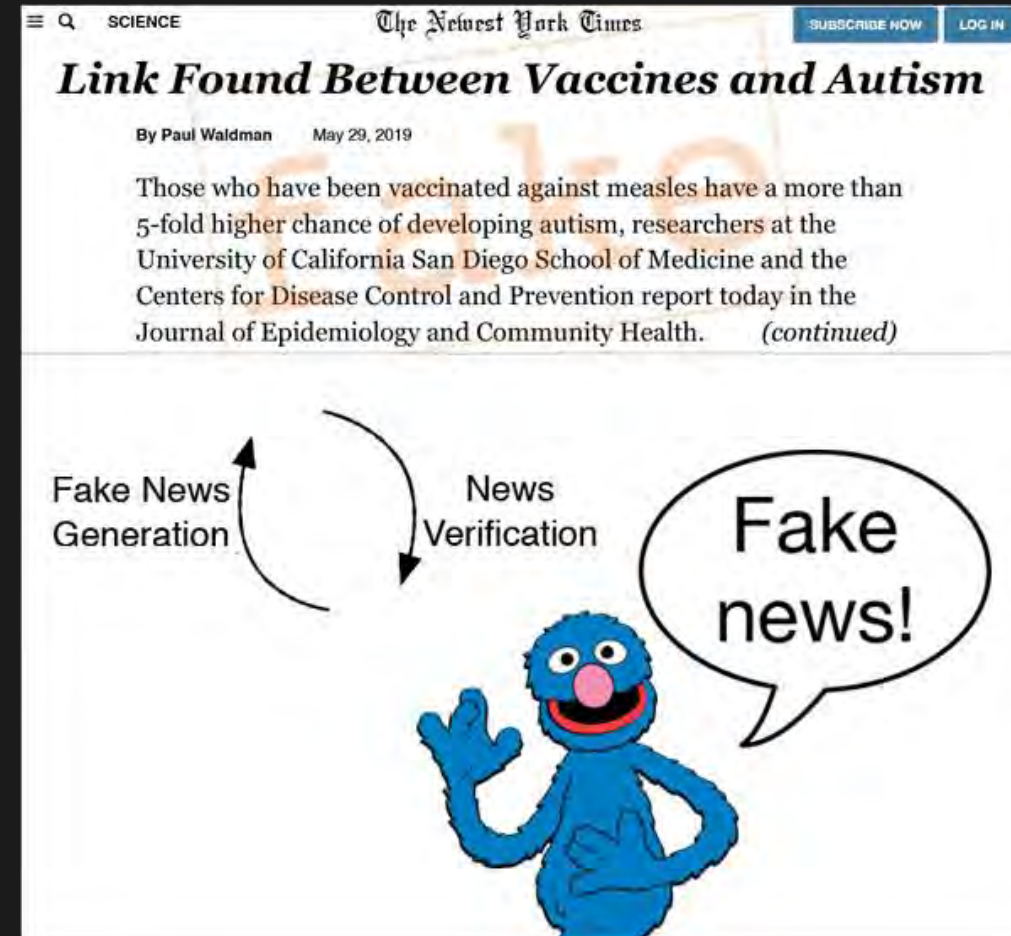
Why Should R&E Care?

Risk to Science

- Public attitude toward science can be manipulated. Media influences what public perceives as most pressing and important science questions.

- Members of Congress are susceptible

- Nature of evidence has changed

- Misinformation can make it difficult for authoritative voices from science to be heard.

- Distrust - individuals feel their values, identity, or interests are threatened

Grover: AI Writes Better than Humans

- Given a sample headline, Grover generates entire news article written in the style of legitimate news outlet

- Generate propaganda stories readers rated as more trustworthy than the original, human-generated versions

- Using NLP it emulates a style of news outlet and writer

"Defending Against Neural Fake News" Rowan Zellers, Ari Holtzman, Hannah Rashkin, Yonatan Bisk, Ali Farhadi, Franziska Roesner, Yejin Choi

Technology Only Part of a Solution

- DARPA programs (MediaFor & SemaFor) to automatically identify fakes

- Facebook working to identify false content

- Facebook 2019 Deepfake Detection Challenge (DFDC) – create a data set

- Proposals to label misinformation on websites

- Need holistic approaches

Inoculation

- Familiarize people with strategies used in the production of fake news. And the common tactics used in production of misinformation

