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GENERATIVE ARTIFICIAL INTELLIGENCE AND COLLECTIVE REMEMBERING

The Technological Mediation of Mnemotechnic Values

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Abstract

This paper shows that generative artificial intelligence is changing how the past is revealed to humans and how humans remember the past by reshaping the ethics of collective remembering and forgetting. Artificial intelligence is changing the nature of collective memory in a process that turns history from an object of media representation into an object of algorithmic performativity. By relying on the framework of postphenomenology, the analysis shows that artificial intelligence makes humans engage with notions of togetherness and boundlessness, gradually substituting issues of authenticity and accuracy as main referential frames in historical knowledge production. Consequentially, artificial intelligence mediates a dialogic version of historical awareness, which makes the past responsive to the distributed actions of human and non-human assemblages. In this process, generative artificial intelligence redefines what it means to be responsible and accountable in preserving, transmitting and promoting historical legacy by putting to work new mnemotechnic values.

Plain Language Summary[1]

- The manuscript explores how generative artificial intelligence (AI) is changing our understanding and representation of history. Unlike traditional technologies including search engines that are designed to support an accurate representation of the past, AI creates new ways through which the past becomes intelligible and familiar to us. This shift turns AI from a passive tool into an active participant in shaping the process of collective remembering.
- AI does not just store historical information; it actively generates new narratives that can influence how people perceive the past. This makes history more interactive and personalized, allowing individuals to experience the past in unique ways tailored to their interactions with AI. Therefore, AI promotes an ethics of memorial involvement that is likely to replace issues of authenticity and accuracy with matters of responsivity and affinity in relation to the object of remembrance.
- The manuscript highlights the ethical challenges posed by AI in the field of collective memory. Historical accuracy and integrity would be challenged and even deconstructed as mnemotechnic values because AI can produce versions of historical events that are more engaging, thought-provoking, and meaningful. However, this does not necessarily imply that people would become less responsible towards the past, but AI might change the definition of responsibility and what it means to act responsibly when remembering the past.
- Readers would be interested in this work because it underscores the powerful role AI could play in shaping our understanding of history, potentially altering how future generations learn about and relate to the past. This transformation would redesign how the politics of memory would be addressed and incorporated into various social, economic and political processes.

[1] AI-generated; author checked and approved.

1 INTRODUCTION: COLLECTIVE MEMORY IN THE AGE OF GENERATIVE ARTIFICIAL INTELLIGENCE

Whether it is the advent of the internet, the proliferation of search engines, or the emergence of artificial intelligence, each technological breakthrough carries with it the promise of a profound impact. Technologies are often characterized by multistability (de Boer, 2023; Wellner, 2020), and the path from innovation to influence is fraught with unpredictability and contingency. The inherent characteristics of a technology – its design, affordances, capabilities, functionalities, and applications – suggest a certain trajectory of influence. However, through use, individuals and society at large could repurpose technologies in ways that extend far beyond their potential (Obreja, 2022; Rughiniș et al., 2024; Stoicescu & Rughiniș, 2022). Therefore, the impact of a technology is a dynamic interplay between its inherent nature and human agency. In practice, technologies could erode the causal relation between what designers intended to accomplish and the actual behaviour of their systems (Mykhailov, 2022). Users, through their choices and actions, can reshape the trajectory of a technology's influence, redirecting it from its anticipated path.

Based on these assumptions, I explore how generative artificial intelligence is prone to reconfigure how collective memory is shaped in contemporary society. We have to consider that collective memory designates a shared awareness and knowledge of a common past that is produced and preserved in a process of collaborative remembering (Misztal, 2003b). Specifically, collective memory defines the socio-cultural process through which the past is created and recreated as a relevant social reality of the present (Rusu, 2011). The process integrates various practices, discourses, social institutions, and technologies, all together contributing to the emergence of the phenomenon of history in society.

For the purpose of the paper, I refer to both search engines and generative artificial intelligence as memorial technologies as long as people use them to collectively remember and access information about historical events, characters, and other realities from the past.

When first introduced, search engines were regarded with suspicion, especially in their role as remembering devices. Many people were wary of their accuracy, reliability, and the potential for misuse of historical information (Hellsten et al., 2006; Introna & Nissenbaum, 2000). There was a general concern about how these new technologies would make it more difficult for people to locate precise information amidst a sea of irrelevant links, leading to information overload and difficulty discerning credible sources from unreliable ones (Segev, 2010). Over time, however, as search engines improved and their algorithms became integral to daily life, public trust gradually increased, transforming them into indispensable tools for accessing historical information in the modern world.

Nowadays, generative artificial intelligence is a technology in the process of its emergence and diffusion (see Zhang, 2022). In this phase, generative artificial intelligence is challenging the role of traditional search engines as key tools for retrieving information about history. Therefore, there is the perfect time to ask ourselves some questions: How would generative artificial intelligence change the way we share and distribute memories about a common past? How would generative artificial intelligence mediate our awareness of history and our engagement with the past? In what ways would generative artificial intelligence shape our historical knowledge, mnemonic subjectivity, and historical empathy? How would generative artificial intelligence change the ethics of remembrance, as well as the nature of our responsibility towards the past? With these questions in mind, my discussion highlights the transformative impact of generative artificial intelligence on the constitution of collective historical consciousness through a redefinition of mnemotechnic values. Here, mnemotechnic values are understood as technologically-mediated criteria against which a type of knowledge about the past is appropriated as meaningful, socially acceptable, and intelligible.

There is a general consensus that the spread of artificial intelligence is redefining collective remembering and forgetting. Various concepts have been developed to document the changes currently taking place in the digitally mediated world. With the emergence of algorithms and artificial intelligence, collective memory has been referred to by using concepts such as 'connective memory' (Hoskins, 2011, 2017a), 'algorithmic memory' (Esposito, 2017), 'memory of the multitude' (Hoskins, 2017b), 'robotic collective memory' (Shur-Ofry & Pessach, 2020), 'multimodal memories' (Burkey, 2020), 'cyborgian remembrance' (Merrill, 2023), 'postdigital collective memory' (Jelewska, 2024). The internet assumes an externalization of collective memories because it is organized on various mechanisms of data extraction that turn individual behaviours into objects or surveillance, archival, and processing (Clavert, 2021; Featherstone, 2006). The internet is a huge repository of information in which "the memory of the multitude is scattered yet simultaneous and searchable: connected, networked, archived" (Hoskins, 2017b, p. 85).

