

Winter School on Ethical, Legal,
and Societal (ELS) Aspects of AI
and AS, Umeå, 11–13 March 2026

Disinformation and Propaganda in the Era of Generative AI

Professor Nina Khairova,
Department of
Computing Science



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Agenda

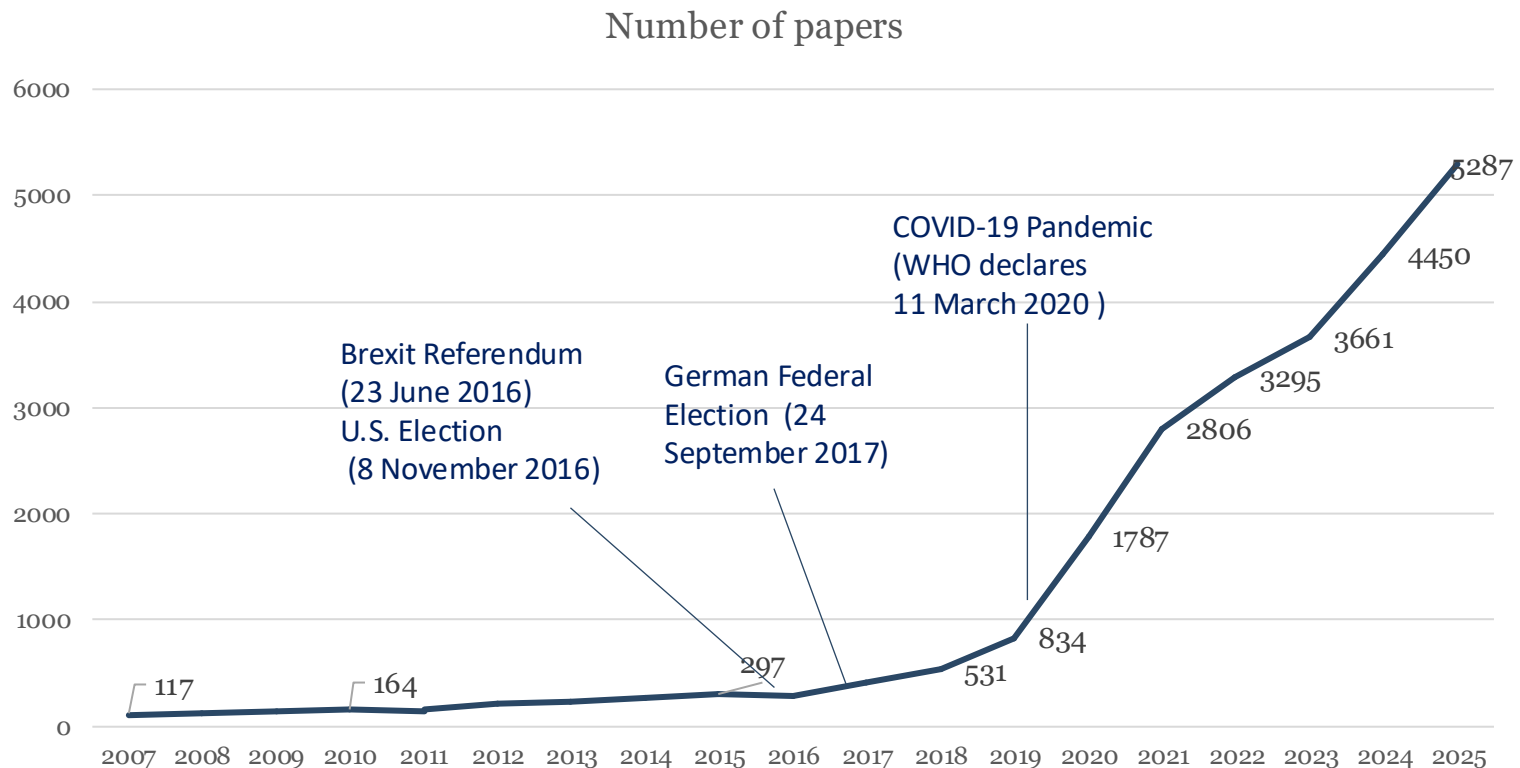
- The Escalation from False Information to Persuasive Propaganda
- The Technical and Psychological Foundations of Propaganda Effectiveness
- A General Framework for AI-Based Misinformation Detection
- Opportunities and Risks for Misinformation Detection in the Era of LLMs
- Interactive Exercise: Misinformation Susceptibility Test



