



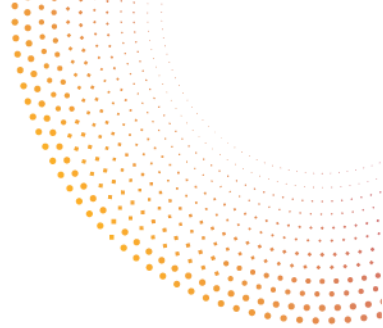
Exploring the Potential of Generative AI in Academic Research across Social Sciences and Humanities



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Executive Summary

This report highlights the evolving landscape of Social Sciences and Humanities (SSH) research with the integration of generative AI, underscoring the importance of critical inquiry, interdisciplinary collaboration and responsible use of AI tools in shaping the future of academic research. Following an analysis of in-depth interviews with expert researchers, the report sheds light on the evolving landscape of computational methods in SSH and unique concerns surrounding the integration of AI tools. It dives into the experiences of scholars currently using generative AI in SSH and focuses on challenges they already face, their hopes for how such technology might be used in the future, plus aspirations for their current projects featuring generative AI.

Key takeaways

- **Generative AI's transformation of the SSH field.** Though computational methods are not entirely new in the field of SSH, generative AI is likely to create new paradigms in the methodology of this branch of academia and fundamentally affect researchers' work.
- **More than code: Interacting with LLMs.** The interviewees in this report emphasise the importance of acquiring technical as well as non-technical skills to develop a more balanced approach to the use of generative AI for research.
- **First-hand experiences of SSH researchers.** Interviewed researchers provide examples of how they and their institutions approach generative AI transformation. Suggestions to gain more experience include offering dedicated courses, support structures and dedicated support staff, access to novel tools like Prompt Compass, and experimental play with various AI models.

- **Managing pressure, hype, and maintaining research ethics.** The report discusses the importance of researchers being able to critically evaluate and explain their choice of models, as well as the need for intermediaries and supportive environments to navigate the complexities of AI tools.

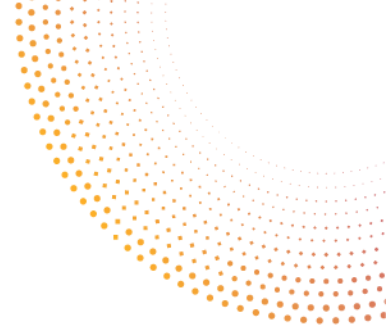
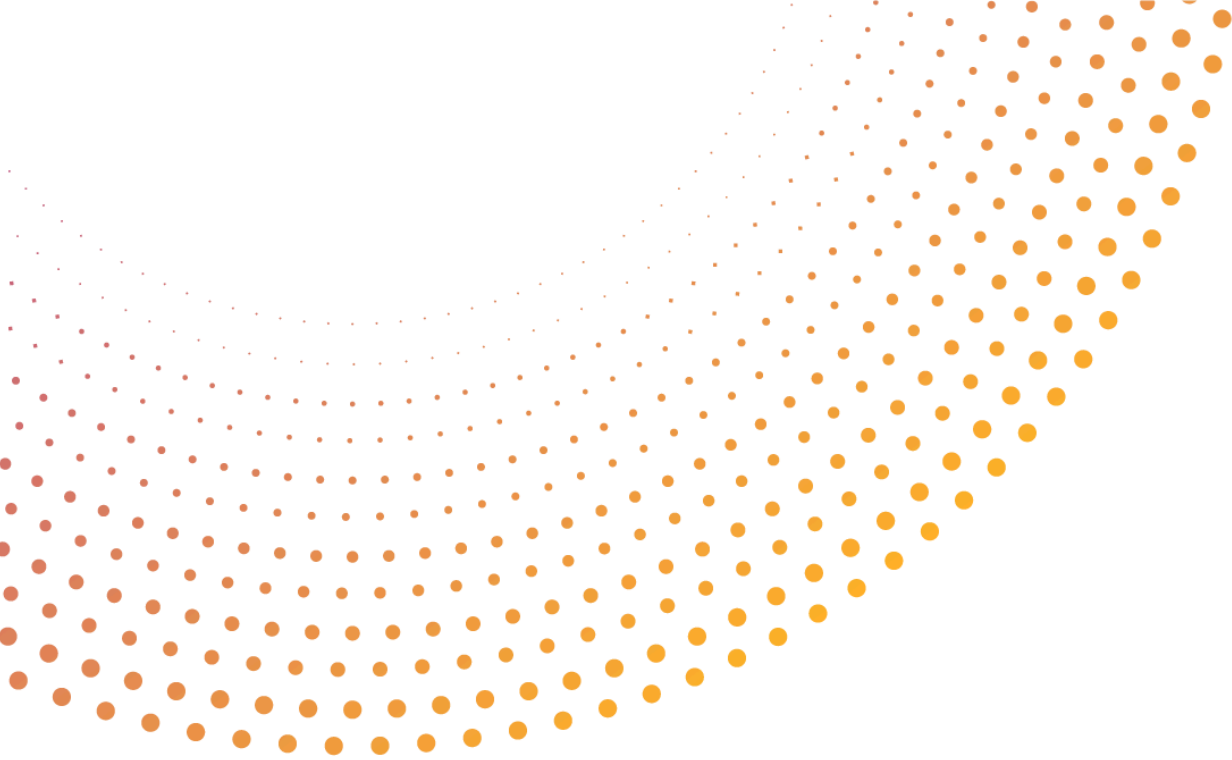


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1 Introduction: Exploring the Impact of Generative AI in Social Sciences and Humanities

