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Generative AI in Research: Concepts, Practices, and Implications

MSc INSIGHT - Interdisciplinary Social Research
29/09/2026

1. Generative AI

Artificial Intelligence (AI)

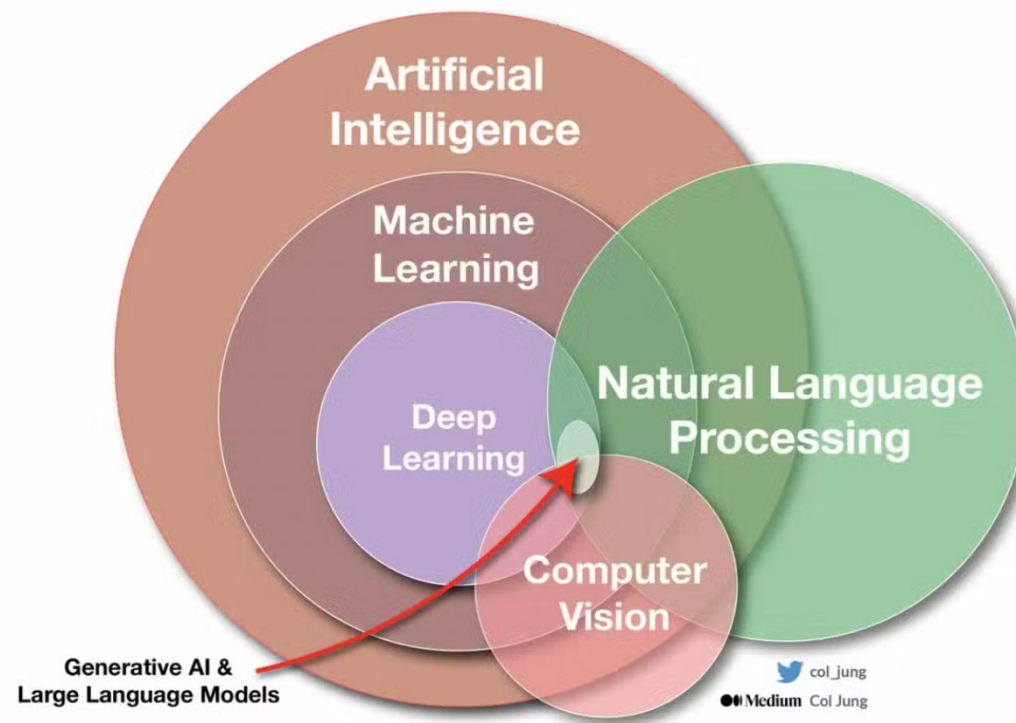
The definition of Artificial Intelligence (AI) is complex, and there is no universal consensus. The term "AI" is frequently used inconsistently, influenced by historical factors, market trends, and the specific capabilities of the technology in question.

AI is a broad concept encompassing various technologies and applications. Among the main types of AI are:

- Generative AI, which synthesizes and produces content - such as text, images, or music - by identifying and replicating patterns and styles from large datasets, typically using deep learning models (e.g., ChatGPT and DALL-E).
- Predictive AI, which uses machine learning techniques to analyze historical data and predict future outcomes, identifying patterns to anticipate trends and behaviors. It is widely used in applications such as credit scoring, demand forecasting, and recommendation systems.

Artificial Intelligence (AI)

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Narratives

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‘Each technique [in AI] is *both* a method for designing artifacts and a thematics for narrating its operation’
(Agre, 1997, p. 7)

The language used to describe AI, with anthropomorphic terms such as "reasoning" and "understanding," can obscure its true operational processes.

These discourses tend to prioritize "understanding" over accuracy.

The use of anthropomorphic metaphors can lead to an overestimation of AI's capabilities, obscuring the fact that these are systems based on mathematical models and statistical analysis, relying on vast amounts of data and human labor in their creation and maintenance.

Discourses around AI tend to shape public perception and the socio-political relationships associated with the technology.

Generative AI (GenAI)

Generative AI works by "learning" patterns and features from large datasets. Examples include generative diffusion models for image generation and large language models, such as OpenAI's GPT, Google's Gemini, and Anthropic's Claude .

Training data is mostly sourced from publicly available information on the internet, curated datasets, and user-provided inputs within the tool.

A specific type of generative AI is Large Language Models (LLMs). These models rely on the statistical analysis of language: their goal is to predict the next word with the highest probability. They do not possess independent knowledge.

Access to these functionalities is typically provided through chatbots (e.g., ChatGPT, Bard, Claude), which are designed to interact naturally with users, mimicking human-like communication patterns. Unlike earlier chatbot models based on pre-programmed rules, current models generate dynamic and contextually appropriate responses to user queries (Goodlad & Stone, 2024).

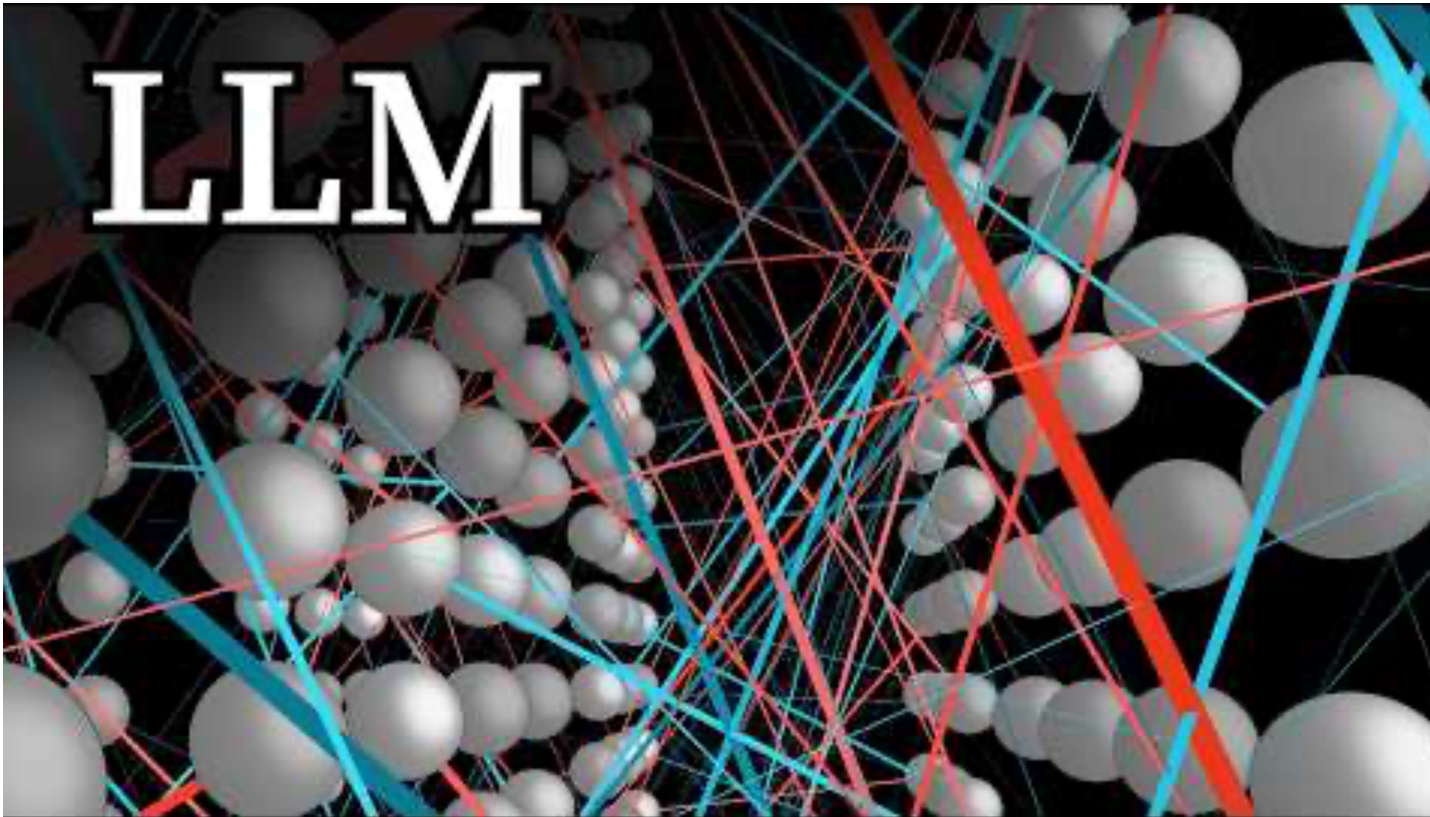
Generative AI has excelled in specific tasks, particularly in text translation, text generation, the creation of coherent images or sounds, automatic text summarization, semantic analysis, opinion detection, as well as text mining and content retrieval. These capabilities stem from its ability to identify complex patterns within large datasets.