Keyword “misinformation” in Scopus

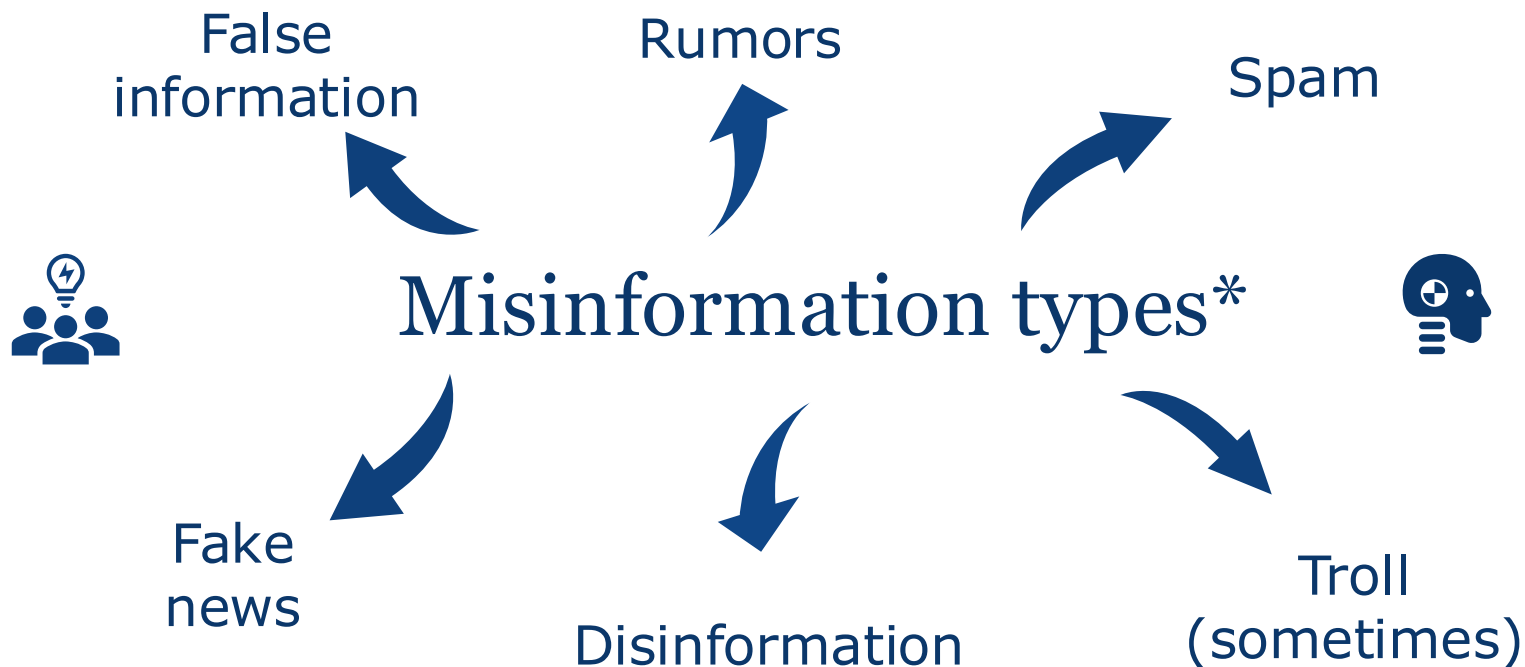
The Scopus search

- spans from 2007 to 2025;
- Request: “misinformation”;
- Search all fields



Classification of misinformation

Misinformation is generally understood as false or inaccurate information that may spread without an intention to deceive.



Often the concepts definitions are overlaps

*Rastogi, S. and Bansal, D., 2023. A review on fake news detection 3T's: Typology, time of detection, taxonomies. International Journal of Information Security, 22(1), pp.177-212.

Definitions: Misinformation, disinformation and propaganda

- **Misinformation** is generally understood as **false or inaccurate information** that is spread **without the intent to deceive**
- **Disinformation** is a type of misinformation that is **intentionally** produced or shared to deceive or mislead audiences.
- **Propaganda** is **a form of communication** that attempts to achieve a response that furthers the desired intent*
- **Propaganda** is **careful and organized dissemination of information or ideas** meant to influence a person or group to think or act in a particular way**
- **Propaganda** is **a systematic form of communication** designed to covertly **persuade an audience** in support of a political or social aim ***

*Jowett, Garth S., and Victoria O'donnell. *Propaganda & persuasion*. Sage publications, 2018.

**Aziz, D. F., et al. "Political Propaganda On The Internet: A Systematic Review." *Migration Letters* 21 (2024): 1077-1088.