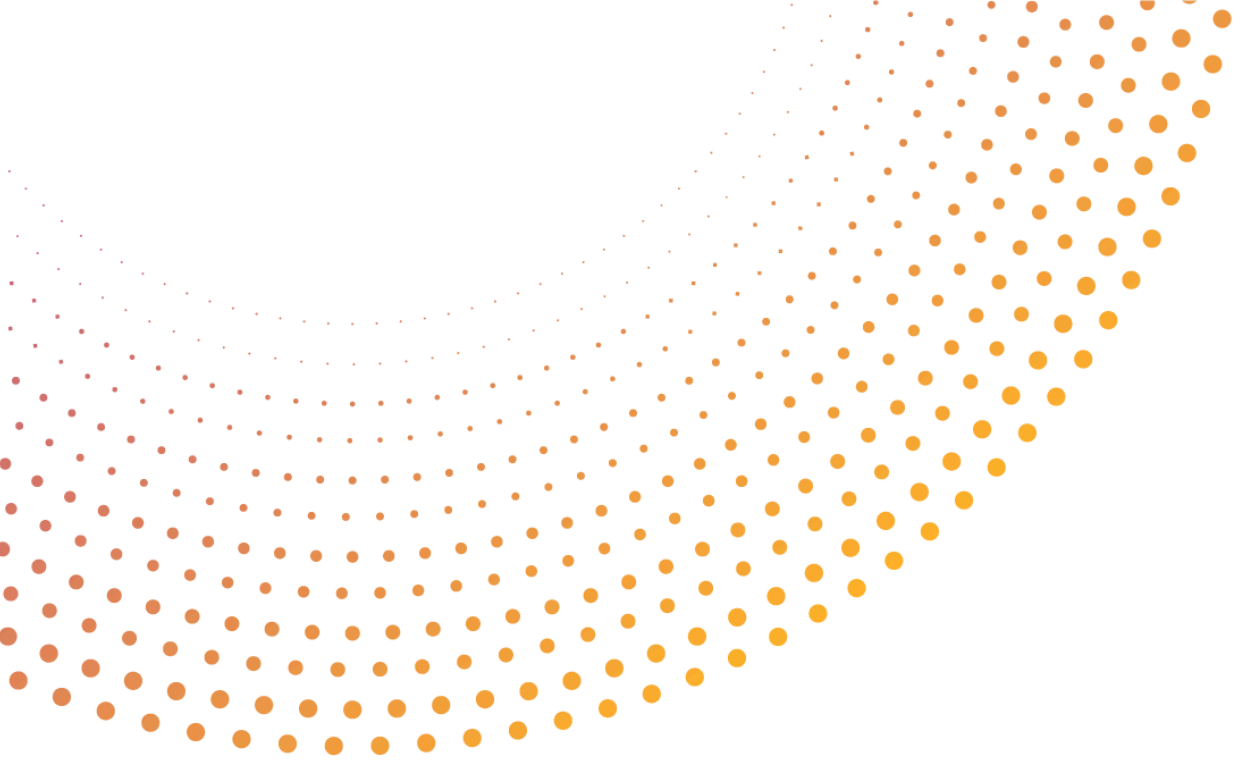
Large Language Models (LLMs) such as OpenAI's GPT (generative pre-trained transformer) or Google BERT (Bidirectional Encoder Representations from Transformers) are AI models trained on vast amounts of text data to generate human-like text based on given prompts or contexts. Large Multimedia Models or LMMs, go a step further by integrating multiple modalities, such as text, images, and audio, allowing them to generate or comprehend content in a more comprehensive manner. These pioneering generative AI models mark a paradigm shift, enabling broader interaction and fine-tuning opportunities for the general audience as well as for researchers across different fields.

Just as the internet revolutionised communication and information access, the rise of generative AI is said to create new forms of research practices and consequently enforce sweeping changes in higher education, research and other sectors. As of now, it remains to be seen how such wide adoption of artificial intelligence will ultimately shape intellectual work. At many universities, we can already observe a wave of new

courses, labs, and collaborations created to accommodate the upsurge of interest ([Civic AI Lab](#), [NOLAI](#), [AI Lab for Healthy Living](#), [Cultural AI Lab](#), and [Feminist Generative AI Lab](#), to name a few). The emergence of these initiatives also means that new challenges and novel opportunities will become available for scholars and researchers wanting to find AI applications in their respective fields.

Though the development of artificial intelligence is primarily attributed to computational sciences, the field of **social science and humanities proves to be uniquely positioned to critically examine the societal implications arising from the evolution of this technology**. Against this backdrop, this report looks closer into the experiences of scholars currently pursuing work focused on the use of generative AI within SSH research. The goal is to bring to light the current state of explorations and zoom in on the first-hand experience of interviewed researchers to better understand the pain points, hopes, and aspirations of those who took up the challenge of investigating LLMs and MMs.

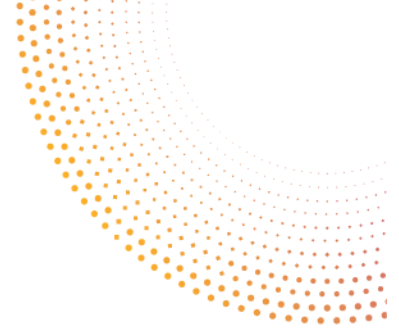
For this purpose, in-depth, one-on-one interviews were conducted with researchers affiliated with institutions based in the Netherlands. All participants are active practitioners in the field of humanities or social sciences; most of them also have diverse academic backgrounds, coming from fields like philosophy, geography, data science, history, journalism, and art. Beyond reflecting on their individual challenges, researchers were encouraged to share potential solutions and approaches that could benefit the broader academic community.



2 Computational Methods in Social Sciences and Humanities: Evolution and Impact

The debate surrounding the ethical, transparent, and responsible use of generative AI like LLMs and MMs is a pressing concern for practitioners across various domains. While there is a lively discourse on how to ensure the appropriate application of generative AI,¹ discussions often overlook the human experience of adapting to these tools. While similar methods have already been used before the current AI boom, it is worth considering the potential implications of the widespread adoption of this technology in fields previously not saturated by such tools. The interviewed SSH practitioners face the dual challenge of investigating generative AI while simultaneously learning about its technical aspects, processing a mass of new information about this technology every day. In some cases, they also encounter criticism from their colleagues who believe that, at this stage, generative AI is more of a threat to academic integrity rather than a potential research aid.

¹ Stefan Feuerriegel et al., "Generative AI," *Business & Information Systems Engineering* 66, no.1 (2024): 111-126; Arthur Tang et al., "The Importance of Transparency: Declaring the Use of Generative Artificial Intelligence (AI) in Academic Writing," *Journal of Nursing Scholarship* 56, no.2 (2024): 314-318.



Though one could say that these problems are to be expected with every novel technology, what was highlighted by researchers interviewed for this report is that this is the first time they have faced such omnipresent urgency and pressure from the funding bodies to include or at least investigate AI tools in their SSH research work. To address these issues, this report will focus on the following overarching question:

What are the unique concerns and developing ideas on introducing AI tools in social sciences and humanities?

First, to better understand how generative AI is being received, experimented with, and eventually adopted, it is helpful to look at how similar technological transitions took place in the past, specifically within the social sciences and humanities. Some researchers emphasised in their interviews that using computational methods is not a new idea by any means. While they acknowledge that the excitement around generative AI has definitely accelerated in the last few years, several researchers contributing to this piece have already had extensive experience with tools that could be considered predecessors to the generative AI we interact with today. However, a few also pointed out that in the SSH field, particularly in the humanities, quantitative methods typically take significant time to be fully embraced; thus, the growing number of papers produced on the topic of generative AI by SSH scholars indicates a change in attitudes towards a more computational lens on SSH research.