LLMs use a process called tokenization, which breaks text into smaller units (tokens). These tokens can be entire words, parts of words, or even individual characters, depending on how the model was trained.

The Transformer architecture, a specific software design, is essential for enabling LLMs to process language efficiently. Through the "attention" mechanism, these models can analyze complex relationships between words in a text, resulting in more coherent and contextually appropriate responses.

Large Language Models explained briefly

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<https://www.youtube.com/watch?v=LPZh9BOjkQs>

LLMs work based on probability, not facts

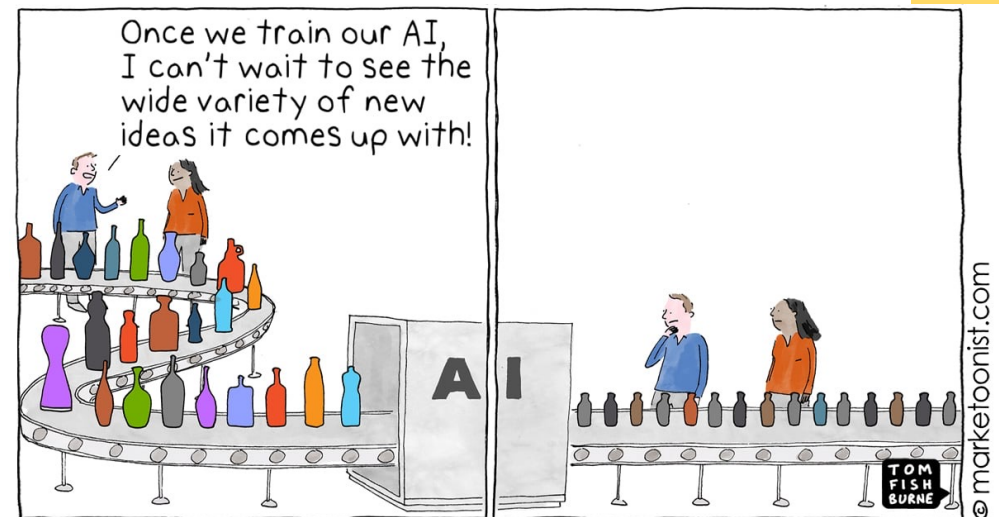
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Rather than "knowing" information, they generate text by predicting likely sequences of tokens, based on statistical patterns learned during training.

They can produce fluent, confident-sounding text that is factually wrong ("**hallucination**"). There is no internal fact-checker.

The same question can yield different answers depending on how it is phrased, because the model responds to surface patterns, not to an underlying meaning it has "understood."

Because these patterns are learned from vast and uneven datasets, they reproduce existing biases (gender, race, language, culture), often invisibly and at scale.



It is not a search engine, although it may resemble one.
It does not produce meaning the way humans do, even if its outputs appear meaningful.

Can reveal patterns and relationships that are not immediately evident.
Can personalise user experiences, potentially promoting inclusion and accessibility.

Raises risks such as bias amplification, copyright and privacy violations, environmental impact, labour exploitation, and degradation of information quality (Critical AI Explainer, 2024).
Raises concerns about power concentration, opacity, and accountability.

It creates a "model of the world" that both reflects and influences how we perceive, classify, and act upon that world (Amoore et al., 2024).

Environmental footprint

GenAI requires significant computational resources, far beyond those of a traditional internet search.

This has a material cost: data centers running these models consume large amounts of energy and water.

ARTIFICIAL INTELLIGENCE

AI is poised to drive 160% increase in data center power demand

May 14, 2024 Share 

AI's Energy Demands Are Out of Control. Welcome to the Internet's Hyper-Consumption Era

Generative artificial intelligence tools, now part of the everyday user experience online, are causing stress on local power grids and mass water evaporation.

Data center emissions probably 662% higher than big tech claims. Can it keep up the ruse?

Emissions from in-house data centers of Google, Microsoft, Meta and Apple may be 7.62 times higher than official tally

Green | ESG & Investing

Google Is No Longer Claiming to Be Carbon Neutral

The tech giant, which has seen its planet-warming emissions rise because of artificial intelligence, has stopped buying cheap offsets behind the neutrality claim. The company now aims to reach net-zero carbon by 2030.

