

# Narrative patterns in the coverage of AI technologies in online science journalism

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# Outline

- AI as a sociotechnical imaginary – theoretical framework;
- Characteristics of science journalism – literature overview;
- Aims and methods of this study;
- Data sources and analytic categories;
- Results and conclusions.



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# Sociotechnical imaginaries [of AI]

- are **collectively imagined forms of social order** reflected in the design and realization of scientific and **technological projects** [including AI] (Jasanoff and Kim, 2009, p. 20).
- are discursively **constructed and communicated** as “future technologies” with **recommendations** for (national) strategies and policy documents [regarding AI] (Bareis and Katzenbach, 2021).
- articulated and **reproduced in science journalism** and **popular culture** through narratives and frames, which make consumers (re)imagine and (re)evaluate the potential implications of such technologies [as AI] (Genta and Riberi, 2019).



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# Science journalism

- is placed in the fast-paced media supply chain, where it has to **compete for attention** with other media products (Nelkin, 1995)
- uses stylistic patterns that make copy and headlines **newsworthy, attractive and emotional** (Dahlstrom, 2014).
- evolves to fit in with **digital formats** – personalized/targeted newsbites, briefings, social media posts – to keep consumers entertained and loyal (Lazzeretti, 2023)

My research so far has demonstrated a variety of linguistic resources that **represent and legitimize** specific versions of science through news stories and visuals (Molek-Kozakowska, 2017, 2018, 2022).



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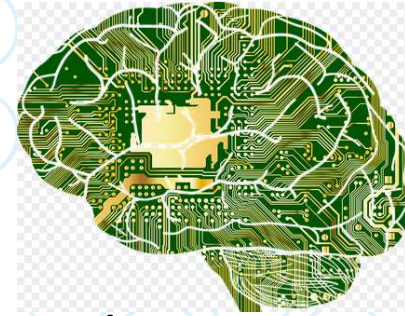
# Aims and methods of this study (2023)

- to explore the narrative patterns in presenting AI as a **revolutionary but controversial** technology.
- using a triangulated dataset of **over a hundred mini-narratives** sourced from *New Scientist*, *Nature* daily briefings, and *Scientific American* (July-Dec. 2023)
- to identify the salient **thematic** scopes and **narrative** trajectories.
- to apply the categories of **agency, sentiment, point of view, and news value** to **reconstruct** each outlet's specific contribution to the evolving sociotechnical imaginaries of AI.



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# AI defined



- AI is a collection of technologies that relate to a computer system's capacity to perform tasks normally requiring human intelligence (Nilsson, 2010).
- **Generative AI** (e.g., ChatGPT, DALL-E, Midjourney) involves the generation of new data (text, images, code) based on input data.
- Terms: “automation”, “algorithms”, “decision-making operational models”, “deep-learning” or “neural networks” imply the ability to **process, interpret, find patterns in complex and large data** in a way that resembles “human-like” action (Beckett and Yaseen, 2023).



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# NewScientist Technology

## nature briefing

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Scientific American 

@sciam

July –August 2023	34 headlines and leads
July-September 2023	29 briefing news items
September- December 2023	43 posts with article announcements



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# Analytic categories

- **theme** (salient semantic macrostructure),
- **agency** (entity performing an action rather than being the action's accessory/instrument),
- **sentiment** (positive/negative/ambiguous/neutral + emotionality),
- **point of view** (narrator/protagonist/antagonist function + plot trajectory = dystopian/utopian)
- **news value** (consonance, eliteness, impact, negativity, personalization, positivity, proximity, superlativeness, timeliness, unexpectedness, Bednarek and Caple, 2017).



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# Preliminary results: NS

agency	position/role (alphabetical order)	evoked sentiment
AI as an actor	creator, doctors' assistant, interlocutor, navigator, pilot, driver, protector from natural disasters or military attacks, research enabler	(rather) <b>positive</b> (n=10)
	author replacer, manipulator, self-conscious being, spy, trickster	(rather) <b>negative</b> (n=7)
AI as a resource	game-changer, harm minimizer, job creator, life simplifier, research tool, precision increaser, visuals improver	(rather) <b>positive</b> (n=10)
	democracy spoiler, heavy energy user, job eradicator, racist	(rather) <b>negative</b> (n=7)

# Preliminary results: NS narratives

- **oscillating** sentiments - positive for biotechnology and applied sciences, negative for social and political sciences,
- claiming that AI's biases and low output quality are “taken care of”,
- **ambiguous** predictions as to the business world and job market,
- favouring **corporate** (rather than state-based) development of AI,
- **normalizing** AI in “everyday life”, inevitability of progress.



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# Preliminary results: NDB

- AI is a tool for researchers to “do better science”, write better reports,
- known limitations of AI for science are being remedied,
- scientists’ integrity will ensure **self-regulation** in AI use for research,
- AI risks addressed with regulation, better awareness of opportunities and equal access,
- AI’s benefits for society override the risks,
- **positive** sentiment and **calming** emotional effect.



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# Preliminary results: SA

News Value	Number of instances
Consonance	11
Eliteness	7
Impact	27
Negativity	14
Personalization	11
Positivity	9
Proximity	8
Superlativeness	12
Timelines	11
Unexpectedness	19
	129

## Dystopian agentic stories

AI is becoming **superior** to humans at many practical tasks and intellectual endeavors. It is adapting to human expectations in conversations, which makes it a **powerful manipulator**.

## Utopian agentic stories

Generative AI transcends typically human modalities. It sees patterns where humans only see noise, making **game-changing discoveries for humanity**. AI is a benign entity that supports scientists in further improving our livelihoods.

## Utopian non-agentic stories

Researchers and engineers are **able to control and improve** the uses of AI technologies for humanity's benefits.



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# Concluding remarks

Science journalism presents AI as **reasonable technology**: maximizing efficiency, solving scientific problems, controlling forces of nature/illness, driving progress (Roderick, 2016).

This sociotechnical imaginary is used for **constructing desirable futures**: “background knowledge” against which democratic institutions justify their regulatory and investment decisions (Jasanoff, 2013).

Further research: sociotechnical imaginaries in science journalism can be seen as dominant ones, legitimizing and **endorsing the interests of powerful institutions**. There might be alternative ones, motivating AI regulation and control to be more compatible with **societal rather than corporate values** (Rudek, 2022).



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# Thank you!

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