For decades now, digital methods, often originating from computer science fields, have spread to studies of linguistics, history, art, and literature. Before the current AI boom, machine learning and algorithms were among the major computational methods used in SSH research. In the last decade, many researchers who were previously unfamiliar with computational methods set out to learn new interdisciplinary skills. Some of these skills included analysing large collections of text with Natural Language Processing to uncover underlying structures and study

language evolution over time,² applying computer vision to uncover interesting never-before-seen ways to interpret, for example, an artist's style, while in further stages of the research process it was used to present findings using digital data visualisation tools.³

For those able to interact with code, these methods allowed to streamline data collection and analysis, traditionally quite resource-heavy tasks. Aside from the added convenience brought by these methods, the notion of “thinking along” with devices and learning the logic behind their design started to become more popular.⁴ To understand the profound influence of tech on our lives, researchers turned their attention to the inherent affordances of technology they examine. This approach also meant critiquing computational tools they use to analyse said technology.⁵ Because of the growing complexity of the technology used, a need for new guidelines and cross-disciplinary courses has emerged. Nowadays, SSH fields that embrace computational methods are often referred to as Digital Humanities and Computational Social Sciences; the more ‘datafied’ our lives become, the more often these fields need to borrow from each other to more accurately describe social changes, thus blurring the academic boundary between them.

² Bo Pang and Lillian Lee, “Opinion Mining and Sentiment Analysis,” *Foundations and Trends in Information Retrieval*, 2, no. 1–2 (2008), 1–135.

³ Henry Jenkins, *Convergence Culture: Where Old and New Media Collide* (New York: NYU Press, 2006).

⁴ Richard Allan Rogers, *Digital Methods* (Cambridge: MIT Press, 2013).

⁵ Lev Manovich, *Cultural Analytics* (Cambridge: MIT Press, 2020).

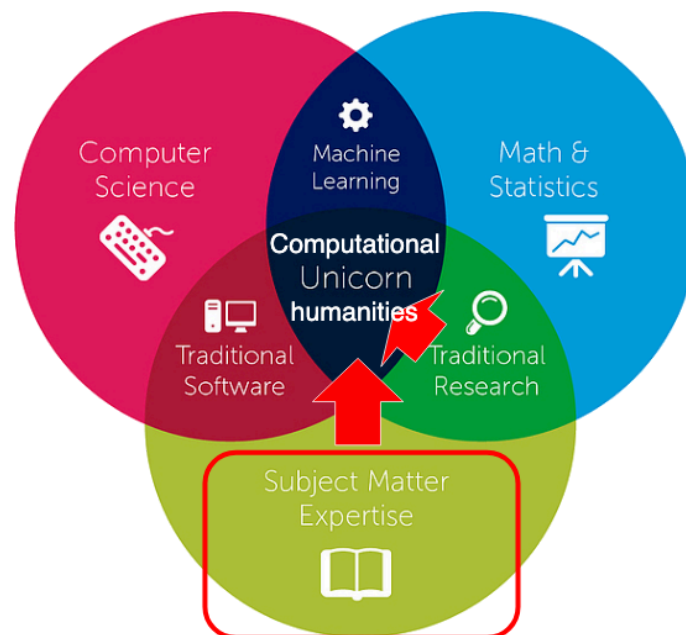


Figure 1. Interdisciplinary computational human sciences and the niche for humanists/social scientists.⁶

As SSH researchers ventured into exploring human-technology relationships beyond mere user interfaces, the necessity to develop proficiency in coding became more evident. Despite this, coding still has not become a standardised attribute in the majority of SSH researchers' skill sets. When asked about the possible reasons, some interviewees argued that the nature of the SSH field is such that quantitative methods are often presented in direct opposition to qualitative methods, fueling an ongoing debate about which of these two approaches should guide these disciplines. Hence, for a researcher in SSH, the learning curve of computational skills is often marked by ambiguity; even if coding became a more sought-after skill, computational methods

⁶ "Three Approaches to Computational Methods," Computational Literacy, accessed May 23, 2024, <https://jiemakel.gitbook.io/cl4hss/introduction-three-approaches-to-methods-for-digital-humanists>.

remain inaccessible for many.⁷ The advent of AI-based methods in SSH could potentially make this gap in skill sets even more evident.

Though still seen as incredibly beneficial, paradoxically, coding skills are no longer a prerequisite to interact with computational tools thanks to the emergence of conversational models. Most commercially available LLMs and many open source models available in the HuggingFace library are accessible with a user interface that allows users to interact with a complex pre-trained model without knowing how to code. Moreover, the nature of how researchers use LLMs as both quantitative and qualitative tools could provide an interesting new lens on methodology in SSH.⁸ We have gone from using computational methods as complimentary support for SSH research methods to a broader utility of generative AI in more qualitative and exploratory aspects of research, such as literature analysis, ideation, and the shaping of hypotheses. Here are some common examples of how generative AI is being tested and implemented in SSH scholarship.

⁷ Deborah A. Garwood and Alex H. Poole, "Pedagogy and Public-Funded Research: An Exploratory Study of Skills in Digital Humanities Projects," *Journal of Documentation* 75, no.3 (2019): 550-576.

⁸ Jonathan Kantor, "Best Practices for Implementing ChatGPT, Large Language Models and Artificial Intelligence in Qualitative and Survey-Based Research," *JAAD international* 14 (2024): 22-23.