The shift from the narrative to the database started with the process of digitalization (Mandolessi, 2023; Papailias, 2016) and was completed with the introduction of the implementation of various machine learning algorithms in data processing and information retrieval. The online environment developed into a massive repository of data, and the digital archive became the epitome of collective memory and the structure based on which any mnemonic processes are organized and assembled (Horsley, 2021; Ibrahim, 2018). The structures of collective memory have been determined by the digitalization of historical records, which further influenced the narratological characteristics involved in the formation of collective memory (Neiger, 2019). These processes diversified the types of information that might be used to support the production of collective memory and, therefore, reshaped the raw material able to form the basis of collective memories. In general, algorithms participated in the organization and categorization of historical information, making it easier for historians and for people in their multitude of roles to explore and interact with the past, thus working not only on the historical sources but also on the processes through which collective memories were being produced (Kansteiner, 2022; van der Werf & van der Werf, 2022).

Generative artificial intelligence is reshaping the boundaries between the storage and access functions by infusing the public sphere with collective memories of its own and by reshaping the role of humans as masters of their memories (Makhortykh, 2021). We assist in an interaction between the human and the computational in a process in which algorithms are social actors that participate in the definition of collective memories. Artificial intelligence brings people into new relations with the past by recreating what counts as historical evidence (Kudina, 2022). Based on these rationales, the outputs produced by artificial intelligence might be seen as speculative narratives and semantic artefacts resulting from the industrialization of automatic and cheap textual occurrences (Floridi & Chiriatti, 2020).

Artificial intelligence is prone to reinforce dominant and Western-centric historical narratives and amplify memory-related inequalities and power relations (Makhortykh, 2023). However, existing records could be rearranged and combined into different segments, so that emancipative historical vocabularies and imaginaries could also arise in the process. Artificial intelligence can identify patterns in training data to create emotional and empowering narratives for making sense of the past (Bareither, 2021; Blanke et al., 2020; Rees, 2022). Consequentially, artificial intelligence is able not only to reproduce hegemonic discourses, structures, and cultures, but also to deconstruct the grand narratives of history by disrupting fixed and familiar representations of the past.

Along with its benefits, artificial intelligence also brings various challenges to collective remembering. One significant risk is that human actors might lose control over their memories when the storage and curation functions are increasingly outsourced to algorithms (Makhortykh, 2023, p. 1504). Another concern is associated with the lack of transparency over

how memory-related information is processed, which obstructs the choices that are being made in formulating an understanding of past worlds (Makhortykh, 2023). The impossibility of differentiating between historical reality and historical fiction is another risk posed by artificial intelligence to collective remembering. This risk is closely connected with the possibility of manipulating historical texts, images, and videos and creating false evidence, which might be confused with authentic evidence and treated as valuable and informational documentary resources (Makhortykh et al., 2023). Furthermore, artificial intelligence is biased to favour the production of a type of historical knowledge that might be put into circulation on capitalist markets and used to generate profits (Makhortykh et al., 2023).

2 THEORETICAL FRAMEWORK: COLLECTIVE MEMORY AS A TECHNOLOGICALLY MEDIATED PHENOMENON

Dominant sociological theories refer to collective memory as a necessary condition for social cohesion and solidarity, suggesting that social remembering processes are mechanisms for preserving and reinforcing social norms and values (Durkheim, 1971; Misztal, 2003a). It means societies would necessarily need to develop systems that recall historical events, traditions, and cultural practices in order to preserve their values over time (Olick, 2007; Wang, 2008). These systems are understood as complex socio-cultural assemblages that create a link between the past, present, and future, providing a sense of continuity and connection across generations. Collective memory integrates shared beliefs about the past that are able to bind individuals together within communities (Barash, 2016; Halbwachs, 1992; Nora, 1996). For that reason, sharing similar representations of the past is considered a fundamental aspect of social integration, socialization, cohesion, and resilience. Societies would therefore need to create mnemonic technologies to stabilize interpretative repertoires of meaning by defining what it means to be part of a society and culture, in a process that ensures historical continuity based on ancestry and descent (Zerubavel, 1996, 2003).

However, from a postphenomenological perspective (Ihde, 1975, 1995; Rosenberger, 2017; Verbeek, 2016), collective memory would not be a functional condition in the constitution of a society but a contingent phenomenon of technological mediation. Humans collectively remember a shared past because various technologies are designed to reveal history through their archival and record-keeping nature. Specifically, various technologies connect people to the past, and in the process, they disclose history as a shared reality that might be perceived and experienced retrospectively. On the one hand, it means that, at a particular point in human evolution, technologies made people aware of history and allowed a mode of being in the world by positioning the continuity between past and present as a source of collective identity. On the other hand, it means that various technological affordances are continuously defining how people engage with history by transforming their interactions with the past.

According to the theory of technological mediation, mnemonic technologies are productive elements: they shape how people are related to the past, they define the manifestation of history in the present, and they establish how people might act based on the sense of memory they accomplish by interacting with remembering tools and devices. Memorial technologies are not simple repositories of memories, but mediators between humans and the past (see Verbeek, 2012). The memorial nature of a technology is what makes people remember by shaping how they remember, what they remember, and how they define themselves as subjects engaged in remembrance. Collective memory is a relation between the memorial object and the memorial subject, which are two constitutive elements that define each other in the use of memorial technologies. Those kinds of relations are part of a socio-technical assemblage that produces the phenomenon of history as a submergent outcome of technologically mediated remembering processes.

Memorial technologies provide a direction to memories and shape an intentionality towards history that becomes stabilized through definition and use. Still, we have to consider that "dual forms of intentionality" (see Verbeek, 2008a) are involved in the process of collective remembering. One consists of human intentionality towards the version of the past which is made available and accessible to human perception, and one consists of the intentionality of humans towards the present world as an outcome of the technological mediation of the past.

Remembrance is about how, what, and whom to remember, and technologies of collective memory inscribe answers to these questions through specific elements of architecture and design (see Verbeek, 2006, 2008b). By virtue of their design, memorial technologies shape the remembering inclination of people since specific features and modes of memorial embody specific forms of approaching history. Various beliefs, principles, norms, and ideals that guide people in understanding their collective past are embedded in the design of memorial technologies.

As our remembering practices and experiences of the past are mediated, memorial technologies reveal and affirm specific mnemotechnic values related to how history might be brought to human attention, consideration, and conceptualization (see Kudina, 2021; Kudina & Verbeek, 2019; Van de Poel & Kudina, 2022). In this context, mnemotechnic values are normative concerns that arise from collective remembering: they are able to guide people in defining the criteria and standards for remembering and forgetting. They function as meaningful structures of remembering and forgetting that govern how societies engage with the past. Put more simply, mnemotechnic values are things to consider when we learn about history and engage ourselves in the practice of historical knowledge production.