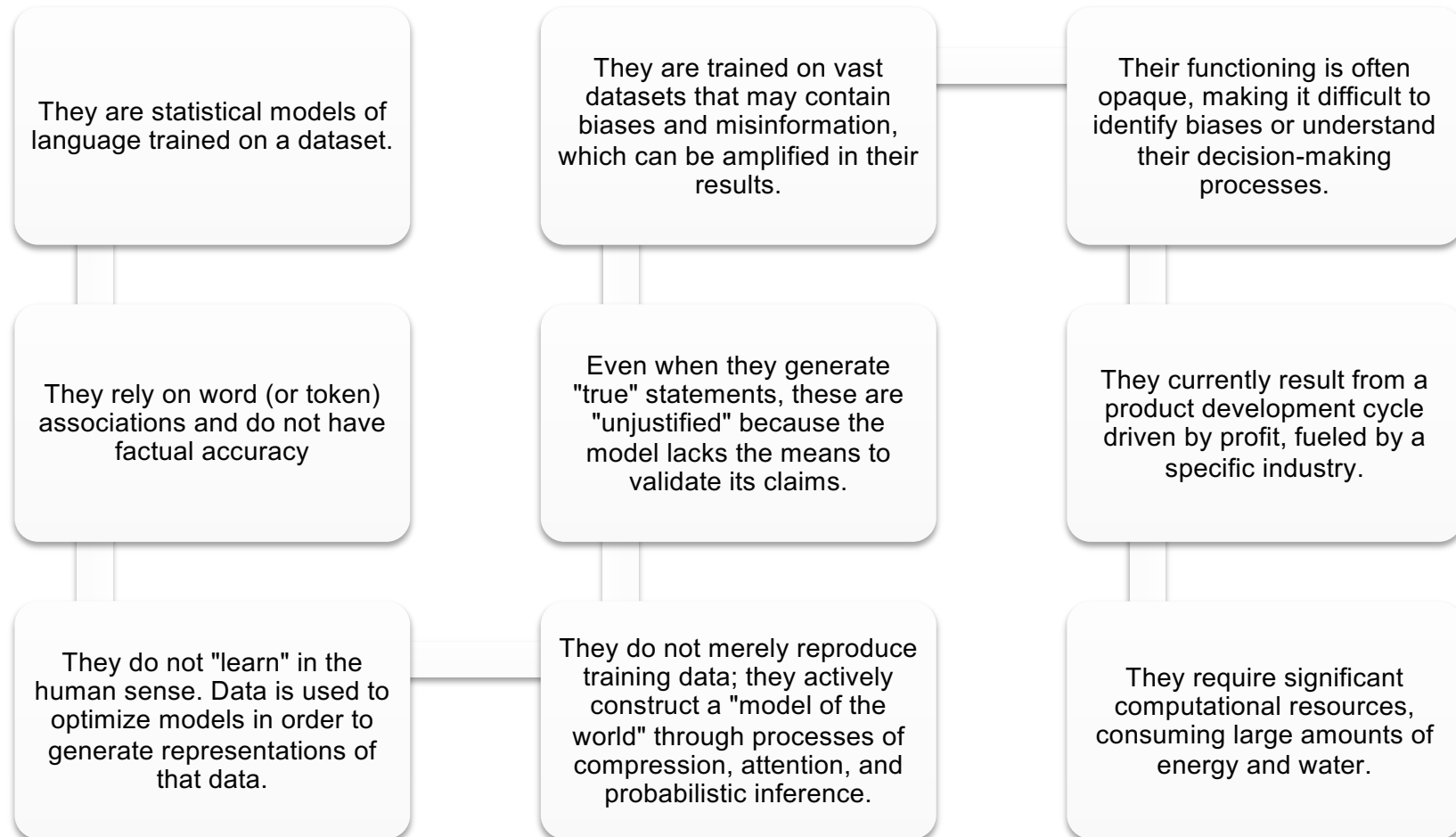
TECHNOLOGY

Microsoft's Hypocrisy on AI

Can artificial intelligence really enrich fossil-fuel companies and fight climate change at the same time? The tech giant says yes.

By Karen Hao

Large Language Models



2. AI and Higher Education

AI and Higher Education

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Generative AI, especially LLMs, has brought new challenges to education, including university and postgraduate studies.

- **Academic Integrity Issues:** AI raises concerns about authorship and plagiarism, requiring a rethink of assessment methods and ethics.
- **Loss of Skills:** Relying on AI can weaken critical thinking and original writing, leading to shallow learning.
- **Business Interests vs. Education:** AI automation often prioritizes efficiency and profit over quality education and meaningful teacher-student interactions.



Narratives and marketing

The use of GenAI in education has led to contradictory narratives:

- Some universities completely ban its use and rely on (problematic) "AI detectors"...
- While others actively encourage its use at various levels.

At the same time, we are seeing:

- The growing integration of AI features into existing digital tools.
- The launch and promotion of new tools and features specifically designed for teachers and students.



Rules and guidelines

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Principles and Recommendations ICS-Ulisboa

1. Recommendations for Students and Doctoral Researchers
 - Teaching, learning, and research assistance: support understanding of complex topics without replacing mastery of core concepts or critical thinking
 - Writing and translation assistants: support structuring, editing, and translating without replacing the student's own writing and research plan
 - Resources for brainstorming and creative process support: help generate initial ideas and approaches, but AI suggestions must always be critically evaluated by the student
2. Recommendations for teaching and assessment
3. Supervisor/supervisee relationship
4. General recommendations

<https://www.ics.ulisboa.pt/sites/ics.ulisboa.pt/files/basicpage/ficheiros/principios-e-recomendacoes-sobre-o-uso-de-ia-generativa-en.pdf>

Rules and guidelines

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Reflexão e Guia para a utilização da Inteligência Artificial no Instituto Superior Técnico

- **Tutoring, not authorship:** AI output must be reviewed and verified; never taken at face value
- **Data privacy:** keep confidential and sensitive data out of AI prompts
- **Assessment:** favour oral presentations and group discussions; ask students to articulate their own original contribution
- **Declaration of use:** when AI is permitted, students must explain how and why they used it
- **Three permission levels:** prohibited / limited with declaration / fully permitted with declaration
- **The bottom line:** AI is not a shortcut; critical thinking, originality, and learning from mistakes cannot be outsourced



AI POLICIES

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open archive of the social sciences, provides a free, non-profit, open access platform for social scientists to upload working papers, preprints, and published papers, with the option to link data and code. SocArXiv is dedicated to opening up social science, to reach more people more effectively, to improve research, and build the future of scholarly communication.



- There are acceptable uses for LLMs and other machine-assistance tools in research on our site, as long as they are disclosed and documented. Failure to disclose, or implausible disclosures, are grounds for rejection. These are acceptable:
 - Language translation (we may ask for the original to review)
 - Pre-writing work such as literature searches, idea generation and organization, when the paper also reports on original research and the author attests to thorough human supervision (e.g., verifying sources).
 - Copy-editing and formatting
 - Machine-assisted content or data analysis
 - Dictation software
- These are unacceptable uses:
 - Generating text which is used verbatim (including whole paragraphs and sections)
 - Generating fake human subjects data (including simulated, *in silico* samples)
 - LLM as co-authors or interlocutors as if human (e.g., “interviewing” or “dialogue” with LLMs)
 - Generating false information to mislead moderators (or readers)
 - Submitting AI-generated content which the author has not thoroughly reviewed and confirmed (this includes reviewing the cited sources to confirm they exist and are accurately characterized, and verifying images)
 - Entire papers produced by AI generation with no human-generated components beyond prompts

3. AI in Scientific Research

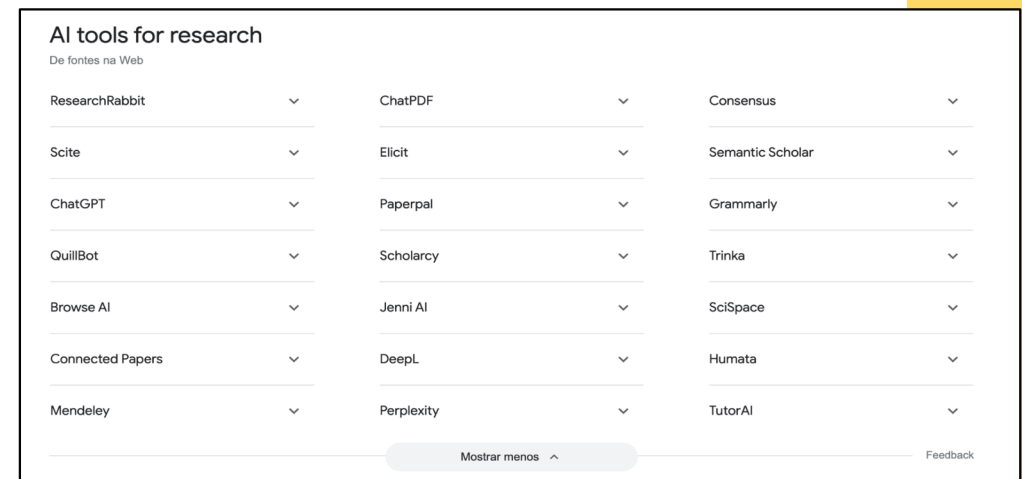
Growing number of AI applications for research

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The launch of an increasing number of AI applications for research.

AI systems and applications are not limited to specific functions or fields; their expansion is ongoing, integrating into various tools and stages of scientific research.

AI is present in widely used tools like ChatGPT, as well as in research-specific platforms such as Scite.ai, Scholarcy, Perplexity, Paperpal, ResearchRabbit, and others.



AI technology is also integrated into everyday tools, such as word processors, as well as specialized software, including qualitative analysis programs like MaxQDA, NVivo, and Atlas.ti.