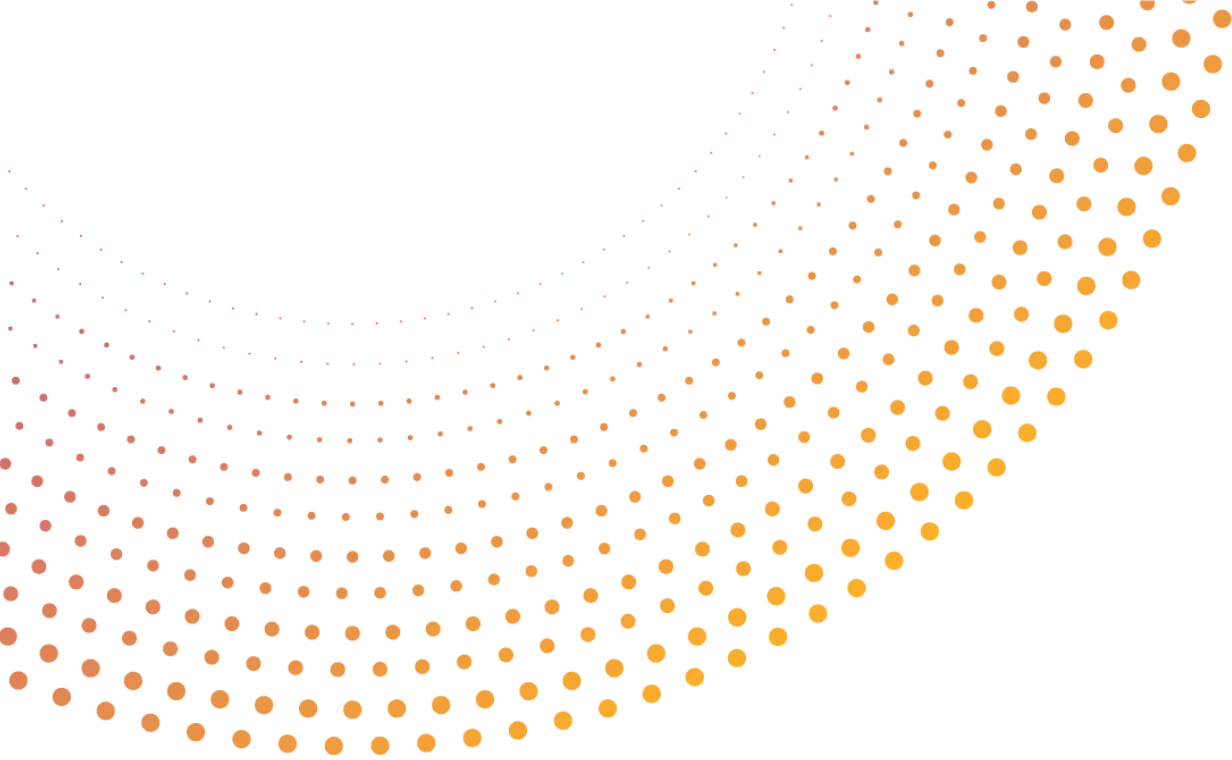
<p>Sociology: Multimodal analysis of social media data, like combinations of images and posts using LLMs.</p>	<p>The majority of human interaction encompasses more than mere words; it's multimodal. In the case of sociological research, operating with models that are able to make connections between visuals and text can provide researchers with a much more well rounded understanding of social trends. It can be helpful in, for example, mapping out political tendencies among particular age groups or uncovering hidden influencer content shared on social media platforms.</p>
<p>History: Using LLMs to analyse common themes in large volumes of historical documents.</p>	<p>This workshop focusing on analysing historical periodicals is an example of early experimentation with LLMS among history scholars. Scholars discovered some shortcomings of LLMs, specifically in layout analysis and character recognition. Nevertheless, authors believe that with further training, LLMs can be of significant help in “unveiling concealed dynamics and mechanisms” between subjects of these periodicals.</p>
<p>Linguistics: Computational analysis of linguistic patterns and language using LLMs</p>	<p>Linguistics and, in particular, computational linguistics have led to the creation of interactive layers of models used in ChatGPT, Google Bard, or LLAMA. These have the potential to help linguistics scholars in analysing large quantities of text and, more specifically, in cases like phonology (the study of sound patterns) and morphology (the study of word structure).</p>
<p>Computational Social Sciences: Generation of synthetic data that mimic existing datasets for simulations of social behaviours.</p>	<p>Social scientists propose utilising simulated subjects could generate innovative hypotheses, which could subsequently be verified in real human populations. Opinions vary about this use of LLMs, since some point out to its potential to propagate caricature-like personas and behaviours. In response to this issue, scholars have begun to create methods to avoid introducing biased personas in AI-generated simulations.</p>
<p>Art History: Identifying artistic styles, influences, and trends through textual and visual analysis with LLMs and MMs.</p>	<p>While AI-generated art has been controversial and criticised for lack of originality, copyright issues and impact on the art market, some applications of AI models can prove useful and find their way into the tool kit of an art scholar. This systematic review investigates various applications of generative AI in fine arts.</p>

The usefulness of these models, considering academic standards within research, is still being tested⁹ but remains, in many cases, in the realm of experimentation. As a result, there is no major consensus yet regarding the appropriate uses of generative AI. There are already a number of academic resources claiming the benefits of these models used in research,¹⁰ as well as many that place them under scrutiny.¹¹ Nevertheless, the sheer volume of ideas proposed indicates that we are about to witness another wave of transformation that will ripple through the field of SSH, and the researchers interviewed support this claim. Anticipating these incoming changes, what kind of new skills, methodologies, and practices will need to be established by and among researchers in this field?

⁹ Ross Deans Kristensen-McLachlan et al., “Chatbots Are Not Reliable Text Annotators,” *arXiv preprint arXiv:2311.05769* (2023); Petter Törnberg, “Chatgpt-4 Outperforms Experts and Crowd Workers in Annotating Political Twitter Messages with Zero-Shot Learning,” *arXiv preprint arXiv:2304.06588* (2023).

¹⁰ Erik Borra, Erik et al., “A Field Guide to Using LLMs for Online Conflict Analysis,”; Michele Zappavigna, “Hack Your Corpus Analysis: How AI Can Assist Corpus Linguists Deal with Messy Social Media Data,” *Applied Corpus Linguistics* 3, no.3 (2023): 100067.

¹¹ John Roberts, Max Baker, and Jane Andrew, “Artificial Intelligence and Qualitative Research: The Promise and Perils of Large Language Model (LLM) ‘Assistance’,” *Critical Perspectives on Accounting* 99 (2024): 102722.; Usman Anwar et al., “Foundational Challenges in Assuring Alignment and Safety of Large Language Models,” *arXiv preprint arXiv:2404.09932* (2024).



3 Voices from the Field: Current explorations in LLM applications

Each interviewee was asked about their view on the skills and support researchers in SSH should acquire to meaningfully interact with LLMs in their work. Though each participant works with generative AI in a different way, they often pointed to similar shortcomings when training others and/or exploring a tool themselves. The democratisation of access to AI tools through user-friendly interfaces has lowered entry barriers allowing more and a broader range of researchers to engage with these technologies. While interviewees see this accessibility as advantageous, they also raised concerns about the potential for misuse and ethical implications.

Participants shared a general consensus that the more technical knowledge and computer science background one has, the more autonomous and critical their use of generative AI for research can be. As of now, the ability to understand code and specifically the basics of Python coding language (by far the most popular coding language in AI) allows researchers to use models that are open source and do not rely

on the aforementioned user interface to interact with. Consequently, a researcher with coding skills can adjust, debug, and conduct more experimental actions, document their work, and access software libraries that allow them to explore further applications of these models. Social scientists could have an advantage here since Python is used for statistical modelling, which is a well-established method in this field, and abundant learning resources are freely available. With some knowledge of Python, everyone interested can follow, for example, this free course from [HuggingFace](https://www.huggingface.co/courses/python), which some of the interviewed researchers have also used as an inspiration for teaching LLMs to their students.

However, as mentioned before, interacting with LLMs or MMs can be seen as working with mixed method tools, so simply understanding its technical aspects is not enough to use them as research tools. Indeed, models are continuously evolving and becoming more sophisticated. Many anticipate that future iterations may minimise the necessity for hands-on coding.¹² Therefore, while interviewees state it is still highly recommended to learn coding to use LLMs for research, coding skills alone are not all it takes for a successful application of LLMs in research design and execution. Soft skills such as communication skills, critical thinking and storytelling will eventually become more important when it comes to operating generative AI.¹³

¹² Lubna Mahmoud Abu Zohair, "The Future of Software Engineering by 2050s: Will AI Replace Software Engineers?," *International Journal of Information Technology* 2, no.3 (2018): 1-13.