Postphenomenology has developed a specific understanding of the mediated character of morality, which might be brought to approach various technologies of collective remembering and forgetting. Memorial technologies play an important part in the ethical dimension of collective remembering particularly because they embed various mnemotechnic values, which makes them morally relevant. Memorial technologies shape human memorial actions and commemorative decisions in morally relevant ways because they stimulate recognition of a specific code of remembrance as 'morally obliging' (see Verbeek, 2017, p. 22). Memorial technologies create various mnemonic practices and interpretations of the past, thus contributing to the realization of specific moral values through processes derived from technological mediation. Memorial technologies are "technologies of the self" (see Foucault, 1988), and consequentially become part of a moral world because they shape humans as "remembering subjects" and endow people with a "mnemonic subjectivity" through design and use (Matei, 2023).

3 SEARCH ENGINES, GENERATIVE ARTIFICIAL INTELLIGENCE, AND MNEMOTECHNIC VALUES

In what follows, I compare search engines with generative artificial intelligence and discuss both as memorial technologies (i.e. tools to access historical records, documents, and other related information about the past). My focus is on understanding the interplay between the generated outputs and curatorial processes with reference to specific algorithmic forms of manifestation. I aim to uncover layers of computational logic that govern the selection, organization, and presentation of historical information, primarily by taking into account the implications of the curated results in providing an understanding of the past, and secondarily by considering decision-making frameworks underlying the processes of collective remembering and forgetting.

In order to exemplify how generative artificial intelligence differs from search engines in terms of mnemotechnic values, I conduct a case study on the outputs that resulted when inquiring about *World War I*. *Word War I* is a historical event documented by plenty of records or evidence to confirm the exact details. Moreover, it is an event of global significance and emotional impact subject to varying interpretations and perceptions. The event is also relevant because it reflects different agendas, thus functioning as a focal point for various political, social, and ideological narratives.

Search engines and generative artificial intelligence share similar characteristics: they operate on data that comes from a wide range of sources, including websites, news articles, academic papers, blogs, and more; they work based on the digitalization and externalization of historical information across the internet; they assume the internet as an archival medium for historical records; they present history as an omnipresent companion about which people could access information instantly and remotely by using a device; they are dependent on what is retrievable on the internet and also on how the priorities for content retrieval are defined and algorithmically instantiated; and they capitalize on users interactions and feedback to refine results, correct issues and add iterative improvements. In spite of those common elements, search engines and generative artificial intelligence are fundamentally different in their design and structure, and are able to shape collective memory in distinctive ways.

For a long time now, memorial technologies have been assessed based on their capacity to preserve the standard of accuracy and authenticity in relation to history. Still, those values have remained relevant, whereas memorial technologies have incorporated a depictive nature in their structure and design (i.e. statuses and memorials, historical novels, biographical films, oral history records, documentaries, museum exhibitions, virtual reality re-enactments). Search engines have intricately woven the representational characteristics of various media into their frameworks, while transcending their limitations through advanced algorithms and data processing systems (Introna & Nissenbaum, 2000; Mager, 2012). This confluence has enabled search engines to serve as repositories of historical knowledge, mirroring the representational and dissemination roles fulfilled by print, broadcast, and digital media.

Today, we continue to judge the results provided by artificial intelligence in terms of historical accuracy and authenticity. This scrutiny was notably illustrated during the Gemini scandal, where the information about historical events was found to contain significant inaccuracies (Coraggio, 2024). The incident underscored the importance of ensuring that generative artificial intelligence systems would preserve the integrity of historical records. This phenomenon has occurred because our understanding of emerging technologies is often anchored in the frameworks and terminologies of previous media forms. This reliance on familiar values creates a social and technical cognitive inertia, where existing norms and values persist over time despite changes in the surrounding environment (Matei et al., 2023; Schmid, 2019).

However, search engines and generative artificial intelligence use different approaches and technologies to curate and deliver information to users. Embedding the values of accuracy and authenticity into the functioning of artificial intelligence would be a formidable challenge due to their distinct purposes, methods of data collection, processing, and output generation. As artificial intelligence systems learn and adapt over time, they prioritize certain patterns or outcomes based on their training data, potentially skewing accuracy and authenticity in their ability to find new connections and adaptations. Generative artificial intelligence is fundamentally changing the nature of collective memory as it is the first time in history that memorial technologies have a performative rather than representational character. I argue that, when introduced in collective remembering processes, generative artificial intelligence produces a shift from *history as phenomenon of representation* to *history as a phenomenon of performativity*.

In approaching this argument, we have to consider that those two memorial technologies are able to shape an understanding of history and build a relation with the past, and both of them might be interpreted simultaneously as representational and performative devices. Performativity and representation are deeply interconnected in processes of collective remembering, with performative acts often serving as representations and representations having performative effects. When someone performs a collective memory, for example, they are both enacting (performing) and representing (depicting) societal expectations and norms in a process directed towards constructing cultural identities.

- On one hand, representation involves the depiction of past events or historical characters, often through symbols, language, art, or media. In this sense, *representations themselves are performative* because performativity derives from representations (Barad, 2003, 2011): representations of history not only describe or decode history but also constitute and create the reality of history. Representations are performative in their nature because the medium through which representations take shape acts as a form of social action (Miller, 1984). The way media represents certain groups or ideas can actively shape and construct the object of collective remembrance.
- On the other hand, performativity challenges the notion of fixed representations by emphasizing the fluidity and constructed nature of identities. In this sense, *performativity can be seen as a form of representation*. Performativity might give rise to further representations that play a performative role by giving rise to other representations since representations are not static but continually shaped and reshaped through performative acts (Butler, 2004, 2010). According to this line of inquiry, collective memory is constructed through repeated performative acts that align with societal representations. Here, performativity is much more than representation and performance, in the sense that technologically-mediated memorial acts and discourses are able to produce or reinforce social norms and power dynamics by bringing about changes in how social representations are produced, acted with, and acted upon.

Therefore, representations can inform and alter performative acts, while performative acts can influence and shape representations. This dynamic interplay makes it difficult to establish a solid boundary between performativity and representation in processes of shaping collective memory. Still, for analytical reasons, we might consider that representational memorial technologies are product-oriented by directing users towards an understanding of history as an expression that stands in for or symbolizes the past, while performative memorial technologies are action-oriented by directing users towards an understanding of history as something that occurs in the act of expression itself.