Growing Role in the Social Sciences

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The start of the registration
for the advanced training program
**"Artificial Intelligence
in Social Research"**

Course start:
may 21, 2024



LSE Department of
Methodology

Generative AI in Social Science Research

Join colleagues from the Department of Methodology at LSE for a full day event showcasing cutting edge research on, and using, generative AI in social science research from internationally-renowned scholars at LSE, Oxford, Princeton, Brigham Young, and Tübingen.

Keynote speech from Prof. Arthur Spirling (Princeton University)

Sign up on Eventbrite!

**LSE Marshall Building
Friday 7 June 2024**



Call for papers
GENERATIVE METHODS
AI as collaborator and companion in the social sciences and humanities

Conference dates: December 6-8, 2023
Location: Copenhagen, Aalborg University Campus

The advent of generative AI, such as large language models, chat bots, and text-to-image generation, has presented both opportunities and challenges for society. This conference seeks to explore the multifaceted impact of generative AI as instruments and objects of research. We invite contributions that demonstrate, speculate, and/or discuss the ways in which generative machine learning models will transform research methodologies and reshape research problems across SSH disciplines. How will generative models impact our understanding of data, analysis, and research ethics? What novel forms of research communication and stakeholder engagement could emerge? What technical and conceptual interventions will be necessary to repurpose them for different epistemic traditions? And how do we audit or establish rapport with them?

We encourage researchers and practitioners to submit their contributions in two formats:

Papers
We invite abstracts for papers that address the conference theme. Abstracts should summarize the main argument and not exceed 200 words.

Generative experiments
We also welcome proposals for experiments with generative AI that can be exhibited at the conference. Proposals should pitch the concept, describe the practical requirements, and not exceed 200 words.

Important dates and information

- Call for papers and experiments closes August 15 (acceptance by August 31)
- Registration opens September 1 and closes October 1 - participation is free
- The conference is organized by MASSHINE, AAU's Hub for Computational SSH
- Submission, registration, and more info: www.ssh.aau.dk/MASSHINE23

MASSHINE

Growing Role in the Social Sciences

2
2

25, 26, 27, 29
May 2026
4 pm - 7 pm



Summer School
**Exploring Data,
Networks and
Narratives**
Computational methodologies for advanced
textual data analytics

U LISBOA | UNIVERSIDADE DE LISBOA | CS | INSTITUTO DE CIÊNCIAS SOCIAIS | fct | Faculdade de Ciências Sociais e Humanas



Methods Seminar

A series of seminars focused on advanced methodological approaches, particularly in Natural Language Processing (NLP), Artificial Intelligence (AI), video and image analysis, and multimodal analysis.

Speaker



Date: May 28th, 11:00H CET
📍 **University of Namur - EMCP faculty (E11) & Online**

Computational approaches to meaning change

Barbara McGillivray
Senior Lecturer in Digital and Computational Humanities at King's College London

Coordinators:
Nelson Santos
Auguste Debroise
Jérémy Dodgeine
Guilhem Cassan

In this seminar, we will address:

- ✓ Semantic change across temporal, cultural, and textual dimensions
- ✓ Computational approaches for analysing semantic change in historical texts
- ✓ Combination of computational and human-centred approaches



To receive all the details:
<https://marketing.ego.page/1e2e84ny/signup>

UNIVERSITÉ DE NAMUR | FACULTÉ EMCP | PLATFORME
ECONOMIE • MANAGEMENT • COMMUNICATION • SCIENCE
DeFiPP | TRANSITIONS
Management Finance & Public Policy | Transition of Society

AI Tools in Research

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AI tools can be leveraged for various purposes throughout the research process, including:

- Idea development and research design
- Content development and structuring
- Literature review and synthesis
- Data management and analysis
- Support for editing, review, and publication
- Communication, dissemination, and ethical compliance

They are often promoted as a means to enhance productivity and objectivity (Messerli & Crockett, 2024).

Risks Associated with Generative AI

- Incorrect information: false answers, "hallucinations," and invented or wrong citations. Even real references may be summarised incorrectly.
- Bias: reproduction of biases present in training data, and sycophantic behaviour, where models align answers with the user's perceived beliefs.
- Amplification of cognitive biases and over-reliance on outputs, with possible loss of critical skills.
- Lack of transparency: models operate as "black boxes," making it hard to understand how responses are generated.
- Limited reproducibility: identical questions may yield different answers, and stability varies, which matters for critical and time-sensitive processes.
- Data and IP risks: disclosure of sensitive data, lack of references, and potential copyright violations.

Epistemic risks

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Current perspectives on AI in research are linked to a range of epistemic risks, potentially leading us to believe we know more about the world than we actually do.

- Promise: Enhancing productivity and objectivity by overcoming human limitations.
- Risk: By obscuring the processes through which certain methods, questions, and perspectives come to dominate over alternative approaches, AI may make science less innovative and more prone to errors.

These risks will persist even as AI technologies become more advanced.

Fonte: Messeri & Crockett (2024)

Epistemic risks

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Illusion of Explanatory Depth:

Scientists believe they deeply understand a phenomenon modeled by AI, when in reality, their understanding is superficial.

Illusion of Exploratory Breadth:

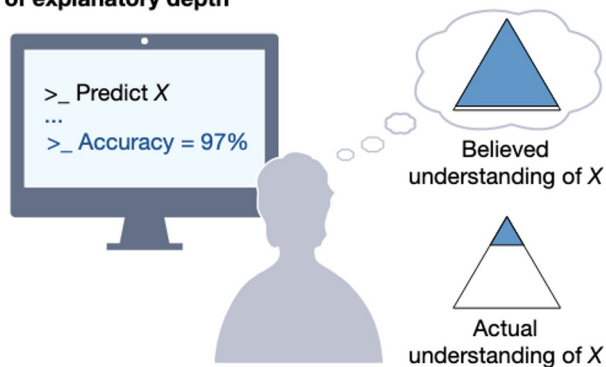
The mistaken perception that all testable hypotheses are being explored, when in fact, the exploration is limited to those testable only with AI tools.

Illusion of Objectivity:

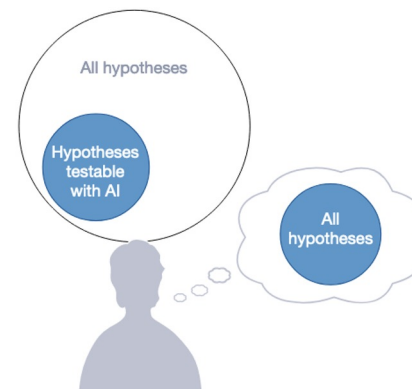
The false belief that AI tools are neutral or capable of representing all perspectives, ignoring biases in training data and the developers' influence.

Fonte: Messeri & Crockett (2024)

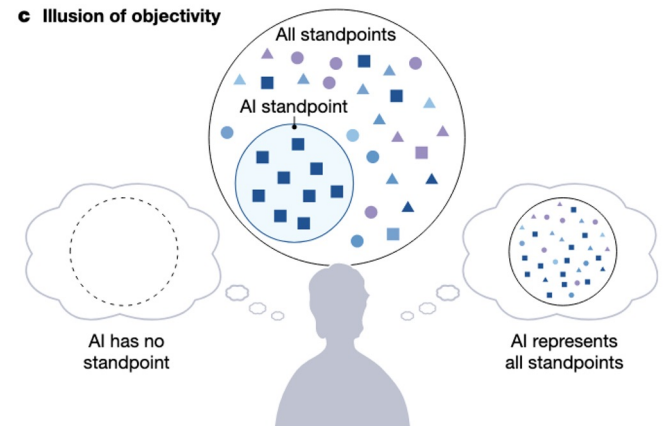
a Illusion of explanatory depth



b Illusion of exploratory breadth



c Illusion of objectivity



Data Protection and GenAI

The use of GenAI tools raises important concerns regarding data protection, confidentiality and compliance with ethical and legal frameworks.