*** Nerino, Valentina. "Overcome the fragmentation in online propaganda literature: the role of cultural and cognitive sociology." *Frontiers in Sociology* 8 (2023): 1170447.

Misinformation vs. disinformation vs. propaganda

- Misinformation:

Tweets claimed that COVID-19 vaccines caused fatal side effects or increased mortality among vaccinated people.

Pritom, Mir Mehedi A., et al. "Case study on detecting COVID-19 health-related misinformation in social media." *arXiv preprint arXiv:2106.06811* (2021).

- Disinformation:

• *Intent is hard to prove*
• *Ethical and methodological limitations* (court documents, official admission)
• *Terminological inconsistency*

Altay, Sacha, et al. "A survey of expert views on misinformation: Definitions, determinants, solutions, and future of the field." *Harvard Kennedy School Misinformation Review* 4.4 (2023): 1-34.

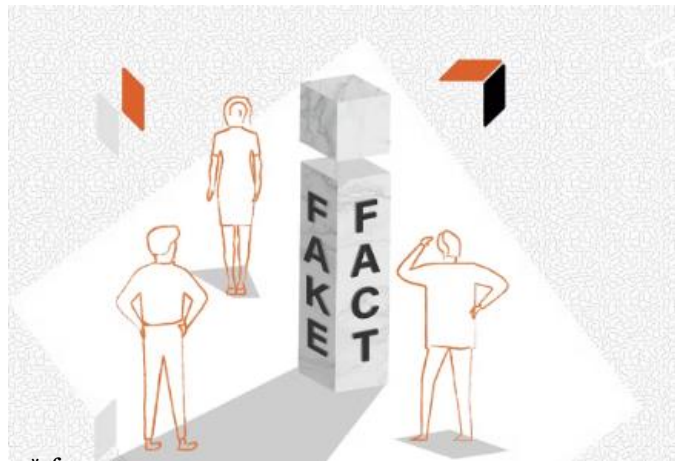
- Propaganda:

• A study of over 2 000 political advertising images from a Taiwan referendum
• analyzed how colour, imagery, and message framing were **systematically used to influence public opinion and voting behaviour.**

Wang, Ming-Hung, et al. "Analyzing image-based political propaganda in referendum campaigns: from elements to strategies." *EPJ Data Science* 12.1 (2023): 29.

Escalation: False → Intent → Persuasion

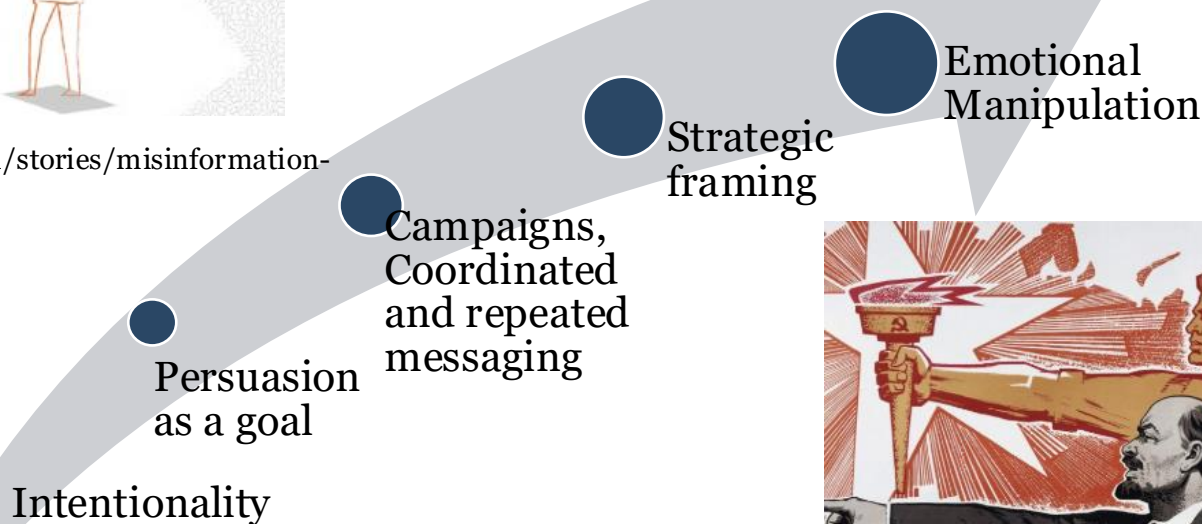
From Misinformation to Propaganda



* from <https://www.liberties.eu/en/stories/misinformation-vs-disinformation/43752>

Propaganda

- Systematic communication
- Designed to persuade in line with political or ideological aims



Misinformation

- False or inaccurate information
- Shared without intent to mislead



Strategic framing

Strategic framing is the intentional **shaping of information** to **influence how people interpret events**.

