

WOMEN IN DATA SCIENCE LA PAZ

Surviving to social media in the misinformation era

WOMEN IN DATA SCIENCE – LA PAZ, BOLIVIA

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Who am I?

- Dr Antonela Tommasel
 - PhD in Computer Sciences at UNICEN
- Assistant Researcher at ISISTAN, CONICET-UNICEN.
- Teacher Assistant at UNICEN.
- Research Interests:
 - Recommender systems
 - Text mining
 - Social media
 - Social computing
 - eCitizenship
 - Hate speech







I S I S T A N



"Fake news is **made-up stuff**, masterfully manipulated to **look like credible** journalistic reports that are **easily spread** to large audiences willing to believe the fictions and spread the word"

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The King's Health is Failing (mid 1700s – Jacobite rebellion)



Life on the Moon (1835)

Jack the Ripper (1888) World War One Fake News (1917)

THE GERMAN "KADAVER" FACTORIES.

LORD R. CECIL (Hitchin, U.), replying to Mr. R. M'NELL (St. Augustine's, U.), who asked whether the Government would take steps to make it known as widely as possible in Egypt, India, and the East generally, that the Germans use the dead bodies of their own soldiers, and of their enemies when they obtain possession of them, as food for swine, and to an inquiry by Mr. DILLON (Mayo, E., Nat.) whether the Government had any solid ground for believing to be well founded the statements, widely circulated in this country, that the German Government had set up factories for extracting fat: from the bodies of soldiers killed in battle, said:--The Government have no information beyond that contained in extracts from the German Press which have been published in the Press here. In view of other actions taken by the German military authorities there is nothing incredible in the present have allowed the circulation of the facts as they appeared through the usual channels.





FINDING THE MUTILATED BODY IN MITRE SQARE

Fake news are among us! ...but it is not only Fake News!



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https://firstdraftnews.org/latest/fake-news-complicated/

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Fake news are among us! ...Mis- and Dis-information

Satire or Parody

No intention to cause harm, but has potential to fool

False Connections

When headlines, visuals or captions don't support the content

Fabricated Content

New content is 100% false, designed to deceive and do harm

Misleading Content

Misleading use of information to frame an issue or individual

False Context

When genuine content is shared with false contextual information

Imposter Content

When genuine sources and impersonated

Manipulated Content

When genuine information or imagery is manipulated to deceive

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Why?

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Why?

- To provoke.
- To profit.
- For political influence.
- Propaganda.
- Partisanship.
- Poor journalist.

Social media aggravates the problem!!



A photo or comment that is posted online, and then shared by many people goes viral, spreading from one person to many as quickly as a virus does.

Fake news are among us! Social media aggravates the problem!



https://medium.com/@tobiasrose/empathy-to-democracy-b7f04ab57eee#.100kciuhj

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fvckyofeelings @vvnotwat

WOW, can't believe sharks are swimming the streets/yard of NYC/New Jersey. Scary I keep yourselves safe guys #Sandy



>

♡ 85 5:18 AM - Oct 30, 2012

○ 590 people are talking about this



The Statue of Liberty right now - pic.twitter.com/WaXBbZUc | #sandy



Alberto Fernández difundió una "fake news" sobre la pandemia del coronavirus: qué recomendó

"La Organización Mundial de la Salud, entre las cosas que recomienda, es que uno tome muchas bebidas calientes, porque precisamente el calor mata el virus", dijo Fernández.





Alberto Fernández 📀

Según un informe publicado por el@@washingtonpost y realizado por el Instituto Tecnológico de Massachusetts (MIT) Evo Morales ganó los comicios electorales del año pasado por más de 10 puntos de diferencia, sin que mediara fraude alguno clarin.com/mundo/informe-...

3:06 pm · 29 Feb 2020 · Twitter for iPhone

10.6K Retweets 23.3K Likes

We are working closely together on COVID-19 response efforts. We're helping millions of people stay connected while also jointly combating fraud and misinformation about the virus, elevating authoritative content on our platforms, and sharing critical updates in coordination with government healthcare agencies around the world. We invite other companies to join us as we work to keep our communities healthy and safe.

Fake news are among us! What is Social Media doing?

Twitter Safety 🕗 @TwitterSafety · 27 May We added a label to two @realDonaldTrump Tweets about California's voteby-mail plans as part of our efforts to enforce our civic integrity policy. We believe those Tweets could confuse voters about what they need to do to receive a ballot and participate in the election process. Q 7.8K 11.1K ♥ 46.1K <u>_</u>1 Show this thread Twitter Safety 🕗 @TwitterSafety · 22 Apr Since introducing our updated policies on March 18, we've removed over 2,230 Tweets containing misleading and potentially harmful content. Our automated systems have challenged more than 3.4 million accounts targeting manipulative discussions around COVID-19. Q 173 155 1 C 517 ⊥ Show this thread

jack 🥑 @jack

Fact check: there is someone ultimately accountable for our actions as a company, and that's me. Please leave our employees out of this. We'll continue to point out incorrect or disputed information about elections globally. And we will admit to and own any mistakes we make.

11:47 pm · 27 May 2020 from California, USA · Twitter for iPhone

40.7K Retweets 218.4K Likes



We have placed a public interest notice on this Tweet from

@realDonaldTrump.

This Tweet violated the Twitter Rules about glorifying violence. However, Twitter has determined that it may be in the public's interest for the Tweet to remain accessible. Learn more View

4:39 am · 29 May 2020 · Twitter Web App

2.4K Retweets 4.8K Likes



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Twitter Support ? @TwitterSupport · 10 Jun Sharing an article can spark conversation, so you may want to read it before you Tweet it.