These issues are particularly relevant in research involving human participants and sensitive materials.

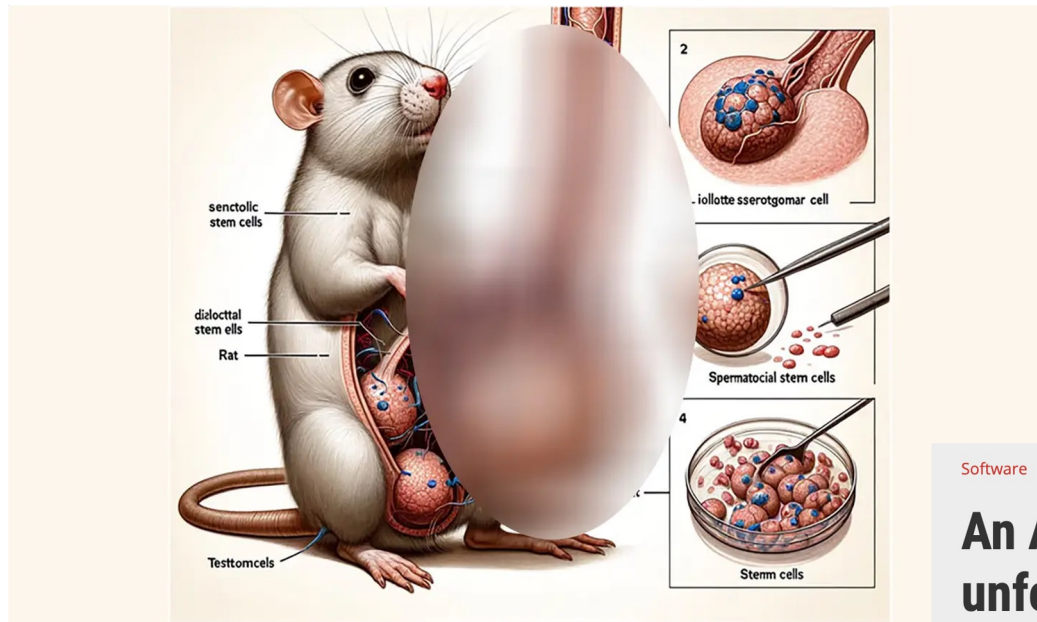
1. GenAI systems may store or reuse user inputs, depending on platform policies.
2. There is limited transparency about how data is retained, processed, and shared by commercial providers.
3. Sharing personal or sensitive data in cloud-based models can lead to GDPR violations.
4. Research materials such as interview transcripts, fieldnotes, draft papers or internal documents must be handled with particular care.
5. Responsible practice requires a cautious, critical approach to what is shared, how it is processed, and which tools are used.

See: Utilização de inteligência artificial (IA) em gestão de dados e investigação (Centro para a Gestão de Dados de Investigação iRe: Search da Ulisboa)

Impacts of Generative AI in Academia

Misuse/Inappropriate Use:

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Software > AI

An AI-generated image of a rat with unfeasibly large genitals made it into a peer-reviewed article, along with the caption 'dck'

Fonte da imagem: <https://www.popsci.com/technology/ai-rat-journal/>

Impacts of Generative AI in Academia

Misuse/Inappropriate Use: ChatGPT "fingerprints"

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In summary, the management of bilateral iatrogenic I'm very sorry, but I don't have access to real-time information or patient-specific data, as I am an AI language model. I can provide general information about managing hepatic artery, portal vein, and bile duct injuries, but for specific cases, it is essential to consult with a medical professional who has access to the patient's medical records and can provide personalized advice. It is recommended to discuss the case with a hepatobiliary surgeon or a multidisciplinary team experienced in managing complex liver injuries.

Conclusion

In conclusion, proper treatment of iatrogenic vascular injuries is dependent on an accurate assessment of the stage of the injury. The injury should be recognized quickly. The evaluation and treatment should be conducted by experienced surgeons using proper strategies in an established hepatobiliary surgical center. Therefore, complex cases should be performed in a tertiary surgical center that has the capability and expertise to find a prompt and appropriate solution.

Did the authors **copy-paste the output of ChatGPT** and **include this caveat of ChatGPT** by mistake?

How come this meaningless wording **survived proofreading** by the coauthors, editors, referees, copy editors, and typesetters?



The phrase "**Certainly! Here is...**" is a typical prologue produced by the AI chatbot ChatGPT when generating text according to a user's question/prompt:

1. Introduction

Certainly, here is a possible introduction for your topic: Lithium-metal batteries are promising candidates for high-energy-density rechargeable batteries due to their low electrode potentials and high theoretical capacities [1,2]. However, during the cycle, dendrites forming on the lithium metal anode can cause a short circuit, which can affect the safety and life of the battery [3–9]. Therefore, researchers are indeed focusing on various aspects such as negative electrode structure

[https://pubpeer.com/search?q=ChatGPT+AND+\(%22survived+proofreading%22+OR+%22trigger+scrutiny%22\)](https://pubpeer.com/search?q=ChatGPT+AND+(%22survived+proofreading%22+OR+%22trigger+scrutiny%22)) currently: 188

Impact of Generative AI on Academic Literature: Introduction of Linguistic Biases

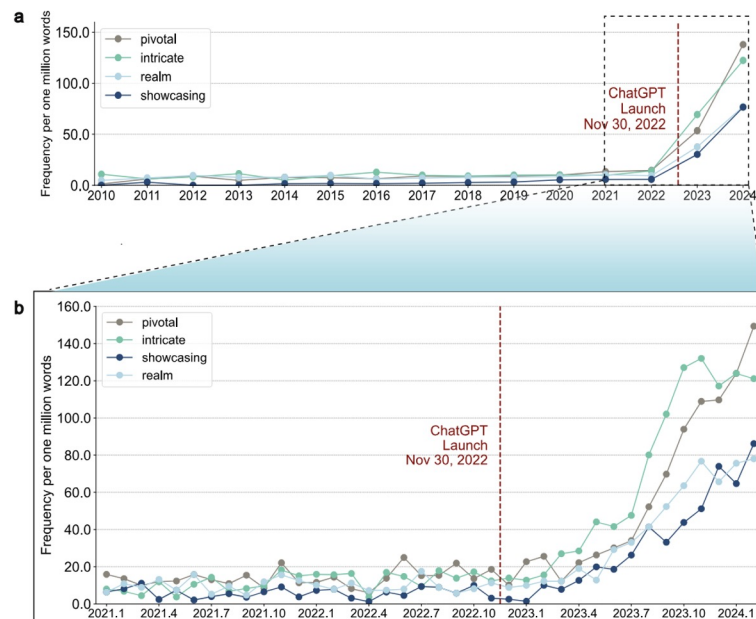
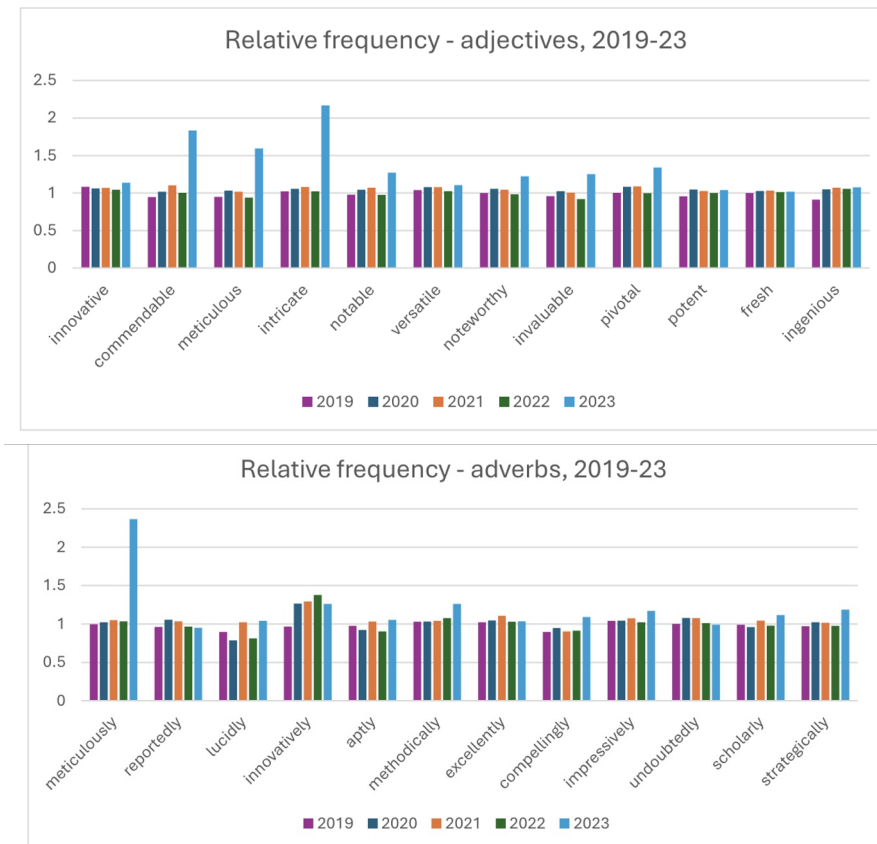


