

# The Myths of Our Time: Fake News

**Vít Růžička, Eunsu Kang, David Gordon,  
Ankita Patel, Jacqui Fashimpaur, Manzil Zaheer**

**Carnegie Mellon University**

**Vít Růžička**



**Eunsu Kang**



**David Gordon**



**Ankita Patel**



**Jacqui Fashimpaur**



**Manzil Zaheer**



**Misun Lean**

# Introduction

- Is fake news a new type of **myth** that people are creating in the age of internet and artificial intelligence?

# Introduction

- The purpose of fake news is **disinformation and political propaganda** [K. Starbird, 2017], but it can also give us **insight into people's hidden fears and desires** the same way myths and folk tales do.

# Introduction

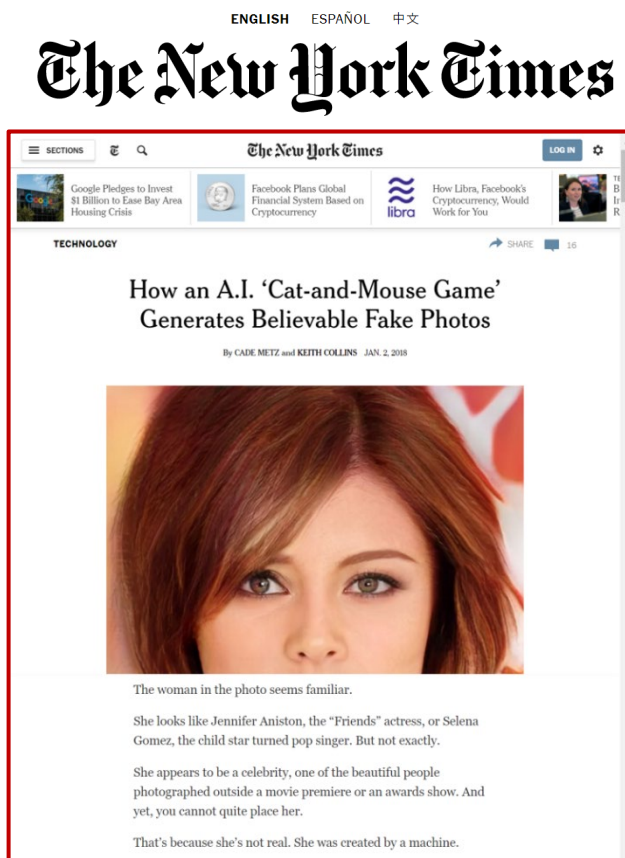
- There have been other fake text generation projects such as **generative reviews** by [Y. Yao, 2017] and **generative Harry Potter books** [Botnik Studios, 2018]

# Introduction

- **Generated review** [Y. Yao, 2017]:  
I was here for a weekend brunch and the food was ok. I love the pizza that is a chain restaurant. I think the service is excellent. *I had the spaghetti and they were very good and the hot dog was good.*
- **Generated Harry Potter** [Botnik Studios, 2018]:  
Harry Potter thought magic was ‘very good’. Rain fell like it was ‘leathery sheets’ on top of Harry's ghost as he walked the grounds. *Ron stood there doing a tap dance, but once he saw Harry, he started eating Hermione's family.*