¹³ Rosario Michel-Villarreal et al., "Challenges and Opportunities of Generative AI for Higher Education as Explained by ChatGPT," *Education Sciences* 13, no.9 (2023): 856.



Figure 2. Stages of the academic research life cycle in which uses of GenAI can be envisioned.¹⁴

In line with this insight, most participants also talked about more nuanced skills and attitudes that one should acquire to leverage AI for research. In the next chapter, we delve deeper into the issues beyond those simply stemming from the lack of technical knowledge. These are grouped into main themes that showed up in the interviews with participating researchers. Under each theme, there is a ‘discussion’ paragraph with examples of tangible actions, ongoing projects, and future explorations proposed by interviewees.

¹⁴ Cornell University Task Force, “Generative AI in Academic Research.” *Research & Innovation*, last modified on December 15, 2023, <https://www.research-and-innovation.cornell.edu/generative-ai-in-academic-research/#framework>.

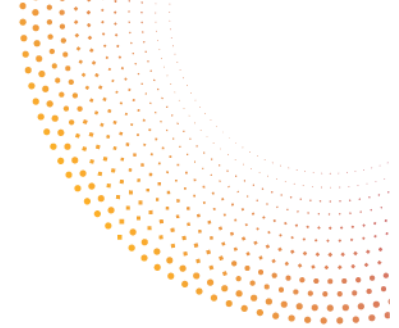


4 Identifying Issues and Proposing Remedies

4.1. Cultivating mindful use of AI-based tools

Many of the researchers interviewed for this report have been actively experimenting with generative AI and possess an understanding of how current LLMs and MMs operate. However, they unanimously agree that many models lack transparency, making it challenging to identify potentially biased training data or ethical issues propagated within the code itself. This lack of clarity poses a significant obstacle to the adoption for research purposes.

While the interviewed researchers represent a growing community of critical practitioners, they acknowledge that many of their peers and students need a clearer understanding of the true nature of available LLMs, particularly when utilising commercial models like ChatGPT or Google Bard (now Gemini). They advocate for approaching LLMs primarily as collaborative partners. Still, they have observed instances where some of their colleagues and students have become overly reliant on these models without fully understanding their limitations.



In the much-cited paper “On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?”,¹⁵ its authors highlight the dangers of automation bias that users of generative AI can develop. The bias is attributed to the ability of Large Language Models to produce coherent-sounding answers. This underscores a concern raised by our interviewees, who emphasise that misconceptions surrounding AI often arise from overlooking the probabilistic nature of LLM models. Rather than being deterministic, these models operate based on statistical probability, offering the most possible answer to a given query. Consequently, researchers caution against accepting answers from proprietary services such as ChatGPT and Bard at face value.

As Prof. Van den Bosch pointed out in his interview, widely-used transformers like ChatGPT are designed to be user-friendly but often obscure their inner workings, leading to a lack of deeper understanding of their true nature among users. To tackle this challenge, Utrecht University has launched a new course titled “Transformers: Applications in Language and Communication.” This course aims to equip students with practical skills for operating LLMs while providing a comprehensive overview of their development. Students explore the computational history of transformers and explore their variations to thoroughly understand their capabilities and limitations.

The course assumes that engaging with the deeper layers of an open-source transformer can offer a more stimulating and fulfilling learning experience compared to interacting with the chat function of a commercial transformer. For now, this course is an optional elective designed for master students and requires some knowledge of coding, but it has already attracted students from very diverse backgrounds, including the field of SSH. Though transformers have already been a part of the curriculum at many universities, this course presents a new approach,

¹⁵ Emily M. Bender et al., “On the Dangers of Stochastic Parrots: Can Language Models Be Too Big?,” *Proceedings of the 2021 ACM Conference on Fairness, Accountability, And Transparency*, 2021.

providing researchers with a well-rounded understanding of what transformers are capable of in terms of their individual research practice.

4.2. Managing expectations and the issue of hype

Some of the well-known limitations of LLMs include a lack of nuanced semantic understanding and context, concerns about data privacy and security, and the potential for generating biased or inaccurate information. Due to its conversational layer, models like ChatGPT can even convincingly justify how it arrived at specific outcomes, for example while performing text annotation.¹⁶ Enthusiasm around these initial results carries the hype and creates unrealistic expectations among users, especially those who do not venture beyond using commercial generative AI models. Because of the black-boxed nature of most commercial LLMs, one cannot determine what training data was used for the model to arrive at the presented conclusions. Consequently, researchers are not able to thoroughly investigate the tool itself, which is an important part of methodology in this field. Most interviewees stressed that researchers wanting to work with genAI have to be able to address its shortcomings and explain why they chose a particular model.

In reality, interviewees observed that people tend to place unrealistic expectations on the outcomes of their research when using generative AI. In many cases, these expectations are about how much one can outsource to the model without the need to tweak them. For convenience's sake, or if researchers do not have direct help from someone with a computational background, they might refer to what is available and, as one interviewee called it, “choose the path of least resistance”.

¹⁶ Petter Törnberg, “Best Practices for Text Annotation with Large Language Models,” *arXiv preprint arXiv:2402.05129* (2024).

Given the accessibility of various LLMs, particularly commercial ones, researchers and students applying large language models in their research are likely to gravitate towards user-friendly options like ChatGPT and Bard. Opinions varied among participants, with some cautioning against the use of commercial models while others embraced them for their research without condemning those who do likewise. Additionally, a few participants expressed nuanced perspectives that highlighted the benefits and drawbacks of both approaches. However, most of the researchers interviewed for this report work with smaller, open-source models often sourced from HuggingFace. While these models offer higher degrees of flexibility and transparency, interviewees pointed out issues with their reliability if not adequately fine-tuned. It was further noted that even these models carry a degree of obscurity. Moreover, due to a lack of standards, some purportedly open models are criticised for not truly being open-source in practice.¹⁷ Thus, navigating between available models can be a real challenge. Consequently, considering the current state of generative AI literacy among many researchers, there is a real need for intermediaries when it comes to the use of LLMs for SSH research. This need has prompted various initiatives within the SSH community, including the establishment of dedicated courses and AI Labs to explore AI applications for research purposes. Some institutions have even begun hiring individuals tasked explicitly with assisting less technically inclined researchers in utilising generative AI tools for their projects.