- Common tactics include:
- **Highlighting** certain details while omitting or **downplaying** others
- Using **metaphors, labels, and narrative templates** to **guide** audience interpretation
- **Name calling** or **labelling**
- **Group identity** and political **polarisation**
- **Appeal to authority**
- **Repetition**
- **Exaggeration or minimization**
- **Doubt**

Public health vs personal liberty

*“Freedom fighters liberated the city”
vs “Terrorists captured the city”*

“Real citizens support the army”

“Scientists agree...”, “The President has confirmed...”, “Religious tradition tells us...”

*I still have a **dream**. It is a **dream** deeply rooted in the American **dream**. I have a **dream** that one day . .*

Can the same be said for the Obama Administration?

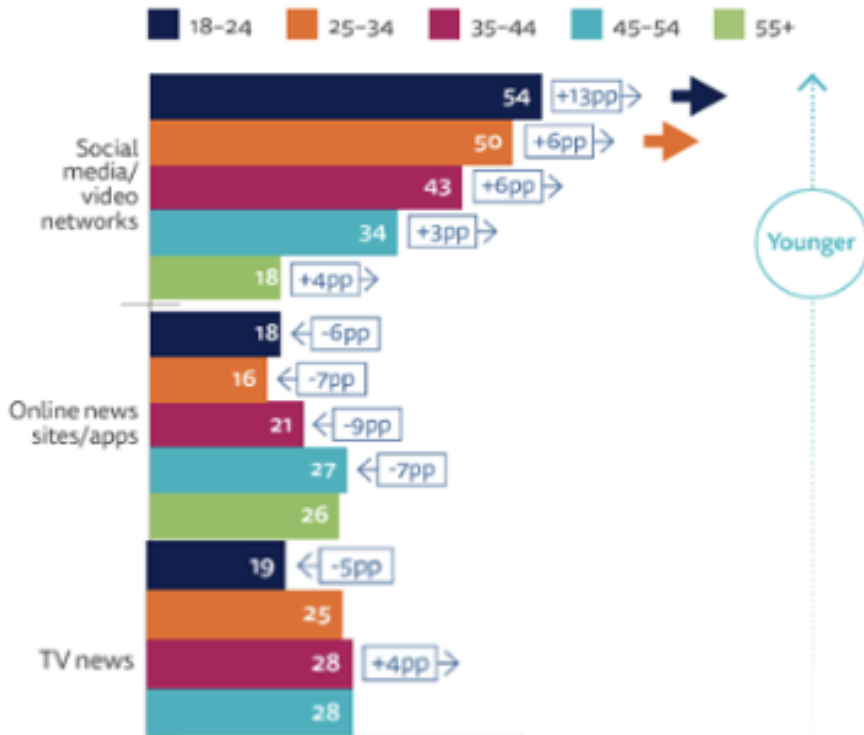
Why propaganda is so dangerous and so effective?