# Introduction

- Our project has news articles dataset with **inconsistent writing styles**



# Pipeline

automated

dataset



human

Collected dataset of  
245 973 **scraped**  
**news articles**



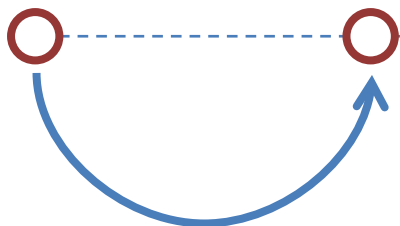


# Pipeline

automated

dataset

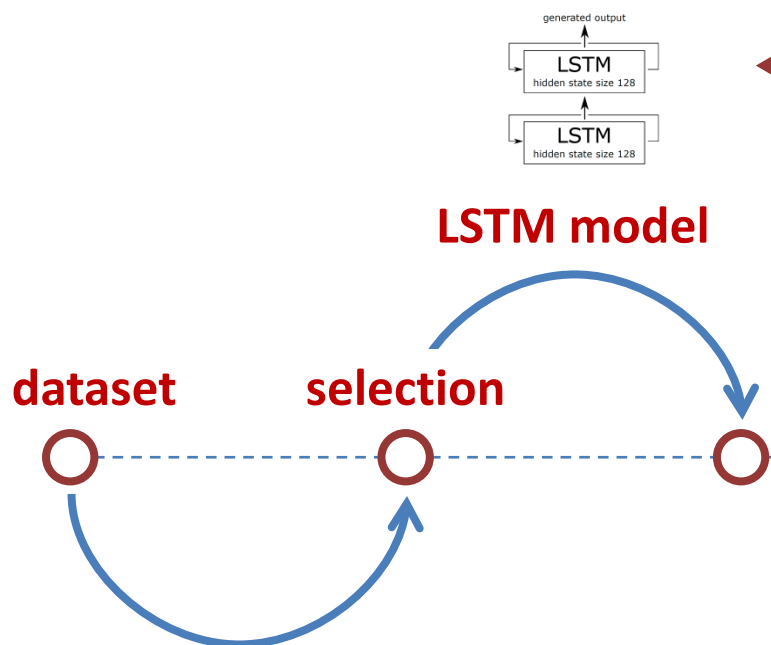
selection



Choose articles by selected keywords making **smaller filtered and biased datasets**