While it now seems to be a necessary step, some of our interviewees see this as a temporary solution and raise concerns that outsourcing computational methods to “tech support” is not a sustainable practice. They see it as dangerous: it could, in the long run, lead to fragmenting researchers’ skills and knowledge. In parallel to adding

¹⁷ “The Tech Industry Can’t Agree on What Open-Source AI Means. That’s a Problem,” Technology Review, accessed May 23, 2024,
<https://www.technologyreview.com/2024/03/25/1090111/tech-industry-open-source-ai-definition-problem>.

new support roles, bespoke tools are being developed to ease beginners into more mindful use of LLMs. Prompt Compass,¹⁸ developed by Erik Borra (University of Amsterdam) with the support of the PDI-SSH platform, is one such tool. It offers those who wish to interact with LLMs an overview of various models and pre-filled prompts sourced from existing papers. Researchers can edit or reuse such prompts as well as input their own data. They can also compare results when using different models to see which one is more suitable for the goal they want to achieve. Prompt Compass is designed first and foremost as a research tool, and the environment it provides eases beginners into interaction with LLMs but with a focus on replicability and consistency.

While a few guidelines and best practices papers¹⁹ already stress the importance of using LLMs with these aspects in mind to uphold the quality of research, interviewees acknowledge that building practical tools like Prompt Compass might be necessary to instil new research practices around this emergent technology. One of the interviewees called tool building “a new type of responsibility” that institutions might need to take up when it comes to teaching methods that include generative AI.

4.3. Maintaining strong research etiquette in times of generative AI

Once a researcher understands more about how to work with a particular model, there is another aspect they should keep in mind. While there are already prompting guides and tools like the aforementioned Prompt Compass, which can help users achieve the desired output in research, it is still, first and foremost, important to formulate a strong research question. It is the cornerstone of any research process,

¹⁸ “Erik Borra, PromptCompass,” GitHub, accessed May 23, 2024, <https://github.com/ErikBorra/PromptCompass>.

¹⁹ Ryan Watkins, “Guidance for Researchers and Peer-Reviewers on the Ethical Use of Large Language Models (LLMs) in Scientific Research Workflows,” *AI Ethics* (2023), 1-6, <https://doi.org/10.1007/s43681-023-00294-5>.

but it can be especially vital when using LLMs or MMs. When operating with such seemingly limitless tools, it can be easy to engage in explorations rather than focusing on addressing a research project's original goals. A few interviewees mentioned that after gaining some level of literacy, one should minimise the number of prompts and try leveraging the unique abilities of the generative model. Some interviewees noticed that researchers using LLMs for the first time are tempted to adjust their research questions to fit the computing powers of a model, which is generally considered a bad habit and something that can lead to biased results.

Ultimately, this issue underscores the need for more constraints, both technologically and methodologically, particularly when it comes to conversational models which allow researchers to dive deeper into their subject without limits other than those self-imposed.

One of the researchers observed an example of this issue manifesting itself in their work, aiding translation scholars with technical aspects of their research. Generative AI and, in this case, Large Language Models, are able to produce multiple versions of a translation, offering interpretations that a human translator might not have considered. However, in this particular case, the many versions of translated text ultimately caused researchers to doubt their original research question. LLMs might be excellent when used for exploration, but without setting constraints for how much one wants to achieve with these models, it is easy to become overwhelmed by the multitude of choices, which can hinder the quality of research work.

Additionally, many current models demonstrate biases, particularly towards languages with intricate syntax, semantics, and/or cultural subtleties. Notably, most models are better trained to work with English, introducing a bias towards one single language. In spite of these concerns, in the case described by one of the interviewed

researchers, scholars who worked on translation have gradually become more critical of their own research question rather than the tool itself. Thus, while it can be beneficial to employ generative AI for “creative sparring” and ideation at the start of the research process when, for example, ideating potential research directions, it can be dangerous to allow the affordances of a tool to determine the ultimate direction of a research project. As more guidelines are published and researchers gain more practical experiences with generative AI, we might see this problem disappear. Interviewed researchers agree that developing a positive and more balanced relationship with such overwhelmingly powerful technology will take some time.

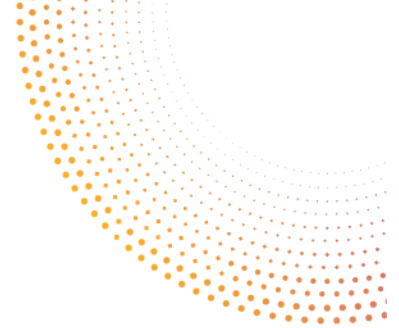
4.4. Knowledge and skill exchange

Given that the use of generative AI for SSH research remains novel to many researchers, numerous projects are concurrently testing its applications. If computational methods, including generative AI tools, continue to be adapted in the social sciences and humanities, we can expect an increase in interdisciplinary projects dependent on active knowledge exchange. However, researchers report that already at this stage of development, they find it hard to keep track of their colleagues also experimenting with generative AI. There is a high chance that many researchers working with generative AI are struggling with similar issues, not realising their colleagues already dealt with the same problems and can offer possible solutions. This also signifies that there is currently no unified strategy when it comes to creating an academic approach to this technology, which leaves researchers with a lot of freedom but also with limited guidance on appropriate strategies. A few interviewees mentioned that they would benefit from more active knowledge exchange but often lack the time and support to organise it.

One possible solution mentioned by interviewees is to organise periodic gatherings where different working groups present what they are currently working on. Some researchers have already initiated similar initiatives and reported that talking to their colleagues directly about their approach to AI in their research work often saves them time and cuts down the number of uncertainties they initially face. Creating dedicated and interdisciplinary labs that concentrate on knowledge exchange will also help form strategies to future-proof SSH scholarship.

4.5. Playful explorations for creative work with generative AI

The work of a researcher can be understood as an inherently creative endeavour. As mentioned before, some stages of the research, such as data collection and data annotation, can be tedious and not always perceived as “creative” or novel, in which LLMs and MMs can be of great assistance. Nonetheless, one of the common fears tied to the excessive use of generative AI is that, over time, users will outsource an increasing number of tasks to these tools, negatively impacting creativity and learning skills and ultimately leading to mass-produced, machine-mediated content flooding universities. Most interviewees engaged in teaching say they are struggling to convince their students to use these tools within limits or for inspiration rather than rely on them to complete entire assignments. There are currently no bulletproof systems for researchers to verify whether the work they are evaluating was entirely AI-generated.