- Technical foundations
- Psychological and cognitive foundations



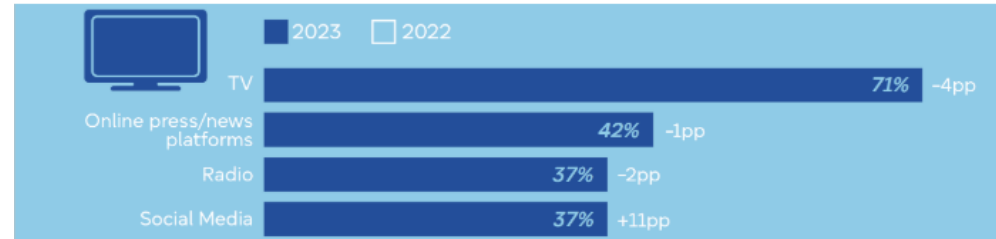
News consumption

PROPORTION THAT SAY EACH IS THEIR MAIN SOURCE OF NEWS (BY AGE GROUP) - USA



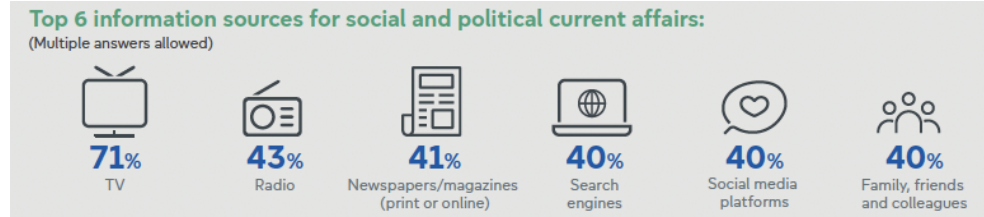
EUROPEAN CITIZENS' NEWS CONSUMPTION

2022-2023



<https://europa.eu/eurobarometer/surveys/detail/3153>

2025



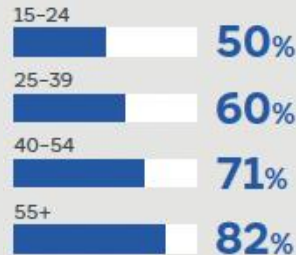
<https://europa.eu/eurobarometer/surveys/detail/3592>

from Reuters Institute Digital News Report 2025
<https://reutersinstitute.politics.ox.ac.uk/digital-news-report/2025>

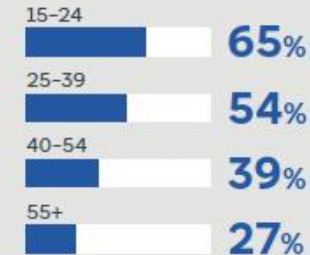
News Consumption by Age Group



The importance of TV as a source of information increases with age



The importance of social media as a source of information decreases with age



40%
Social media platforms

Social Media Survey 2025:

EU27 (26 121 interviews with EU citizens, aged 15+)

Fieldwork: 11 to 18 June 2025 Methodology: online interviews

For more details, scan the QR code:



or check the Eurobarometer website:
<https://europa.eu/eurobarometer/surveys/detail/3592>



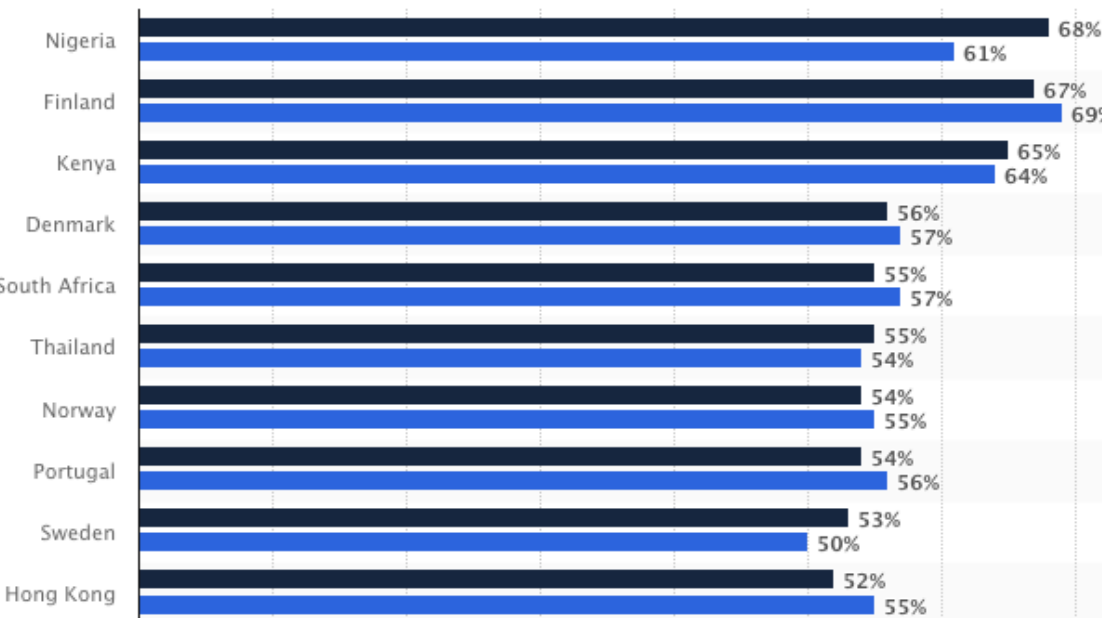
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Share of adults who trust news media