3.1 THE REPRESENTATIONAL NATURE OF SEARCH ENGINES: HERMENEUTIC RELATIONS

In current society, collective memory is taking shape through various search engines used to retrieve and extract information about past events. Search engines are usually based on algorithms that process search queries, analyse web pages, and determine the most relevant results to display to their users. Search engines are constructed to showcase historical accuracy and authenticity by considering both the way they display the output of a search query and the way they let users interact with the generated results. Therefore, their representational structure leaves room for the manifestation of accuracy and authenticity in disclosing the reality of the past. Search engines use web crawlers to systematically browse the web and collect information from millions of websites. The available data is vast and constantly updated,

covering nearly all publicly accessible web content that might possibly enter the field of perception and cognition.

Search engines perform a memory work by encapsulating a hermeneutic relation. According to Don Idhe, a hermeneutic relation is a form of technological mediation in which humans are made to interact with an artefact. However, the artefact is not transparent, but provides a representation of the world and requires an interpretative effort in order to communicate meaning or evoke an understanding of something (Ihde, 1975). The most common example is the thermometer through which we access temperature; even though the thermometer does not make us sense the temperature, it makes us interact with a representation of it (Verbeek, 2001). The same applies to search engines as memorial technologies: they make us experience the past by directing us to a representation of history dependent on the characteristics of the representational medium. When conducting a search query by using "World War First" as the main keyword, search engines direct users to a representation of history that shapes how they interpret the respective historical event and make sense of the world.

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Humans → (Search engines – History/World)
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Box 1. Search engines and hermeneutic relations

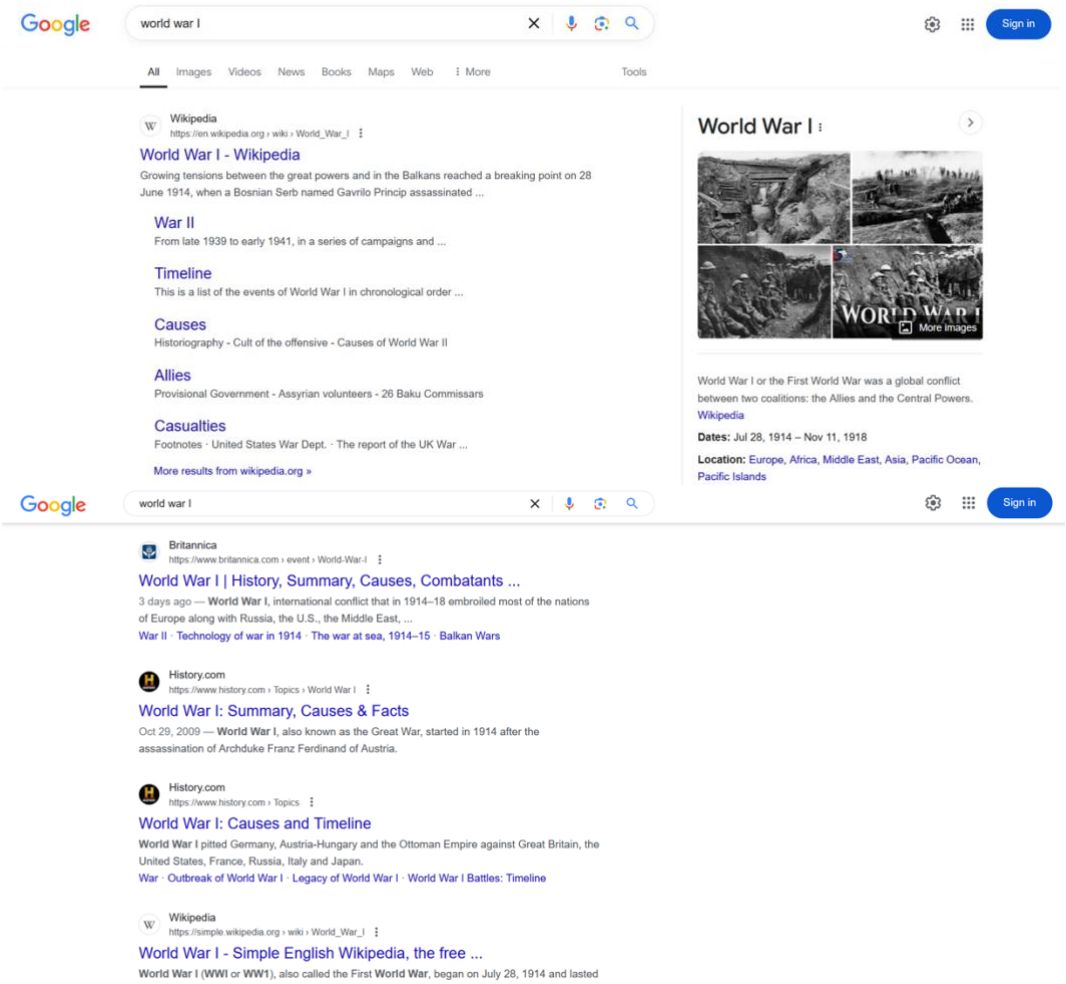

Image 1. Search results displayed on Google Search Engines – July 7th, 2024 (private mode)

When using search engines to find information about historical events, the experience of the past takes shape in the interaction between the past as the memorial object and the user as the memorial subject. The social phenomenon of history is produced through a *hermeneutic relation*, which involves a separation between the represented object (history-as-happened before) and the representation (history-as-remembered). The *distinction between history and memory* that has accompanied our lifeworld is not a necessary condition for the manifestation of the past in the present but a contingent mode of practicing collective remembering. Search engines are platforms in which the temporality of the past coexists with a temporality of the present, in such a way that the past and the present are settled as two distinctive timeframes. This ontological separation of the past and the present is part of a process of technological mediation, which is supported by structural affordances, design features, and modes of using memorial media according to representational rationales and choices. Specifically, search engines often contain timestamps, indicating the publication date of an article displayed on the search results page. This timestamp is often found near the article's title or summary in the search results. Displaying publication dates is a way of assisting users in making informed decisions about the reliability and relevance of the search results they choose to explore. Moreover, these timestamps effectively create a boundary between 'the past as happened before' and 'the available information about the past.' In this process, search engines decouple the temporal reality of the past from the temporal reality of the narrated past and from the temporal reality of remembering.