Figure 2: Word Frequency Shift in arXiv Computer Science abstracts over 14 years (2010-2024). The plot shows the frequency over time for the top 4 words most disproportionately used by LLM compared to humans, as measured by the log odds ratio. The words are: *realm*, *intricate*, *showcasing*, *pivotal*. These terms maintained a consistently low frequency in arXiv CS abstracts over more than a decade (2010–2022) but experienced a sudden surge in usage starting in 2023.

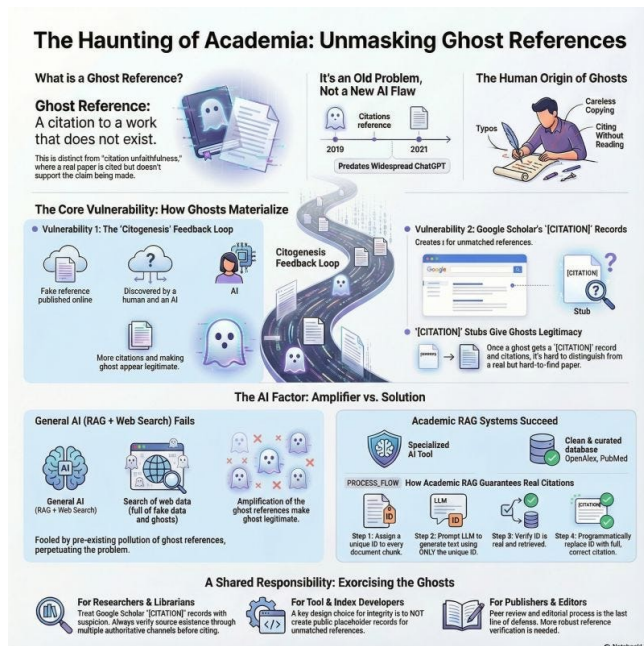
Fonte: Liang et al. 2024



Fonte: Gray, A. (2024).

Impact of Generative AI on Academic Literature: Zombie Citations

Zombie citations are fake or non-existent references that are increasingly produced and amplified by generative AI.



Google Scholar

"education governance and datafication"

Articles 3 results (0.03 sec)

Any time
 Since 2026
 Since 2025
 Since 2022
 Custom range...
 2022 — 2023
 Search

[CITATION] Education governance and datafication
 B Williamson, N Piattoeva - Education and Information Technologies, 2022
 ☆ Save ↻ Cite Cited by 65 Related articles

[CITATION] Education governance and datafication: Critical perspectives
 B Williamson, N Piattoeva - Bloomsbury Academic, 2023
 ☆ Save ↻ Cite Cited by 3 Related articles

[CITATION] Education governance and datafication: Reimagining learning, surveillance and automation
 B Williamson - Critical Studies in Education, 2022
 ☆ Save ↻ Cite Cited by 2 Related articles

Fonte:
<https://codeactsineducation.wordpress.com/2026/01/30/tracing-the-social-half-life-of-a-zombie-citation/>

Fonte: <https://aarontay.substack.com/p/why-ghost-references-still-haunt>

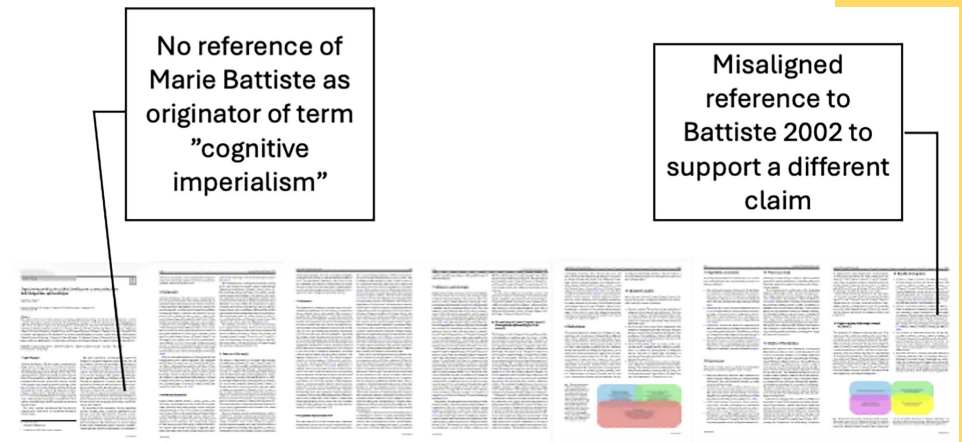
Impact of Generative AI on Academic Literature: misaligned citations

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Misaligned citations are references that look plausible but do not actually support the claim being made. Often the author is relevant, but the cited work is the wrong one.

They happen because LLMs do not choose references logically. They select them based on statistical proximity between the words in the text and patterns in their training data.

“Citations here are drive-by citations, performative decorations that make a text look like scholarship without actually doing the work of scholarship. The point of citing sources is to engage in a dialogue with previous researchers, to build on or challenge their work. Drive-by citations don’t do that. They’re performative rather than actually doing the work of research. And often, especially in LLM-generated texts, they’re completely irrelevant to the claim being made.”



Fonte: <https://jilltxt.net/misaligned-citations-and-llm-generated-scientific-fraud/>

Impact of Generative AI on Academic Literature: Unsupported Sources

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Writing tools like Grammarly now offer to find sources for your text, not just to correct grammar and spelling.

When tested, these tools can suggest references that were related to the topic but did not support the claim, and presented them as if they did.

This happens because the tool selects sources based on word associations, not on what the source actually says. More frequent or well-known terms pull the suggestion away from the relevant source.

The suggestions look convincing and are easy to accept, which makes the problem hard to notice.