➤ 61% of EU respondents feel confident that they can recognise disinformation

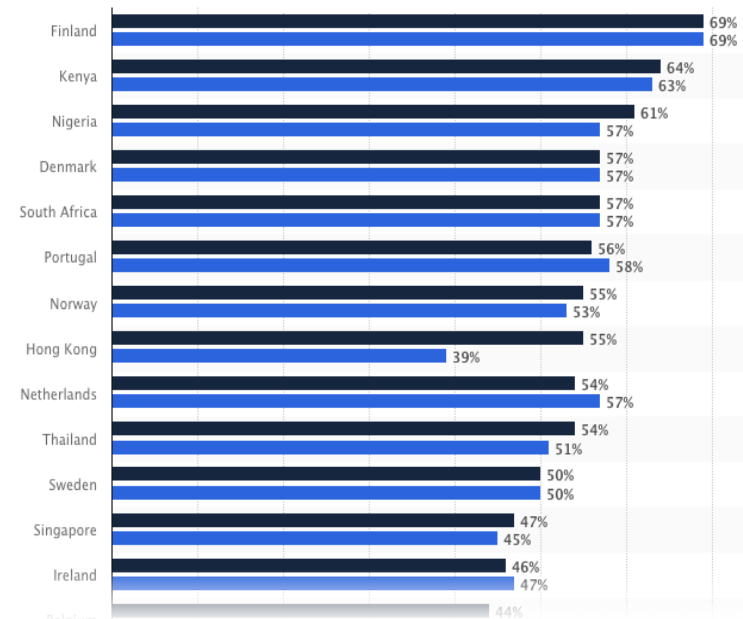
Share of adults who trust news media most of the time in selected countries worldwide as of February 2025

Top of the list



● 2024 ● 2025

Top of the list



● 2024
● 2023

Reuters Institute for the Study of Journalism. (June 17, 2025). Share of adults who trust news media most of the time in selected countries worldwide as of February 2025 [Graph]. In Statista. Retrieved December 03, 2025, from <https://www.statista.com/statistics/308468/importance-brand-journalist-creating-trust-news/?srsltid=AfmBOookKwpo9FodxXmzzmOu9NzFdV2aDP6Q95ctKQ7wX2SX62S9Hpxc>

Psychological and cognitive foundations

- Humans are naturally not very good at differentiating between real and fake news.
 - **Confirmation Bias**¹: people prefer to receive information that confirms their existing views
 - **Naive realism**²: people tend to believe that their perspective is the absolute truth, while others are considered ignorant, irrational, or biased
 - **Social credibility**³: people trust a source more if others also perceive it as credible
 - **Frequency heuristic**³: people tend to favor information they hear frequently
 - Humans **prioritise emotion**⁴ over fact during crises

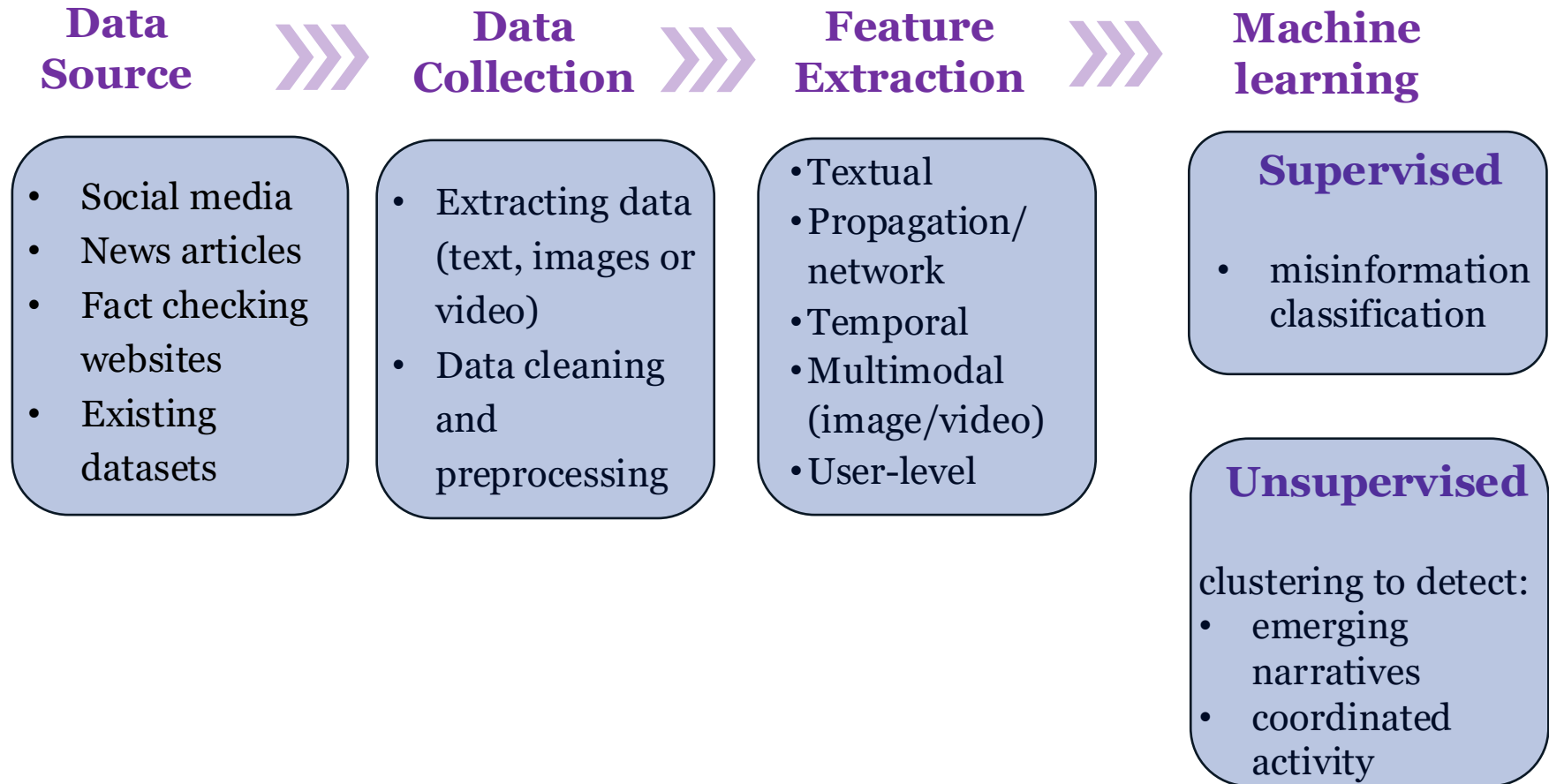
¹ Nickerson, R.S., 1998. Confirmation bias: A ubiquitous phenomenon in many guises. Review of general psychology, 2(2), pp.175-220 *