As such, search engines as memorial technologies usually function on a separation between history as a reality of the past and memory as a reality of the present. Therefore, *learning history is shaped as a process of reducing the gap between the represented and the representation, thus favouring the constitution of accuracy and authenticity as mnemotechnic values.* Authenticity and accuracy are constituted as axiological denominators able both to shape our historical awareness and to account for epistemic relevance; they enforce and are, at the same time, enforced by an attempt to make the representation as much as similar to the represented object. In the context of search engines, understanding history becomes a matter of inducing a sense of realism and believability in acquiring a mediated experience of the past. Also, accuracy is linked with the correctness and precision, which makes historical knowledge be assessed by considering the degree to which the representation aligns with the historical records, archives, documents, archaeological evidence, eyewitness accounts, and other reliable sources of information. For example, the output generated by search engines is designed to display not only a curated list of web pages or articles, but also authentic images (front right corner), videos, testimonials, frequently asked questions, and other content related to the keyword. Search algorithms pull data from reputable sources, including museums, educational institutions, and verified archives, providing a direct insight into the historical context. Specifically, *search engines encompass a representational nature* because they facilitate an understanding of history as a replication or facsimile of the past.

Accordingly, search engines shape the ontological status of history by turning the past into an object of preservation and archival. *The past is defined as a world to be searched for and seized in the name of truth*. With search engines as memorial media, the past becomes a universe that gradually reveals itself to humans in a recursive process through which groups, communities, and societies try to come to terms with their own collective identity and historical legacy. In this case, historical knowledge is fabricated as a quest for evidence, as a collective and perpetual pursuit to generate factual information, data, or proof to support genealogical claims or other sorts of identity politics. The information displayed by search engines to a historical query typically comes from identifiable sources such as encyclopedias, museums, news organizations, academic institutions, governmental or non-governmental websites, businesses, and individual content creators. The credibility and reliability of the information are often tied to the reputation of the authoring entity, so the information provided by search engines is

characterized by its *multivoiceness*. In this vast informational landscape, users are put in the situation of making their own decisions about the credibility and relevance of the historical information they consume.

The results displayed in a search query about historical events are interconnected through hyperlinks, which are clickable references to other pages. Users can start with a general search or a known source and follow links that pique their interest. As users click through links, they build a network of knowledge, seeing how different pieces of information are related and how various sources contribute to a broader understanding of the topic. Therefore, search engines as representational memorial technologies mediate an ontological status of the past, which might be understood through *the metaphor of a jigsaw puzzle*. The past is a universe formed from individual fragments that should be put together in order to create a coherent and unified picture. By analogy, as the universe is in a continuous state of becoming, the same happens with the past. The past is constantly evolving and transforming as the society in which it is incorporated and the algorithms that are used to display information are changing, too. The past is a dynamic and fluid reality, with new historical knowledge emerging, existing memorial structures evolving, and commemorative elements dissolving or transitioning into something else. The past is created as a puzzle image that could never be accessed in a complete and unified form because the component pieces are mutable and alterable, allowing for causal deductions and inferences to be made.

With search engines, the past is a constitutive part of the present, so that it is created and recreated as a source of inspiration for future generations. Historical knowledge is made meaningful since it integrates lessons from past experiences, successes, and failures, which might serve as a basis for promoting a shared identity. *Causality* is shaped as an underlying principle in understanding the past and provides a framework for understanding the temporal progression of events, developments, and changes in human societies and cultures. Subsequentially, *chronology* serves as the backbone of historical inquiry since it supports causal reasoning and enforces issues of authenticity and accuracy as pillars of collective remembering. In this sense, we might consider that search engines use freshness algorithms that prioritize recently published or updated content. Websites that frequently update their content are often favoured in search results, when it comes to assessing historically-related content. This means that regularly refreshed pages or recently added articles are more likely to appear at the top of search results. Moreover, the information displayed by search engines is significantly affected by seasonality. A temporal proximity with some public commemorative events influences what type of content is prioritized and shown to users based on related searches and trending topics.

By leveraging location, IP address, language settings, navigation history and other personal data, search engines are tailored to provide results that match users' interests and previous behaviours. A search query in the Romanian language will provide different results compared to the same query in English, and a search query conducted in private mode (or incognito mode) will often provide different results compared to the same query when connected to a personal account. Moreover, advanced algorithms consider the context of the search query to provide more relevant results. Even though search engines aim to provide personalized content, search engines are designed to be universally accessible, leading to standardized search interfaces that don't account for individual nuances beyond basic personalization (examples of fields: search terms fields, last update, safe search, file type, usage rights, etc). This uniformity can make the exploration of history feel generic and impersonal. The interaction with historical knowledge lacks the depth of personal connection and understanding that comes from an enquiring approach.

Based on this consideration, search engines support a temporal discontinuity between the past and the present. Commemorative media transmit recurrent signals that humans and history are separated by time, thus introducing a disconnection between various timeframes and favouring

an impersonal understanding of history. In the process, people perceive a distance between events and periods, which makes them *experience a lack of closeness and connection in relation to history*. Representational media draws a symbolic line between the commemorative object and subject. Therefore, people are more likely to feel detached and distant in their engagement with past worlds and appropriate history as a collection of facts or issues that surpass the concrete reality of the present. This symbolic distance is accomplished in human interaction with technologies because search engines as memorial environments are designed to perform the absence of the remembered object.

Search engines subject people to *positivist ethical codes* and assign them with *rationalist memorial subjectivities*. By involving people in the act of remembrance and by inviting them to play the role of commemorators, humans are morally obliged to remember the past as authentically and accurately as possible. Even though people come to gain knowledge about the past in more or less interactive or immersive ways, search engines as representational memorial technologies put people in the position of confronting historical truths. The 'remembering self' derives from the act of interacting with representations of history and is shaped as a battleground for avoiding distortion, manipulation, or fabrication of historical facts. In this case, the moral agent is someone who resists deliberate attempts to distort, manipulate, or deny facts for political, ideological, or other purposes, someone who defends the integrity of historiographic sources and is engaged in a committed effort of truth-seeking.

In the ontological and epistemological memorial regime mediated by search engines, *historians are presented as authoritative social actors* who contribute to the construction of memory and collective identity through their interpretations and narratives of the past. Historians are gatekeepers who filter the information and establish the degree of control over access to scientifically documented evidence. Therefore, they are entitled to make informed judgments about causality, significance, and meaning by having the epistemic authority to deal in a reliable and trustworthy manner with primary sources, archaeological findings, and other repositories of historical information. Collective memory is a socially validated way to discuss the past and interpret history, which takes shape through technological mediation: collective memory appears in a process in which the past manifests itself in the present through people's interaction with search queries, criteria, forms, and lists. The result is a world of lived experience in which people are entrusting themselves to the credibility and expertise of historiography and historians.