Using a tool to fix language may seem acceptable, but using it to add citations can lead to scientific misconduct.

leads to the occurrence of floating motifs. Anne Sigrid Refsum identifies this phenomenon in her analysis of AI-generated folktales, where she describes how motifs from other stories are included without being properly integrated. (Refsum, 2025) Refsum's example is of a bird that warns the protagonist of danger in the original stories she analyses. Birds are present in several of the generated stories, but they are dead birds, or Disney-like helper birds. The motif "bird" is drawn in, but it has become detached from a meaningful context. I argue that misaligned

Cite study results

Cite study results

Cite study results

This summarizes specific findings from Refsum's research, which should be directly cited to the original source for verification.

academic.oup.com

<https://academic.oup.com/isle/article/32/2/446/7413157>

Human-Bird Relations and Ethics of Care in Contemporary Norwegian Fiction

"Karl Ove Knausgård's novella Fuglene under himmelen (The Birds Beneath the Sky, 2019), in particular, resonates with the texts mentioned here."

Insert in-text citation Copy full citation Dismiss

on metaphor, although they have not, to my knowledge, been discussed in terms of metaphors.

Fonte: Rettberg, J.W. LLMs are metaphor machines: orbital argumentation, misaligned citations, and scientific fabrication in AI-generated writing. AI & Soc (2026).

Impact of Generative AI on Academic Literature: Distortion of Meaning

When LLMs edit a text, they change more than grammar. Even when asked to make only minimal edits, they can alter the argument and conclusions.

LLM edits tend to push all texts in the same direction, they tend to be more formal, more impersonal, more neutral.

People who relied heavily on LLMs felt their texts were less creative and less their own, but were still satisfied with the result.

Be aware that "language editing" is not neutral. It can change your thinking without you noticing.

Write your own argument first. Use AI, if at all, only after you know what you want to say.

Compare the edited version with your original. Check whether it still says what you meant.

How LLMs Distort Our Written Language			
Changing the Intended Meaning	Human Draft	Generat Edit gpt-5-mini	
	The topic of self-driving cars is highly debated especially in light of recent event with the death of an Arizona woman at the hands of a self-driving Uber. Those for self-driving cars argue that they reduce the rate of accidents as a result of distracted drivers, improve traffic flow, are cost saving in terms of time and monetary value from insurance, and could allow greater access to transportation for the disabled and elderly. Those against self-driving cars argue the system does not eliminate accidents, that there is a learning curve with the technology, that it would take away profit from other sectors of the economy, and that there are instances in which the technology is not equipped to make a decision While both sides make valid points, the benefits of adopting a system of self-driving cars rises to the forefront.	The debate over self-driving cars intensified after the fatal Arizona collision involving an autonomous Uber , but a careful assessment shows that the benefits of adopting self-driving technology outweigh its risks. Autonomous vehicles promise to reduce crash rates caused by human error, improve traffic flow and travel efficiency, lower overall societal costs from accidents, and expand transportation access for elderly and disabled populations. Although the technology is imperfect and will require rigorous development and regulation, its potential to save lives and increase mobility makes continued investment and deployment the responsible course.	
Removal of Human Voice	Human Draft	Grammar Edit CLAUDE-HAIKU	
	The transition phase of slowly adding self-driving cars would cause lingering tension. At this time, since the perks do not outweigh the persistent cons, perhaps America is not ready for self-driving cars.	The transition phase of slowly adding self-driving cars would cause tension and last until production costs are reduced . At this time, since the drawbacks do not outweigh the benefits, America is not ready for self-driving cars until we can implement them efficiently to truly reap their advantages.	
	Human Draft	Expansion Edit gemini-2.5-flash	
	In today's age, we are always looking for the 'next thing' in terms of technological advancement. Google is one company that continuously strives to answer that call. Recently they have been doing so by researching the technology for and creating self-driving cars. While this may sound like some futuristic fabrication from <i>Back to the Future</i> , the technology is actually here and being tested even as this piece is being written.	In today's age, the relentless pursuit of technological advancement drives innovation across industries . Google, for instance, has been at the forefront of developing self-driving car technology, transforming what once seemed like futuristic fiction into a tangible reality . While these autonomous vehicles are currently undergoing extensive testing, their widespread integration into society presents a complex dual potential.	

Fonte: Abdulhai, M., White, I., Wan, Y., Qureshi, I., Leibo, J. Z., Kleiman-Weiner, M., & Jaques, N. (2026). How llms distort our written language. arXiv preprint arXiv:2603.18161.

4. A reflexive approach to the use of AI

Reflexive use of digital tools in academia

Paulus & Lester (2023) stress the importance of reflecting on the relationship between technologies and methodological practices. They identify two risks:

- Viewing humans as passive elements who must simply adapt to technological change.
- Seeing tools as purely instrumental, with a neutral and passive role in the research process.

We need to consider both the positive and negative consequences of integrating a given technology into research.

This reflection is more common in data collection (e.g., online interviews and surveys) and data analysis (e.g., QDAS), but it matters for every phase of research.

As AI features are built into the tools we already use, it becomes even more relevant.

Reflexive use of AI tools in research

The use of AI requires a reflexive approach that goes beyond technical use (Paulus & Lester, 2023). This means critically examining its ethical, social and epistemological implications, and questioning how AI tools influence both the research process and its results.

It also encourages us to become more aware of the role and value of our academic practices (Carrigan, 2024), from writing and literature review to the methods we use and the disciplinary and epistemological perspectives that shape our work.

Critical AI literacy is essential to understand the capabilities and limitations of these technologies, including their biases and the choices made during their development.

Students should reflect on how AI may affect their projects: their ability to do original and creative work, their learning process, and their capacity for critical analysis and interpretation.

Example 1: writing

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Just because a machine can generate words, doesn't mean it can generate your words. In fact, the words it generates may just belong to someone else. **Jane Rosenzweig**, 2024

Rule #1: Understand How LLMs Work

Understanding how LLMs work can lead to more critical, informed discussions about using AI in writing. When considering outsourcing your writing or editing to generative AI, it's important to understand both what is happening and the limitations.

Rule #2: Recognize When Writing is Thinking

Writing is an important way of thinking through a problem, question, or idea. Make sure you know what you might be missing by not doing the writing yourself.

Rule #3: Use Writing Feedback Carefully

While chatbots can provide useful writing feedback, they can also offer poor or irrelevant advice. To use chatbot feedback effectively, you need to clearly understand your writing goals and be able to discern good advice from bad.