- Inducing skepticism about a communication helps combat effects of misinformation

- Exposing misleading arguments

- 'False balance' news articles pit factual evidence against contrarian voice

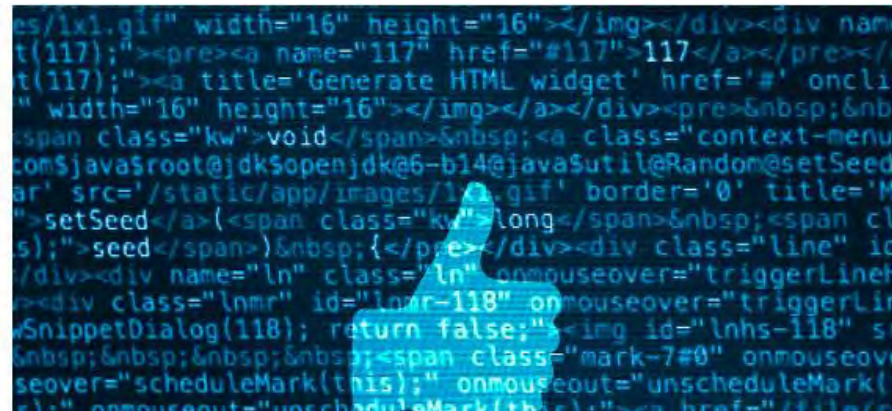- Risk making people cynical on media
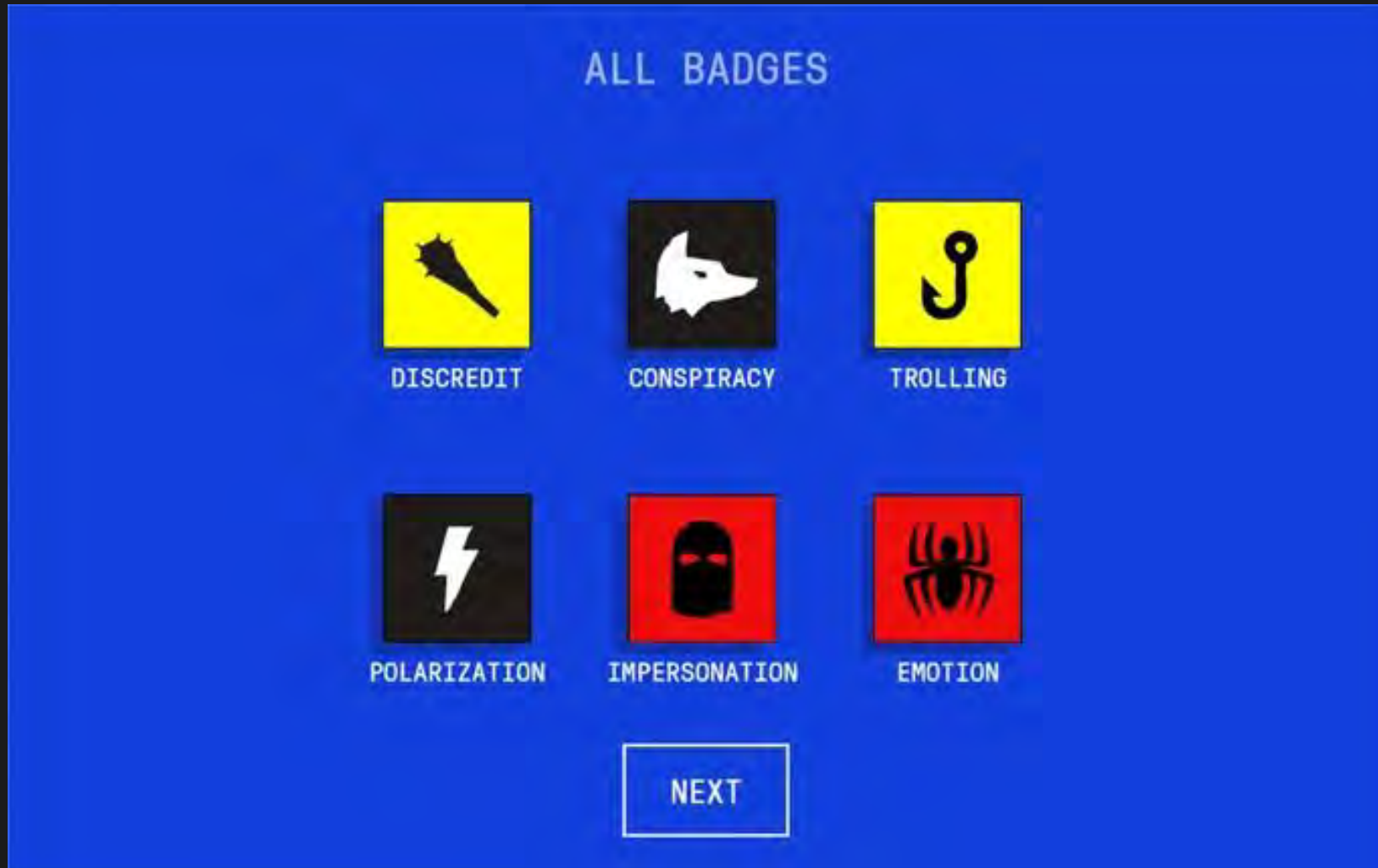
Start with Kids