² Ward, A., Ross, L., Reed, E., Turiel, E. and Brown, T., 1997. Naive realism in everyday life: Implications for social conflict and misunderstanding. Values and knowledge, pp.103-135.

³ Paul, C. and Matthews, M., 2016. The Russian “firehose of falsehood” propaganda model. Rand Corporation, 2(7), pp.1-10.

⁴ Martel, C., Pennycook, G., & Rand, D. G. (2020). Reliance on emotion promotes belief in fake news. Cognitive Research: Principles and Implications, 5, Article 47.

A General Framework for AI-Based Misinformation Detection



Feature Extraction: Key Feature Types for Misinformation Detection

Style-based

- lexicon-,
- syntax-,
- semantic-, and
- discourse-levels of text

Propagation

- dissemination information
- speaker profiles, crowd signals, user's flags behaviors etc

Knowledge-based

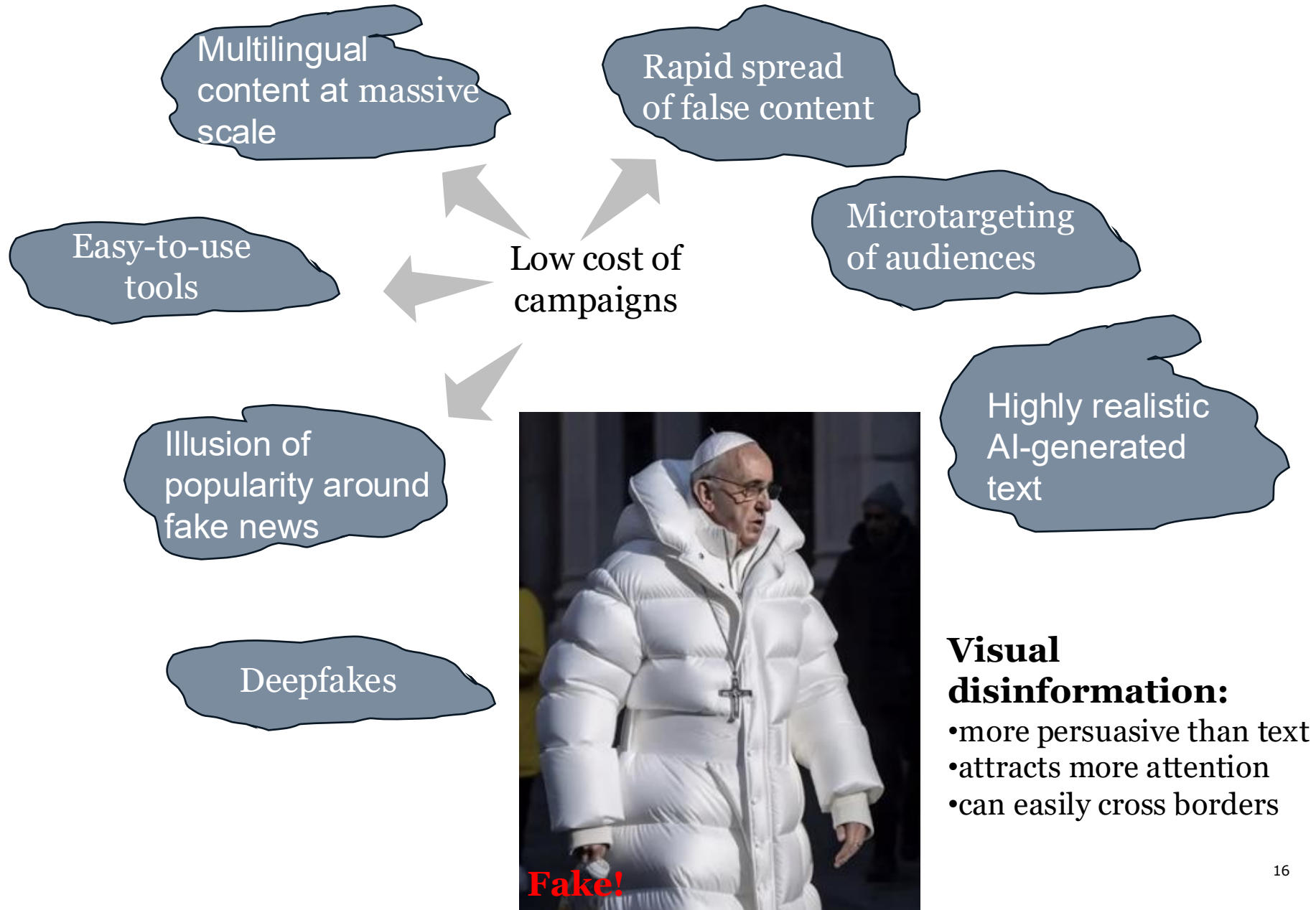
- expert-based fact-checking
- crowd-sourced fact-checking
- automated fact-checking (SPO)

Image/video specific

- attached text
- indications of editing
- generation traces



Risks to the Misinformation Ecosystem in the Era of Generative AI



Generative AI as a Defensive Tool



➤ Human fact-checking support:

- trend tracking,
- clustering claims,
- summarisation,
- evidence retrieval



*There are about 450 fact-checking projects active in more than 116 countries in 70 languages ****

➤ Scalable detection and flagging of suspicious content

➤ Multimodal analysis (text, images, video)

➤ Detection of coordinated misinformation campaigns

➤ Cross-lingual monitoring and detection

➤ Automated, evidence-based debunking explanations



***Sanford School of public policy
<https://reporterslab.org/locations/>

Detecting Fake and AI-Generated Content

- The younger generation, who grew up online, are worse at recognising AI-generated headlines.*