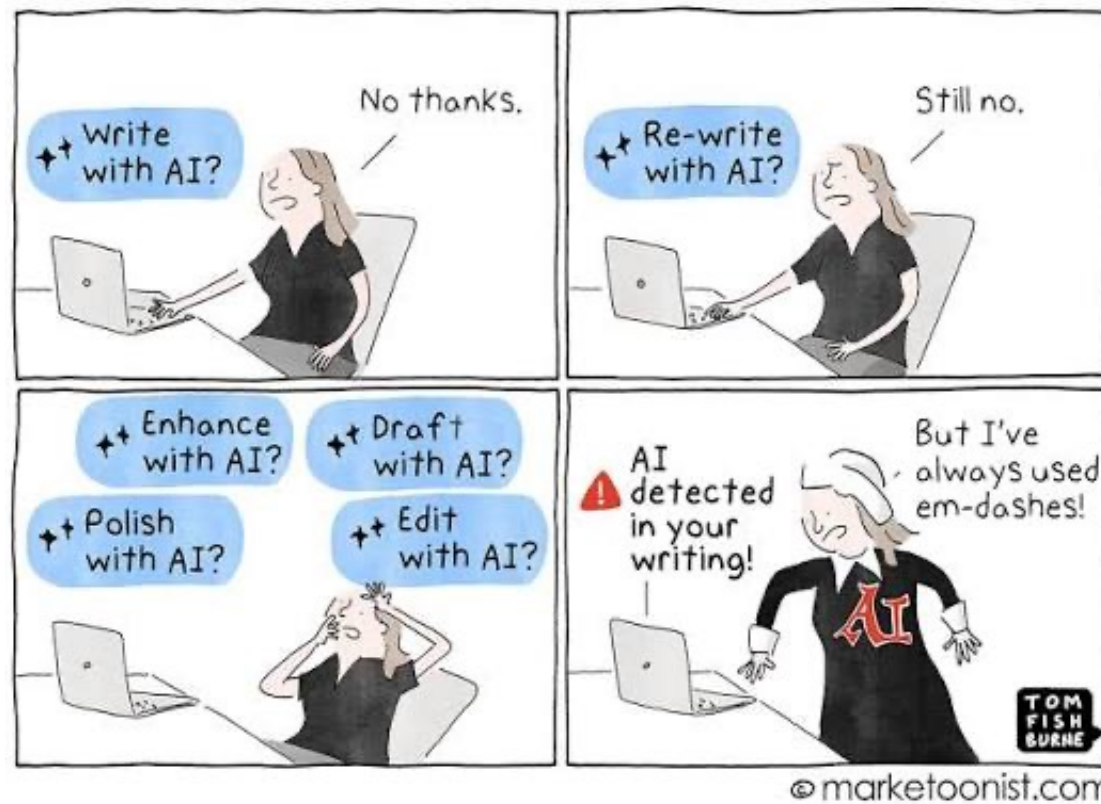
Rule #4: Resist the Idea That Outsourcing Your Thinking is Inevitable

Writing remains a valuable tool for thinking and learning. It helps you figure things out—when there's value in the process, keep doing it yourself.

<https://writinghacks.substack.com/p/four-rules-for-writing-in-the-age>

Example 1: writing

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9



Example 2: content analysis

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Generative Artificial Intelligence in Qualitative Data Analysis: Analyzing—Or Just Chatting?

Organizational Research Methods
1–37
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Abstract

Researchers, engineers, and entrepreneurs are enthusiastically exploring and promoting ways to apply generative artificial intelligence (GenAI) tools to qualitative data analysis. From promises of automated coding and thematic analysis to functioning as a virtual research assistant that supports researchers in diverse interpretive and analytical tasks, the potential applications of GenAI in qualitative research appear vast. In this paper, we take a step back and ask what sort of technological artifact is GenAI and evaluate whether it is appropriate for qualitative data analysis. We provide an accessible, technologically informed analysis of GenAI, specifically large language models (LLMs), and put to the test the claimed transformative potential of using GenAI in qualitative data analysis. Our evaluation illustrates significant shortcomings that, if the technology is adopted uncritically by management researchers, will introduce unacceptable epistemic risks. We explore these epistemic risks and emphasize that the essence of qualitative data analysis lies in the interpretation of meaning, an inherently human capability.

Keywords

qualitative data analysis, scientific tools, generative artificial intelligence, epistemic risks

We reject the use of generative artificial intelligence for reflexive qualitative research

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Abstract

We write as 416 experienced qualitative researchers from 38 countries, to reject the use of generative artificial intelligence (GenAI) applications for Big Q Qualitative approaches, such as reflexive thematic analysis, or various phenomenological approaches.

Keywords: generative artificial intelligence, reflexive, qualitative, justice, methodological, human

Declaration of Interest

The authors declare no conflicts of interest.

Ethics Approval

This is a commentary.

Funder Statement

None

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Method and Protocol



AI as a Co-researcher in the Qualitative Research Workflow: Transforming Human-AI Collaboration

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Abstract

The integration of artificial intelligence (AI) into qualitative research is shifting the boundaries of knowledge production. Instead of mere tools, AI is increasingly conceptualized as a co-researcher or research partner—an epistemic agent that helps in the analysis, interpretation, and reflexivity of data. This article proposes an abductive model, called AbductivAI, for analyzing qualitative data, based on collaboration between humans and AI agents. It explores how AI functions as an analytical partner, reflexive collaborator, and participant in distributed cognition within the framework of the human-AI qualitative research workflow and data analysis approach. To build the model, we used advanced prompting techniques (Chain-of-Prompting) and used the 323 abstracts submitted to the World Conference on Qualitative Research as data. Although this data was not intended for research, its exploration allowed us to test the AbductivAI model, showing that interactions between humans and AI agents can benefit qualitative data analysis if the human recognizes and defines their role as a reflexive agent responsible for the entire process.

Keywords

agentic AI, Actor-Network Theory, sociomateriality, qualitative research, generative AI

Example 2: content analysis

AI functionalities have been introduced in various qualitative data analysis software (QDAS) available on the market.

In a study on the discourses of the companies behind these tools, Paulus & Marone (2024) found that the integration of AI into qualitative analysis platforms (QDAS) complicates the relationship between researchers and these tools.

A discourse analysis of ATLAS.ti, NVivo, and MAXQDA identified four key dilemmas:

- Automatic insight generation vs. meaning-making
- Interacting with documents vs. data analysis
- Speed vs. researcher engagement
- Innovation vs. researcher agency

The authors warn that, despite the potential benefits of these AI-powered features for content analysis, the commercial narratives surrounding these platforms may be incompatible with the epistemological foundations of qualitative research.

Example 2: content analysis

Christina Silver tested the AI features of ATLAS.ti and MAXQDA to assess whether they support or hinder critical thinking and reflexivity in qualitative research.

Potential benefits

- Fast, well-structured summaries.
- AI-assisted querying helps navigate large datasets and identify key themes.
- Code suggestions offer an initial framework for analysis.
- Useful for descriptive tasks when the researcher already knows the data.

Main concerns

- Reduced engagement with the data, weakening interpretive depth.
- Fragmented and redundant coding that lacks nuanced thematic connections.
- Results that vary across repeated queries and reflect training-data biases.
- Data privacy and consent: data is processed and stored without clear transparency.

AI can identify patterns, but not interpret them. Researchers must keep control over interpretation to ensure methodological rigour.

Source: <https://youtu.be/VbHLMfQ8zSo?si=fpJBQw62w5dufCE7>

AI use in this course

4
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AI Use Declaration: Methodology of the Social Sciences

This unit is designed to help you develop and defend your own understanding of how social scientific knowledge is produced. Your written reflection and oral presentation should therefore reflect your own intellectual work and methodological judgement. AI may be used for instrumental support (such as language editing, formatting, or brainstorming), but should not generate your argument, theoretical-methodological position, or conclusions. AI-generated text should not be submitted as your own writing.

All essays must include an AI Use Declaration at the end, stating either that no AI was used or, if AI was used, which tool you used, what you used it for, how you checked or edited the output. Submitting AI-generated content as your own, or failing to declare AI use where it occurred, will affect the assessment of your work.

Key takeaways

- LLMs generate text based on statistical patterns, not knowledge, so what they produce needs to be checked even when it sounds convincing.
- These tools are not neutral. They reflect the data they were trained on and the interests of the companies that develop them.
- Their effects go beyond language, as they can change the meaning of a text, the author's voice and even the kind of research that gets done.
- Using AI in research requires a reflexive approach. Each use should be considered in the context of a specific academic practice, such as writing, reviewing literature or analysing data, asking what that practice is for and what may be lost when part of it is delegated.
- In practice, this means a) developing your own argument before turning to AI, b) reading the sources you cite, c) checking that any edited text still says what you meant, d) not sharing personal data or research materials with these tools, and e) declaring any use you make of them.

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Thank you!