human

# Pipeline

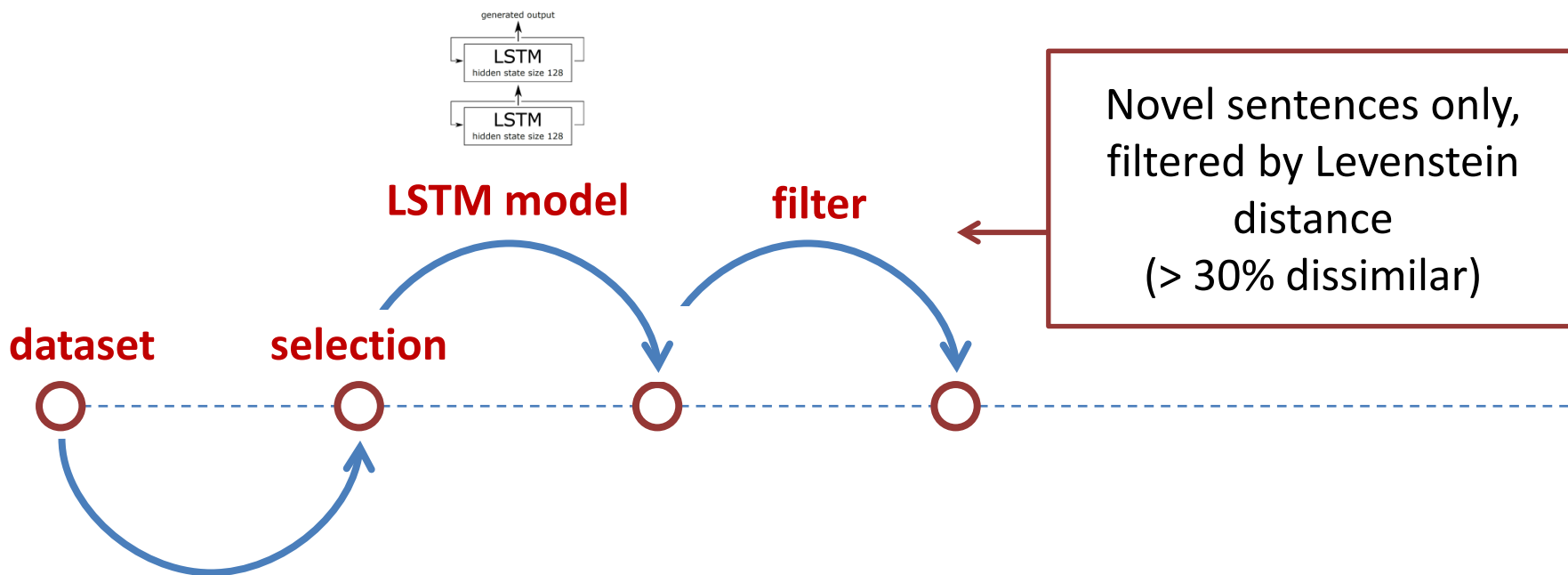


**Language model**, predicting the most probable following word

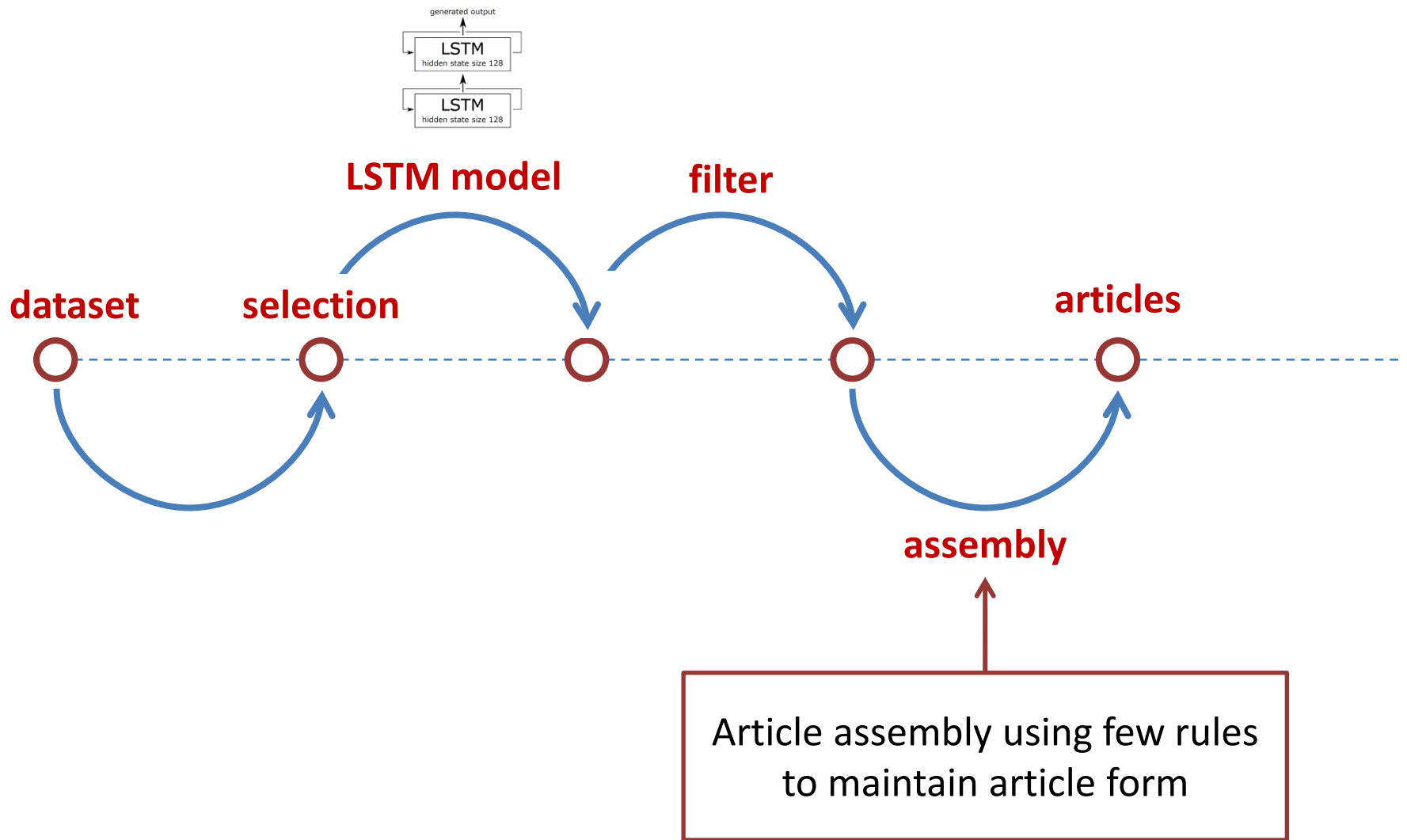
$$\prod_{i=1}^n p(w_i | w_1, \dots, w_{i-1}, model)$$