3.2 THE PERFORMATIVE NATURE OF GENERATIVE ARTIFICIAL INTELLIGENCE: COMPOSITE RELATIONS

Artificial intelligence works as a mathematical computational system that governs the storage, access, and transmission of data in many domains and on many levels. It is designed to automatically produce content based on a source input by leveraging large datasets to learn patterns, structures, and relationships across digital content. The system might be understood as a huge mnemotechnical apparatus that capitalizes on various records in order to respond, among many others, to prompts and questions related to historical events, epochs, figures, and facts. In comparison with search algorithms that are specialized in effectively locating information and solutions within a predefined space, artificial intelligence is able to learn from data and feedback, thus emulating various cognitive abilities such as reasoning, problem-solving, and decision-making. Therefore, *the generative artificial intelligence encompasses a performative nature* because it is able to produce coherent and contextually relevant content through natural language processing, machine learning, deep learning, and autoregressive models.

Generative artificial intelligence is able to shape a human-world relation that is more likely connected to *composite intentionality*. Composite intentionality assumes a type of memory

work in which humans are directed to the ways in which technologies are directed to the world (Verbeek, 2008a, p. 393). When used in the practice of collective remembering, generative artificial intelligence discloses a historical reality that can only be experienced by technologies in a process in which technological intentionalities are added to human intentionalities. Specifically, generative artificial intelligence creates a reality of the past that is only accessible to memorial technologies, but which enters the human realm through technological mediation. Composite intentionality is "an expanded form of intentionality that possesses both a representational and a constructive function" (Redaelli, 2023, p. 106). The use of generative artificial intelligence in the practice of collective remembering involves a technologically-mediated representation of the past. Still, this representation of the past would not be experienced by the human subject if the representation of the past were not supplemented by the intentionality of the remembering system. Generative artificial intelligence creates new regimes of historical knowledge by giving humans access to the ways in which memorial technologies experience and appropriate the reality of the past.

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Humans → (Generative artificial intelligence → History/World)
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Box 2. Generative artificial intelligence and composite relations

The output generated by artificial intelligence to a query is dependent on training models and predictive analysis. Generative artificial intelligence is inherently designed to obscure and undermine any assurance of accuracy and authenticity. The structure of the output is crafted in a manner that precludes transparency and verifiable truth. This deliberate structure is achieved through a series of techniques that include unreliable narration, ambiguous timelines, and a multiplicity of perspectives, all of which serve to cloud the users' ability to discern between historically accurate and inaccurate content. The factuality and accuracy are subsumed to an opaque and tacit curatorial process performed by algorithms, which meticulously shape the discourse in ways that obfuscate transparent verification and authenticity. In this situation, users have to rely on search engines to check for historical accuracy. Artificial intelligence is trained on a snapshot of the internet, so the dataset is static for each version of the model and is not continuously updated in real time. Artificial intelligence data is curated and filtered in advance to remove explicit content, bias, or misinformation. However, the result generated by a historical query is a text that, on the surface, may appear coherent and authoritative, yet upon closer examination, it appears that the presentation of facts is interwoven with speculative fabulation.

Generative artificial intelligence provides new ways of producing collective memories. Through search engines, people have access to a description of history when results are displayed as answers to dedicated search queries. However, with artificial intelligence, historical reality is produced when a prompt is displayed and brought to human attention. The past is continuously created and recreated through use, and the object of collective remembering emerges with each and every input. *Artificial intelligence intertwines history and memory, forming a seamless continuum between the temporality of the past and that of the present.* Memorial technologies are no longer functioning to provide representations of the past, but to spawn performative stances resulting from the instrumentation and capitalization of patterns observed in different sorts of data. Once a mnemonic prompt is generated, it leaves traces and is automatically infused into the historiographic reality with its own logic and data, which makes it capable of producing additional memory-related content. In general, artificial intelligence is designed to emulate the qualities of orality in discourse because it functions as a collective voice, integrating and reflecting the vast and varied contributions on the web. Artificial intelligence is assigned

with the ability to effectively assimilate the work of many authors, and this synthesis can be seen as a form of collective authorship. However, in this process, artificial intelligence leaves no room for the display of accuracy and authenticity (no timesteps are available, no evidence, no significant contextual information to judge the reliability of the historical information received). In general, artificial intelligence models (such as ChatGPT) don't have the ability to cross-reference any output and match relevant sources to any given topic. Moreover, it could also fabricate sources that don't exist, which makes the model depart itself from issues of accuracy and authenticity in relation to historical knowledge.