POLITICS

At Defcon, teaching disinformation is child's play

The r00tz Asylum, Defcon's kid-friendly event, is hosting a workshop on how disinformation is spread on social media.
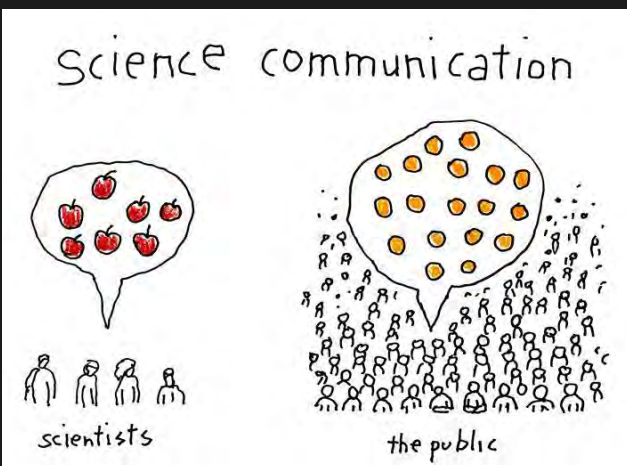
BY ALFRED NG | AUGUST 9, 2019 5:00 AM PDT

Gamification for Adults: "Bad News"

Science Communication Needs to Improve

- Pew report: 73% of Americans think the biggest problem with scientific research is the way news reporters cover it.

- In addition to factual science news, take into account ways in which content can be distorted, and include pre-emptive inoculation messages

- Quality scientific information is more likely to reach more educated and higher income audiences. Need to reach all segments!

How Can Cyberinfrastructure Help?

- Think critically about the technologies we develop and how they might be misused. "Abusability" testing.

- Teaching our community to be aware of what technology is capable of (e.g., screenshots can be easily fabricated, fake videos made, accounts hacked).

- Help conduct measurement studies to understand the ecosystem, including weighing in on data collection.

- Work with Opinion Leaders to Inform and Persuade

Share Indicators of Misinformation

- AMITT (Adversarial Misinformation and Influence Tactics and Techniques) framework

  - Adapts information security practices to help track and counter misinformation

  - Modeled on the Mitre ATT&CK framework, a globally-accessible knowledge base of adversary tactics and techniques based on real-world observations

- Cognitive Security ISAO – Aug 2019

- REN-ISAC or OmniSOC?

Center for Cognitive Security?

- Cognitive security (COGSEC) - focuses on the exploitation of cognitive biases in large public groups and the social influence as an end unto itself.

- Create and apply tools needed to discover and maintain fundamental models of our ever-changing Information Environment

- Experts in cognitive science, computer science, engineering, social science, security, marketing, political campaigning, public policy, and psychology

Conclusion

"Objectivity is a myth that is proposed and imposed on us."

 - Dimitry Kiselev, Director General of Russia's state-controlled Rossiya Segodnya media conglomerate and Kremlin's media czar

Interesting Reading

"Communicating Science Effectively: A Research Agenda", National Academies Press

"The IRA, Social Media and Political Polarization in the United States, 2012-2018" Oxford University

"The Twitter Exploit: How Russian Propaganda Infiltrated US News", University of Wisconsin

"Examining Trolls and Polarization with a Retweet Network", Kate Starbird University of Washington