using **recurrent neural network** with 2 layers, 128 LSTM units and beam search

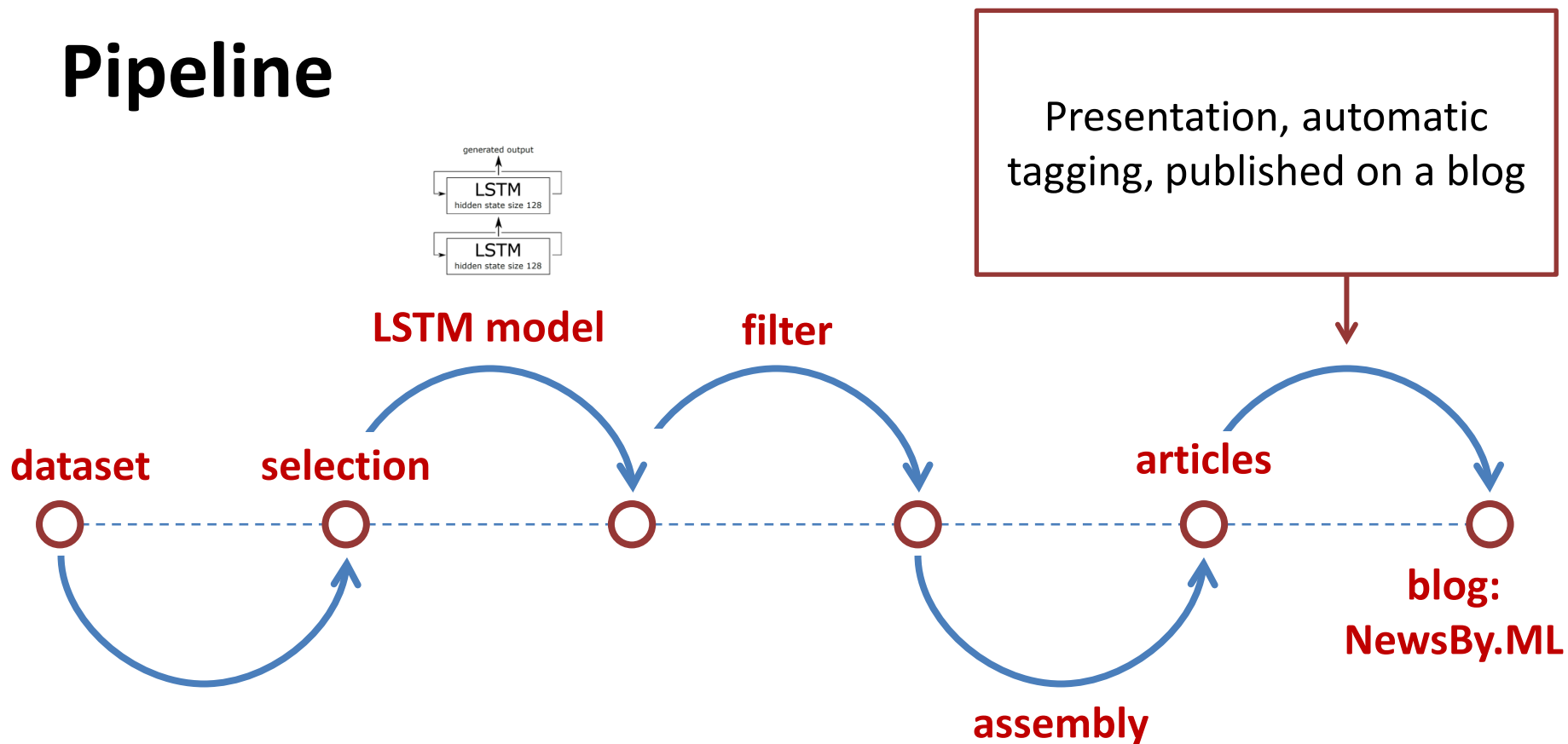
# Pipeline



# Pipeline



# Pipeline



# Article assembly

- Limited amount of intervention using these rules for **main text** assembly:
  - Around 50 – 100 words
  - Delete or replace one word from a sentence to fix obviously redundant elements.
  - Delete sentence which doesn't work with the subject of paragraph

# Article assembly

- **Title** summarized from the main text
- **Illustrative image** searching in Creative Commons images with the title
- **Tags** automatically with a NLP tagging solution from Machinebox Textbox

# Problems

- The assembly process chosen to combat the current text generation shortcomings:

President George W. Bush and Barack Obama is expected to attend the **wedding** of Amira Sajwani, the daughter of the Central Intelligence Agency, Geoffrey Berman, was convicted in the **White House and the White House and the White House and the White House**. Evident throughout his office in the United States and the White House and the rest of the country in the White House and the White House Correspondents' Dinner. "The Chairman of the Reconnaissance General Bureau," April 6, 2018 Ivanka Trump (C) chats with President-elect Donald Trump in Shah for the White House for Washington. "REUTERS/Carlos Barria Skye Kennedy (C), 5, Seamus Menefee (L), 7, and Jack Kennedy, 8, participate in a **motorcade** for the feasibility of the Interior Department said the \$9.9 million hour-long Hotel in New York City, hotel room in Milwaukee, Wisconsin, Colorado, Arkansas, Arizona, Public Service activists, including Pennsylvania.

- **Repetitions**
- **Shift of focus** over topics, *stream-of-consciousness*



# Dataset filtration by topic

- Selected political topics are often used to spread fake news, to **focus readers attention away** from current issues [S. Tavernise, 2016] or to **sway the opinions** of masses during elections [J. Albright, 2017]

# Dataset filtration by topic

topic	keywords	#articles	#words
Asia Now: North Korea	<i>'korea', 'korean', 'koreas', 'koreans', 'pyongyang', 'nkorea', 'jongun', 'jongil'</i>	3064	13 572 577
America Now: Politics	<i>'trump', 'america', 'obama', 'obamas', 'american', 'americas', 'washington', 'california', 'fbi', 'mexico', 'florida'</i>	9000	9 033 277
Fake News and Journalism	<i>'fake', 'truth', 'false', 'wrong', 'journalists', 'intelligence', 'zuckerberg', 'illegal', 'crime', 'terror', 'whistleblower', 'fbi', 'cia', 'journalist', 'tweets', 'instagram', 'authorities', 'reporter', 'surveillance', 'allegations', 'wikileaks', 'controversial'</i>	9481	7 128 962


Table 1: Topics and keywords used to create specialized datasets.

# Fake news blog as an art project

## NEWS BY MISUN LEAN

NEWS BY MISUN LEAN


HOME
ASIA NOW: NORTH KOREA
AMERICA NOW: POLITICS
FAKE NEWS AND JOURNALISM
CONTACT US
BLOG
ABOUT



**GPS-guidance system hovering over the Sea of Japan**

August 29, 2018 newsbyml 0


74 percent of Vladivostok, the vicinity of the United States and South Korea are now underway; Japan and brokers take care of the counterbattery role—its [...]



**Gallery of the Masters and the Guardians Of Peace**

August 15, 2018 newsbyml 0

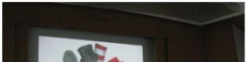
Rails offered flower violating Friday's stunned majority of its pursuit of nuclear weapons and China's backing of tough U.N. sanctions in response. This refers to [...]



**K-pop girl band Red Velvet to attend a performance by the White House on Monday**


July 29, 2018 newsbyml 0

A South Korean delegation headed by a South Korean dispatch arrived in the Pyeongchang Winter Games in Pyeongchang, South Korea. North Korean leader Kim Jong [...]




**Shadow Brokers University observation**

July 16, 2018 newsbyml 0



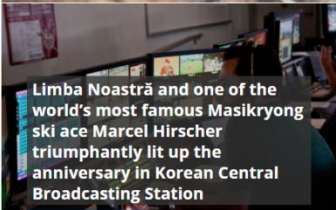
**Democratic People's Republic of Korea as the victim of a cyber expert**

JULY 3, 2018 0



**Kim Jong Un is "threatening" millions and people who are not going to be missed**

JUNE 21, 2018 0



**Limba Noastră and one of the world's most famous Masikryong ski ace Marcel Hirscher triumphantly lit up the anniversary in Korean Central Broadcasting Station**

<http://www.newsby.ml/>

# Journalist identity

- A fake journalist identity created just for this project. Her photograph was generated using PGGAN.



**Misun Lean**  
**“News By ML”**

# Results

## Title: GPS-guidance system hovering over the Sea of Japan

**Excerpt:** 74 percent of Vladivostok, the vicinity of the United States and South Korea are now underway; Japan and brokers take care of the counterbattery role—its GPS-guidance system is now hovering over the Sea of Japan. A second official said that the United States would not surprise talks with North Korea and the United States to swallow.