To help promote informed discussion, we're testing a new prompt on Android — when you Retweet an article that you haven't opened on Twitter, we may ask if you'd like to open it first.

Q 2.4K 1, 18.2K ♡ 59.5K 1

 \sim

Fake news are among us! What is Social Media doing?

How is Facebook addressing false news through third-party fact-checkers?

A Share article

We're committed to fighting the spread of false news on Facebook. We use both technology and human review to remove fake accounts, promote news literacy and disrupt the financial incentives of spammers. In certain countries, we also work with third-party fact-checkers who are certified through the non-partisan International Fact-Checking Network to help identify and review false news.





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 - The dissemination of unwanted or unreliable content, and misinformation.
- A threat to the access to reliable and **trustworthy** information and the establishment of **reliable** social relations.

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Social media produces scepticism amongst users as relevant and accurate information coexist with unreliable and undesired information.

- The growing spread of undesired content motivated the assessment of the reliability of information.
- The vulnerability of individuals and society to the manipulations is still unknown.

increasing availability and popularity of social media



low cost of producing fraudulent sites

increasing availability and popularity of social media



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rapid creation and dissemination of misinformation

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overflows legitimate users with unreliable information



influences public opinion

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The value and quality of the social Web diminishes!!

- The development of methods for automatically detecting undesired content is essential.
 - Such detection is not simple.
 - Mainly based on <u>one</u> of three aspects:
 - Textual content.
 - The responses received.
 - The identification of the content promoters.

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- <u>The identification of the content promoters</u>. -
 - Based on the same characteristics as the detection of unreliable content.
 - Mostly, techniques attempt to determine only if an account is a certain type of unwanted user (binary classification).

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4. As undesired content does not appear spontaneously, it is vital to analyse who published it, its intentions and processes.

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Affected by the lack of integration of multiple sources of information, the updating of techniques and the disregard of the interrelation between different social platforms.

And what about recommendations?

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New challenges!



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Various factors to consider:

- Personal relationships.
- Past experiences of a user with their friends.
- Actions and opinions made in the past.

• ...

In social media focuses on behaviours expressed in the way information is produced and shared.

No attention to the principle of unequal participation. Largest proportion of content is created by the minority of users, whilst the other are lurkers.



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- The proliferation of unwanted content recommendations

- Generally studied in the context of collaborative filtering to:
 - Determine the reliability of users' ratings.
 - Mitigate the cold start problem.

- Aspects specifically related to unwanted content are not considered.
- Require explicit reputation indicators.
- Do not consider the dynamism of the social environments.

More challenges and questions!

How recommender systems influence the propagation of harmful content?

How to characterize users?

How to dynamically characterize users?

Is there a benchmark of data?

How trust needs to be adapted to changes in behaviour?

How to integrate trust in recommender systems?

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How to integrate trust in recommender systems?

- Even though some computational solutions have been presented, the lack of common ground and public datasets has become one of the major barriers.
- Not only datasets are **rare**, but also they are **mostly limited** to only the actual shared **text**.
- Create a publicly available dataset!
 - Comprising multi-sourced data including:
 - Textual and multimedia content.
 - Social Context.
 - Temporal information.
- Potential uses:
 - Undesired content and user detection.
 - Evolution and engagement cycle.
 - Debunking process.

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- Most studies focus on examining users' motivations and attitudes towards adopting a particular social media network, instead of investigating the processes of information (and misinformation) diffusion.
- Define a <u>hierarchical conceptual model</u> to characterise different aspects of the <u>information diffusion process</u>, focusing not only in the <u>information being</u> <u>disseminated</u>, but also on the <u>role of users</u> in such process.
- Shed some light on the psychological and social motivations, and <u>attitudes towards the diffusion and</u> <u>consumption</u> of content in social media.



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Group Layer. Focuses on the behaviour of users in relation to others in terms of their activity and interaction.

More challenges and questions! Tackling recommender systems

The same concepts in which recommenders rely make them facilitators of such unwanted diffusion.

- Study how recommender systems affect the dissemination of unwanted content and users.
 - How patterns of exposure and viralization of the recommended elements is modified.
- Design strategies for **assessing** and **explaining** the trustworthiness of the recommended users and content, and **why the recommendations** were made.
 - Based on the current interests and behaviors of users and their exposure and interactions with their social circles.
 - Raise awareness of users towards unreliable content and users, and how to spot them!

More challenges and questions! What have we already done?

- Explored the dynamics of social networks in terms of homophily.
- Studied the importance of personality and user behaviour in user recommendation.
- Proposed a recommendation technique that adapted over time the recommendation criteria to the characteristics of previously selected friends.
- Studied user influence.

More challenges and questions! What have we already done?

- Exploited the linked nature of social media for community detection.
- Applied community detection for discovering groups of friends and provide recommendations tailored to the characteristics of each group.
- Studied writing styles in relation to personality and gender.
- Explored the detection of aggressive content and aggressors in the context of cyberbullying.
- Implemented Faking It!, the tool for gathering data!

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finished!!

WHAT CAN BE DONE TO COUNTER FAKE NEWS?



Do you recognize the source? Have you heard of it before?

Check the headline

Do links look suspicious?

Is formatting unusual?

Check the photos!

How long ago was the story published? Does the timeline make sense?

Check the story!

Understand when a message is forwarded

Check photos and media

Look for messages that look different

Check your biases

Fake news often goes viral

Verify with other sources



Fake News on Twitter and Facebook: Investigating How People (Don't) Investigate https://www.washington.edu/news/2020/03/18/how-people-investigate-fake-news-on-twitter-and-facebook/

With great **power** comes great **responsibility**.



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Question everything!!

Thanks! Questions?





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