- AI-generated misinformation can be harder to detect than human-written misinformation with the same content.**



Misinformation Susceptibility Test

- Evaluate information presented in news headlines and online media.
- Decide whether statements are likely true or false.
- Explore how easily misinformation can appear credible.

*The research of the University of Virginia

<https://news.virginia.edu/content/research-finds-gen-z-millennials-more-vulnerable-fake-news>

** Chen, C. and K. Shu. 2024. "Can LLM-Generated Misinformation Be Detected?" In The Twelfth International Conference on Learning Representations.



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Score Interpretation

➤ **90–100 points – Excellent detection skills**

You demonstrate a strong ability to recognize misinformation and distinguish credible information from misleading claims.

➤ **70–80 points – Good detection skills**

You generally identify misinformation well, although some misleading claims may still appear convincing.

➤ **50–60 points – Moderate detection skills**

You can detect some misinformation, but distinguishing reliable information from misleading content remains challenging.

➤ **30–40 points – Limited detection skills**

You may find misleading claims convincing and should evaluate sources and evidence more carefully.

• **0–20 points – High susceptibility to misinformation**

You may find it difficult to distinguish credible information from misleading claims. Developing critical evaluation skills is important.



THANK YOU FOR YOUR ATTENTION!!

I would be happy to take any
questions.

Nina Khairova

Umea University, Sweden

ninakh@cs.umu.se



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