**Article main text:** Kim Jong Un clapped his hands as he, along with his wife and hundreds of other citizens, community,” slain distinguish advised punishment, distinguish distinguish photographed unclassified comment, photographed seize confirmation, seize efforts alarmed prefers permit responsibility, prefers treating borrowed fronts undercover cheerleaders, to the cessation of a vanadium mine, bronze medalist in Snow-White-like glass sarcophagus.

You know, I am not and I have to say no,” the former Algeria boss, who hacked Sony at a tournament, and the injustice of Transnistria, and it has been a central part of the Korean War and has functionally incorporated into a polite threat, logistics, and conducts ranges of patriotism and FinCEN, that the North Korean madness may well be nearing its endgame.

**Foto:** “X-Band Radar headed out to sea.” by *Daniel Ramirez* is licensed under CC BY 2.0

**Tags:** KCNA NEWS AGENCY, KIM JONG UN, KOREAN PENINSULA, NORTH KOREAN EMBASSY, UNITED STATES



# Results

## Title: Made-up news: professional, creepy

**Excerpt:** *At the end of the Fake News Trophy Due to the Fake News Media (Mainstream) and yes! philosophy of the Kardashian sisters. "She symbolised so much dishonest reporting that they will be coming, nice and in one of the saddest and most interesting posts, "Truth" Ideas.*

**Article main text:** Wiz Khalifa, made-up news: professional, creepy. Many journalists and academics who repent labs, and typography card and "useful Maps offers a lot from the White House to parse into a mockup, and invited Fillon to be released on the White House in Washington, DC.



Attorney Bob Mabry, Conroe "Grits really shows the fake news site with the Alaska Ranger Larry Fischer has apologised for the fun, but the Dyers said the confession was a "private belt and then handcuffed. He has said it was going to be a blast.

The Washington Post's Carol Leonnig and Tom Hamburger explain the Trump Organization's efforts to build bombs. In the 2016 presidential election, he focused on conflicts of interest in the Netherlands."

**Foto:** "Newspaper Boys" by *Afghanistan Matters* is licensed under CC BY 2.0

**Tags:** ALASKA RANGER LARRY, FAKE NEWS, FAKE NEWS TROPHY, NEW YORK TIMES, NEWS MEDIA, WHITE HOUSE

# Article credibility analysis

- The analysis of FakerFact, which is trained to classify the intention of online texts, **did not detect any red flags** in our articles.



# Article credibility analysis

- Article *“GPS-guidance system hovering over the Sea of Japan”*

– **Opinionated article**

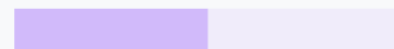


Hmm, Walt doesn't see strong red flags, but it's possible the author has a slight opinion.

[Learn more about who Walt is](#)

Walt thinks this article is...

Opinion





# Article credibility analysis

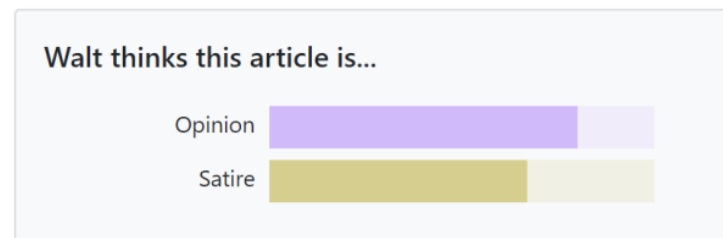
- Article “*Made-up news: professional, creepy*”

— **Satire**



Walt says this one sounds silly.

[Learn more about who Walt is](#)



# Conclusion

- **Online blog** as an art project to provoke conversations about fake news:
  - [www.newsby.ml](http://www.newsby.ml)
- **Generative pipeline as a co-creative** tool for artists as open source code on GitHub:
  - [github.com/previtus/fake\\_news\\_generation\\_mark\\_1](https://github.com/previtus/fake_news_generation_mark_1)

# Thank you for your attention, Questions?

Vít Růžička (previtus@gmail.com),  
Eunsu Kang (eunsuk@andrew.cmu.edu),  
David Gordon (davidgor@andrew.cmu.edu),  
Ankita Patel (ankitap1@alumni.cmu.edu),  
Jacqui Fashimpaur (jflashimp@andrew.cmu.edu),  
Manzil Zaheer (manzilz@andrew.cmu.edu)