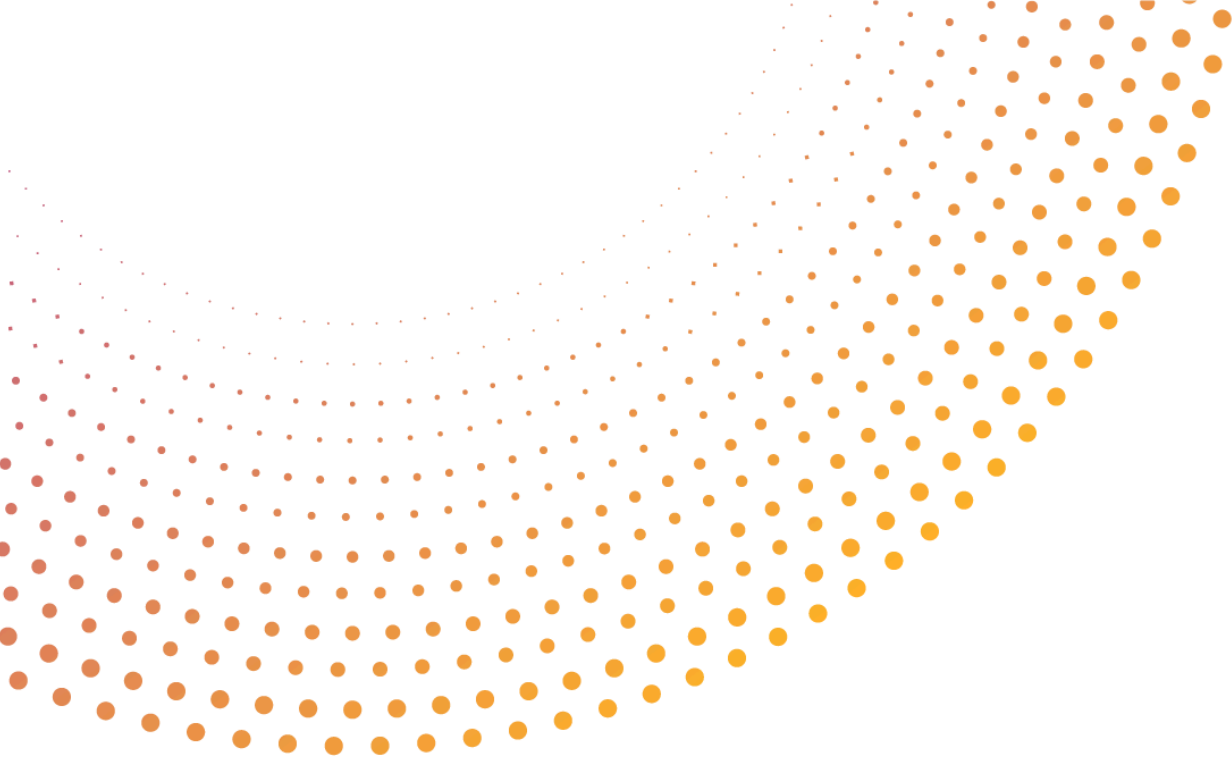
This ambiguity has even led some students to be falsely accused of generating their work.²⁰ A few interviewees accepted that they will soon not be able to distinguish whether or not their student's work was heavily aided by generative AI, and it is yet unclear to what extent this should be allowed. Notably, many of the interviewees have started to build their own policy on how students are allowed to use generative AI, in some cases resorting to drawing their own lines on what they find acceptable.

By now, it is an issue that extends across many disciplines and is actively discussed at all levels of education. However, the digital humanities and social sciences within SSH scholarship might be uniquely equipped to experiment and work with generative AI in ways that subvert its normative power. As discussed earlier, researchers from SSH are rather familiar with applying cross-disciplinary approaches and show flexibility when it comes to adopting digital tools. In line with this methodology, several researchers have reported preparing courses and experimenting with workshop-like formats to promote playful disruption with AI tools. The main goal is to encourage students to learn how different generative models work. Some interviewees suggest that one way to teach about generative AI models and how to use them for research is to attempt to “break” them or to use them beyond their original scope.

This can manifest, for example, in students being instructed to comparatively explore different generative AI tools to purposefully achieve contradictory results. This approach may seem counterintuitive since, to establish a new method, one should usually be able to prove the same research results can be replicated. The logic here is to counteract the black-boxed nature of generative AI models and allow for creative

²⁰ Tom Carter, “Some Universities Are Ditching AI Detection Software Amid Fears Students Could Be Falsely Accused of Cheating by Using ChatGPT,” *Business Insider*, accessed on May 23, 2024, <https://www.businessinsider.com/universities-ditch-ai-detectors-over-fears-students-falsely-accused-cheating-2023-9?international=true&r=US&IR=T>.

manipulations that would eventually encourage future researchers to look past the conversational layer of LLMs and LMMs. Utilising these models to venture beyond their intended use could result in more insights into their constraints and bring associated challenges to the forefront. Since students are likely to go on using the mainstream models, learning through play could give them the skills and confidence to expose the inner workings of a model, ultimately making room for a more critical approach.

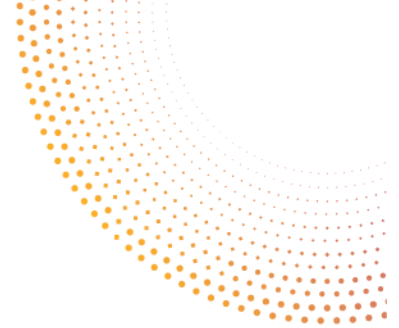


5 Conclusion

Ultimately, it remains to be seen what applications of generative AI and within that LLMs and MMs will stand the test of time and which will become obsolete, much like with every nascent technological shift. As pointed out by one of the interviewees, now is the time for researchers to indulge in the exploration of generative AI and its applications in research, and while many claims are being made, a lot of them probably will not withstand the proof of time. It is, however, clear that with this volume of AI testing in research, there is an urgent need for interdisciplinary collaboration and knowledge exchange as researchers learn more about the complicated nature of generative AI.

As technical literacy improves among SSH researchers, equal attention should be paid to fostering a culture of mindful use of such powerful technology and, in spite of its added benefits, to keep focusing on a strong research etiquette. The overarching challenge in working with Generative AI so far is for researchers and their home institutions to develop a separate approach towards AI from that of the tech industry in order to preserve academic standards. Interviewees unanimously voiced the difficulty of remaining informed while trying to discern between useful academic

applications of AI and the hype prevalent in the mainstream. Though in the commercial world, much attention and effort is directed towards fulfilling technical requirements for better adoption of AI, the same strategy cannot inform the way educational institutions approach the task. Institutional support for new and, in some cases, even experimental approaches to AI technologies will be needed to distinguish academic and educational use of such technology.



Recommended literature

Transformation of the SSH field

The following are articles providing overviews and predictions of possible uses of LLMs in social sciences, discussing applications such as the use of models to simulate human behaviour or to predict real-world scenarios. In *AI and the Transformation of Social Science Research*, authors speculate on the directions AI will take social science and what type of novel skills researchers will have to acquire.

- Igor Grossmann et al., “AI and the Transformation of Social Science Research,” *Science* 380.6650 (2023): 1108-1109.
- Ryan Watkins, “Guidance for Researchers and Peer-Reviewers on the Ethical Use of Large Language Models (LLMs) in Scientific Research Workflows,” *AI and Ethics* (2023): 1-6.