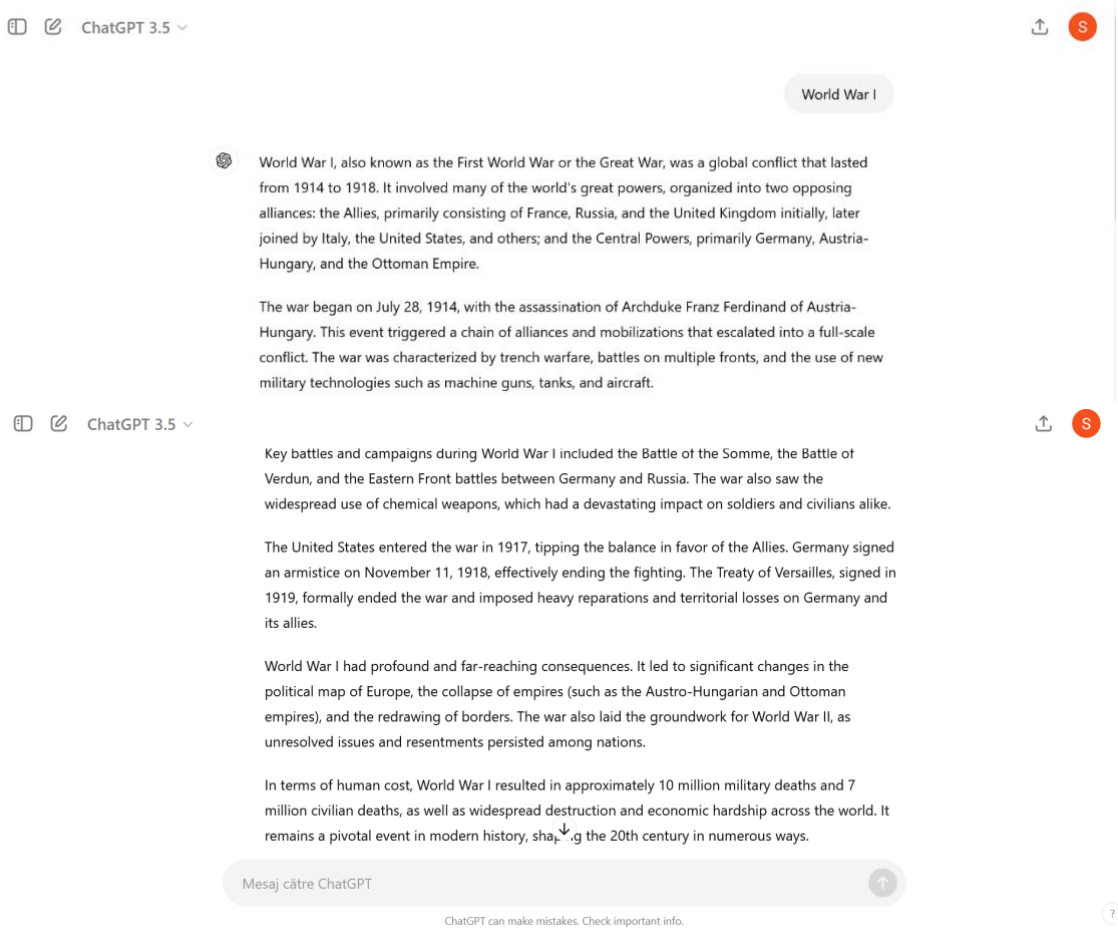

Image 2. Text generated with OpenAI's ChatGPT-3.5 – July 7th, 2024

Artificial intelligence shapes the ontological status of history by turning the past into an object of open dialogue and active interrogation. *The past is defined as a world to be generated, activated, and performed in the name of cultural styling*. In this case, artificial intelligence articulates the formation of new collective memories and identities by opening up autoregressive avenues for knowing the past. With generative artificial intelligence, the past becomes an energy that might be summoned and that could eventually reveal itself to humans in a process in which people are exposed to a result that mimics the patterns observed in the training data. In this case, historical knowledge is fabricated as an algorithmically-mediated artifact that reproduces the statistical and mathematical behavioural properties of various actors performing in the digital sphere. Artificial intelligence models generate responses based on the context of the conversation, so users have the freedom to pose diverse questions that stimulate their intellectual curiosity, creativity, and exploration. The model maintains context within a conversation to provide coherent and relevant answers; users could ask further

questions and request new information, and might come across unexpected information or viewpoints that may not have been considered initially.

In the artificial intelligence context, collective memory is a social phenomenon that might be understood through the metaphor of the *shikigami*. In Japanese folklore, *Shikigami* is a mystical entity that might be seen as a spirit, lower-ranking deity, or demon god (Pang, 2013, p. 112). *Shikigami* has an ambivalent nature, making it impossible for people to establish what it really and essentially is. Nevertheless, *Shikigami* is a cognitive power that acts as a utilizable and invisible form of energy that lies everywhere and in everything, including human and non-human agents. *Shikigami* is commonly identified as a spiritual entity that can be summoned by human *onmyōji* and controlled by the practitioners of the *onmyōdō* through the use of chants and other incantations. In this sense, *Shikigami* is considered a personification and embedment of the will and consciousness of the *onmyōji.* Still, there is a fluidity of control over *Shikigami*, as its power can extend beyond human influence and result in effects that might be perilous or intriguing. The analogy between the phenomenon of collective memory and *shikigami* goes further by considering that *shikigami* is a cultural creation associated with the power of calculation and prediction. *Shikigami* unveils a perceptive force used in the name of knowledge because it could observe happenings and provide reports of historical events based on huge amounts of information and through a cooperative participation.

By constructing the past as an object that might be summoned by humans interacting with the mnemonic systems, artificial intelligence is questioning authenticity and accuracy as the main values in historical knowledge production. Artificial intelligence is functioning on the premise of autonomously adapting to new information and changing circumstances through computational algorithms and data-driven decision-making processes. Therefore, *learning history is shaped as a process of performing an autopoietic version of the past, thus favouring the constitution of togetherness and boundlessness as main mnemotechnic values.* These two values are enforced because artificial intelligence requires new mnemonic skills consisting both in the capacity of formulating prompts that deliver meaningful views of the past, and in the ability to collect those prompts and combine them in order to provide elucidations for the present. On one hand, artificial intelligence mediates a sense of togetherness because it blurs the distinctions between the individual and collective in such a way that the perspective of other participants is inherently integrated into the practice of historical remembering. The users interact with an intersubjective and transindividual perspective of the past that is the outcome of processing other users' observations and prompts about the past. Moreover, boundlessness captures the idea of a vast, diverse, and rapidly evolving information that constitutes the basis of collective remembering. This sense of informational massiveness creates the impression that users could insatiately and easily delve into the complex phenomenon of history in order to gain a comprehensive understanding of what matters the most. While search engines show authenticity and accuracy as the main values against which historical knowledge might be judged, artificial intelligence stimulates us to consider that a good memory of the past is one that takes as a point of departure massive amounts of data obtained through the tacit participation of the collective and that, through algorithmic patterning, we might be able to bring to the fore a historical understanding that ultimately transcends individual possibilities. In this case, we might eventually consider that artificial intelligence brings people together for shared experiences and learning prospects in an autogenerative and autoregressive mnemonic community.

Collective remembering becomes a dialogic reconstructive process through the use of artificial intelligence in the production of shared memories. Far from getting lost into the webs of a continuous present, the past is becoming more and more relevant in the world of artificial intelligence. People's main knowledge aspirations or existential interrogations become memory-related phenomena as artificial intelligence is used to address everyday concerns and

preoccupations. That makes people assume the past as an integral and constitutive part of the present, and therefore makes people *experience a sense of closeness and nearness in relation to history*. Moreover, artificial intelligence adapts its mechanics to the conditions in which it operates, which makes collective memories tailored to the epistemic preferences and needs of each user. We can refer here to a sense of propinquity between people and the past because artificial intelligence is able to transform the past from an impersonal searching experience based on predefined criteria to a personal encounter in which any question might be asked and any matters acknowledged. All of these processes are leading to stronger bonds between people and the past, as well as to an increased affinity in the understanding of history.

Generative artificial intelligence subjects people to a completely new ethical code and assigns them with *agentic memorial subjectivities*. By inviting people to become authors of history, people are morally obliged to generate a version of the past that reflects intelligible and comprehensible assumptions about the present. Even though people come to gain knowledge about the past in dialogic and relative, autonomous ways, performative memorial technologies put people in the position of both producing and consuming history by acting on the vocabularies, repertoires, and imaginaries that are and might be made available in the interpretation of the present world. The 'remembering self' derives from the act of generating information about the past, while history becomes a performance that is elaborated in a collective mobilization effort for empowerment. In comparison with search engines, generative artificial intelligence builds people as moral agents who possess self-governance or self-determination in relation to the epistemic frames that constrain what information about history might infiltrate reality as a result of the functioning of memorial technologies.