The know-how of generative AI use in SSH

Here are examples of more concrete tests on applications of generative AI in research. Sources below take on annotation and classification of data as the most viable task for LLMs and feature tests on how such work can be outsourced to the models while preserving the quality of research practice. Some provide practical, step-by-step instructions. Peter Tornberg’s *Best Practices for Text Annotation with Large Language Models* is one of the first publications aiming to provide guidance to those wanting to test LLMs in their annotation tasks.

- Petter Törnberg, “Best Practices for Text Annotation with Large Language Models,” *arXiv preprint arXiv:2402.05129* (2024).

- Jonathan Kantor, “Best Practices for Implementing ChatGPT, Large Language Models, and Artificial Intelligence in Qualitative and Survey-Based Research,” *JAAD international* 14 (2024): 22-23.
- Fabrizio Gilardi, Meysam Alizadeh, and Maël Kubli, “ChatGPT Outperforms Crowd Workers for Text-Annotation Tasks,” *Proceedings of the National Academy of Sciences of the United States of America* 120, (2023), e2305016120. 10.1073/pnas.2305016120.
- Andres Karjus, “Machine-Assisted Mixed Methods: Augmenting Humanities and Social Sciences with Artificial Intelligence,” *arXiv preprint arXiv:2309.14379* (2023).

Implementing generative AI into institutions

As highlighted in this report, with AI on the scene, researchers are teaming up across disciplines, exploring new AI-driven methodologies, adopting new grading standards in their teaching practice and grappling with ethical dilemmas. To accommodate that, universities and educational institutions must face structural and pedagogical changes. Currently, very few sources talk about how practitioners in research deal with AI transformation and how the implementation of this technology can be done with consideration for their already existing practice. The article by D’Agostino highlights the need for more guidelines and a cautious approach to incorporating such tools into educational strategies. Adjacent to this issue, the European Union published *Living Guidelines on the Responsible Use of Generative AI in Research*, which aims to serve as an aid not only to the researchers themselves but also to institutions on how to best support their staff in generative AI adoption.

- Jenay Robert, “2024 EDUCAUSE AI Landscape Study,” EDUCAUSE, last modified February 12, 2024,

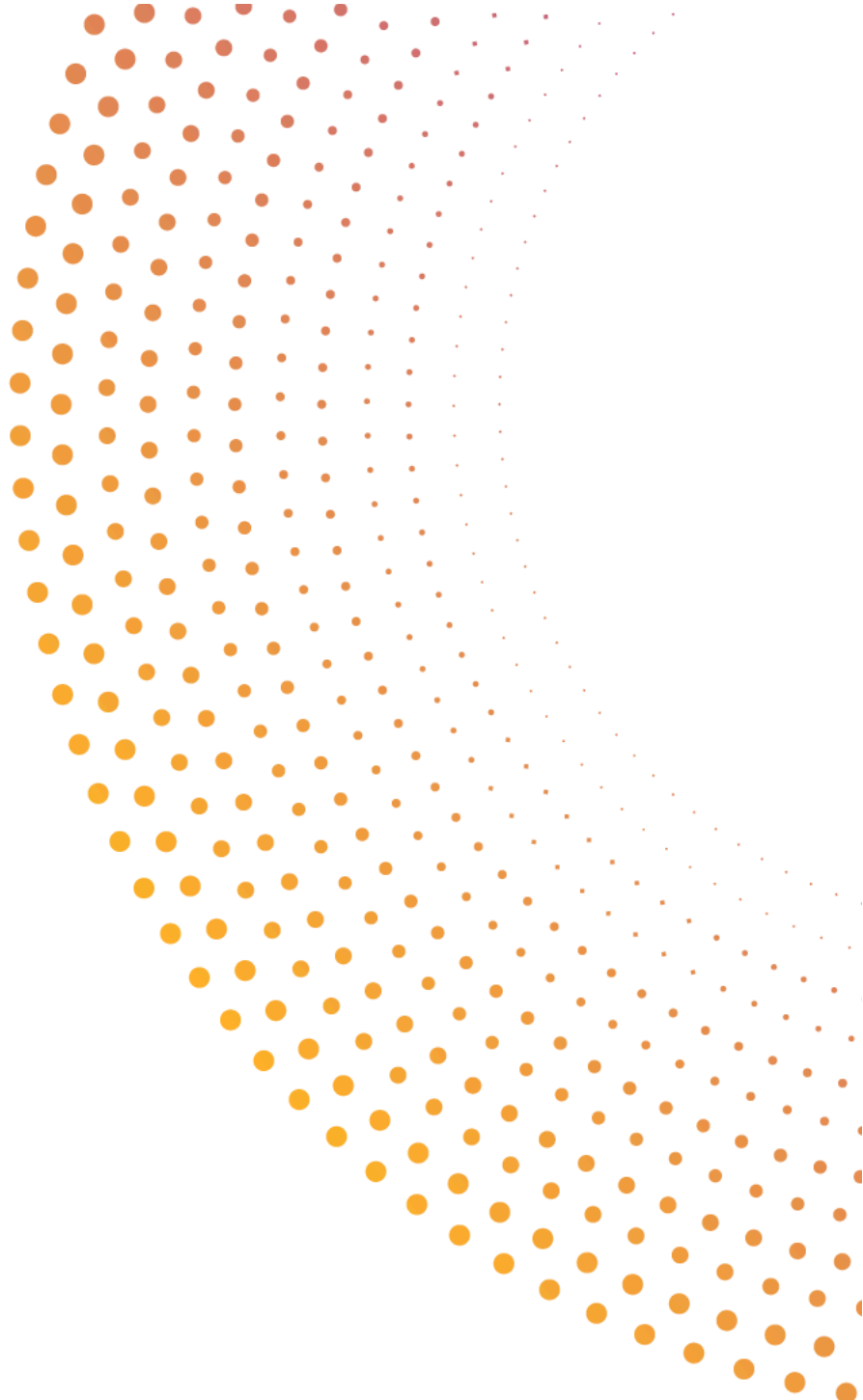
www.educause.edu/ecar/research-publications/2024/2024-educause-ai-landscape-study/strategic-planning-and-readiness.

- Susan D'Agostino, "GPT-4 Is Here. But Most Faculty Lack AI Policies." Inside Higher ED, last modified March 21, 2023, www.insidehighered.com/news/2023/03/22/gpt-4-here-most-faculty-lack-ai-policies.
- Steven Andriole, "How Generative AI Owns Higher Education. Now What?" Forbes, accessed May 23, 2024, www.forbes.com/sites/steveandriole/2024/03/18/how-generative-ai-now-owns-higher-education--now-what.
- Cornell University Task Force, "Generative AI in Academic Research," *Research & Innovation*, last modified December 15, 2023, <https://www.research-and-innovation.cornell.edu/generative-ai-in-academic-research/#framework>.

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