Various innovations in data processing have turned artificial intelligence into a significant memory agent. *Artificial intelligence is more likely to substitute historians as the main authoritative figures who controlled, in one way or another, the access to historical knowledge and regulated the regime of navigation across historical records, documents, and archives*. We assist in a hybridization process in which collective remembering happens within an entangled process that deploys a huge mnemotechnic assemblage comprised of multiple agents who perform different memory interactions and exchange information with each other. Historical knowledge is an outcome of various interactions between persons, data, digital artefacts, algorithms, devices, and other procedures or environments. The reliance on generative algorithms affects the distribution of mnemonic agency and makes the differentiation between human and algorithmic memory content more difficult to make.

4 CONCLUSION: ETHICS OF ACCOMPANIMENT

In general, memorial technologies perform a memory work as a complex interplay between remembering and forgetting, where certain perceptions of the past are highlighted or obscured. Things that people collectively remember are embodied in design and architecture features, which is what equips people with the cognitive and emotional resources to make sense of the world. Still, collective memories are not simple perceptions of the past, but intricate forms of knowledge: collective memories are contingent encounters with events, characters, and situations from the past. Memorial technologies shape an intersubjective experience of history, so that the version of the past that is brought to human awareness is susceptible to an interpretation and reinterpretation over time, as collective memories are integrated into ongoing lived experiences. Collective memory involves a process of technological mediation, in which people are engaged with the past in light of their current situation and understanding. The knowledge people acquire about past worlds shapes the knowledge they acquire about the present worlds, at the same time informing future perspectives.

From a postphenomenological perspective technologies are moral agents because they are actively involved in defining moral actions and choices. Moral agency is distributed among people and technologies in a process that shapes the mutual constitution of humans and the world. Accordingly, memorial technologies might be considered the foundation of memorial decisions because they direct people towards specific repertoires through which they cultivate a sense of belonging to a particular mnemonic community. When it comes to memorial technologies, structural affordances and other elements of the users' interface and experience are constructing moral and ethical frameworks for evaluating behaviour and determining what is considered right or wrong in history and about history. Memorial technologies materialize and embody morality as many other technologies in the current world, so that it is reasonable to consider both the design and use of memorial technologies as moral agents.

Therefore, if we refer to an ethics of collective remembering, we should consider that ethics itself is a product of technology and that memorial technologies impart worth to some moral values that are detrimental to others. In other words, there are no pre-determined norms against which to assess the reality of the past. Authenticity and accuracy in historical knowledge production have emerged as values as long as memorial technologies took the form of representational media: the representational directness to the past is what shaped those values as relevant standards and criteria for validating historical knowledge. New memorial technologies could challenge dominant mnemotechnic values by enabling alternative meanings and practices used to judge the version of the past derived from the interaction of humans with the world by means of commemorative media. In this sense, both historical knowledge and the ethics of remembrance are functions of value embedment through design. Collective memory is not essentially a representation of history but it is constructed as a representation of history through memorial technologies.

Moreover, collective memories contribute to the constitution of a sense of the self because our awareness of history and interpretations of the past are closely connected with issues of identity by upholding and reinforcing various temporal structures of consciousness. By putting people in a particular relation to the object of remembrance, memorial technologies shape mnemonic subjectivity by envisioning a 'remembering self' that is a part of a synergy of technological, social, cultural, or institutional systems. To remember something collectively is to subject ourselves to specific codes of remembrance that derive from the use of memorial technologies. Collective memory made people subject themselves to a particular mnemonic regime and thereby constitute themselves as subjects of a moral code. People might cognitively, emotionally, and normatively appropriate the object of remembrance and engage with the present world based on a technologically-mediated understanding of history. Memorial technologies are able to impose their architecture and design repertoires on the interpretation of the past and, in turn, can distribute responsibility, entitlement, and ownership.

Generative artificial intelligence changes the practice of knowledge production, reshapes the object of collective memory, and works on the formation of mnemonic subjectivity. It changes the ontological status of the past and, contrary to the expectations, it makes people more connected to the past by bringing the past close to human perception and regular interaction. *Generative artificial intelligence equips people with a mediated agency towards the past by disclosing a version of the past that is responsive to human actions*. The past as an object of remembrance is no longer an inert and inanimate universe that might be preserved, but a hyperconnected space that is in a perpetual state of becoming and fashioning. Search engines construct the sense of history as something stable that exists beyond individual consciousness and actions, while generative artificial intelligence builds history as a fleeting and contiguous summoned reality. As the past is continuously unfolding through people's epistemic curiosities, history might be created and recreated with every prompt and command. Humans are defined as moral subjects in their capacity to establish a constructive dialogue about history and

transmit inputs and signals that might augment historical understanding and broaden the horizon of experiencing the past and experimenting with the past.

Generative artificial intelligence is more likely to have an impact on how we assume a 'responsibility towards history'. Through its performative nature, generative artificial intelligence redefines what it means to remember and forget and what are the values that shape the phenomenon of collective memory. By subverting issues of authenticity and accuracy in the understanding of history, it does not necessarily mean that generative artificial intelligence would make people less responsible towards the past, but it would change the meaning of responsibility and what it denotes to adopt a responsible behaviour in recalling the past. Generative artificial intelligence favours the distribution of mnemonic agency between humans and algorithms, and promotes an ethics of memorial involvement evolved around responsivity and affinity in relation to the object of remembrance. Therefore, with artificial intelligence, the ethics of collective remembering is ultimately an 'ethics of accompaniment' (Verbeek, 2010) that actively engages us with what we want to make of ourselves as remembering subjects by fashioning the interrelatedness between humans and technologies of collective memory. In such a case, ethics is about inscribing desirable mediating effects in practices of producing historical knowledge by actively shaping the mnemonic subjectivity involved in the process of producing epistemic prompts and dialogues.

Data Access Statement

The author confirms that all data generated or analysed during this study are included in this published article. No other datasets were generated, as the research focuses primarily on theoretical contributions. All relevant details and discussions are presented within the article.

Contributor Statement

Ștefania Matei is responsible for the conceptualization, writing, and editing of this article.

Use of AI

The author did not use any AI language models for generating text and ideas. During the preparation of this paper, the author used QuillBot in order to streamline the writing process by working on sentence structure refinement and formulation. After using this tool, the author reviewed and edited the content as needed and takes full responsibility for the content of the publication.

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