Preserving American Cultural Memory through Web Archives:

The Case of the *Internet Archive*

Paschalia Mitskidou and Vasileios N. Delioglanis
Aristotle University of Thessaloniki

Abstract

This article explores the challenges posed by digitalization as a process of culture-making by examining the *Internet Archive* digital library and more specifically its components, the *Wayback Machine* and *Archive-It*. These are digital tools that enable the discovery and archiving of obsolete webpages as well as the restoration, preservation, management, and classification of these "electronic wastelands," while also adding to their historicity. The article emphasizes the ways in which the *Wayback Machine* and *Archive-It* contribute to the preservation of cultural memory of the United States, looking at specific examples drawn from the diverse material to which the archives offer access. Using the *Internet Archive* and, more specifically, its components as case studies, the article investigates the value of web archives as cultural repositories, where cultural memory is not only preserved but also created and expanded through their participatory aspects and the engagement of the general public with the continuously proliferating born-digital content.

Keywords

American Culture; Cultural Memory; *Internet Archive*; Partcipatory Culture; Web Archiving.

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> [T]he idea of accumulating everything, of establishing a sort of general archive, the will to enclose in one place all times, all epochs, all forms, all tastes, the idea of constituting a place of all times that is itself outside of time and inaccessible to its ravages, the project of organizing in this way a sort of perpetual and indefinite accumulation of time in an immobile place, this whole idea belongs to our modernity.
>
> Foucault and Miskowiec, "Of Other Spaces"

The Digital Era has delivered new tools and platforms to manage, analyze, and share information and knowledge; however, constant technological upgrades and developments often render digital media essentially vulnerable. Websites, blogs, videos, images, and software run the risk of becoming ephemeral and obsolete, as they are often discontinued and thus no longer available to the public. This article explores the challenges posed by digitalization as a process of culture-making by examining the *Internet Archive* digital library and more specifically its components, the *Wayback Machine* and *Archive-It*, which are digital tools that enable the discovery and archiving of obsolete webpages as well as the restoration, preservation, management, and classification of these "electronic wastelands," while also adding to their historicity. In fact, the article places emphasis on the ways in which the *Wayback Machine* and *Archive-It* contribute to the preservation of cultural memory of the United States, looking at specific examples drawn from the diverse material to which the archives offer access, such as the 9/11 attacks, the Black Lives Matter Movement, the impact of Route 66 on American culture, recent grass roots political resistance activities in the United States, as well as American locative gaming practices. In this regard, it is argued that the *Wayback Machine* and *Archive-It* constitute a valuable contribution to the field of American Studies by opening up opportunities for an enhanced understanding of American history and culture. Using the *Internet Archive* and its components as case studies, the article investigates the value of web archives as cultural repositories, where cultural memory is not only preserved but also created and expanded at the same time, through their participatory aspects and the engagement of the general public with the continuously proliferating born-digital content.

Digital technologies and media have a significant impact on archives and archival practices, particularly in relation to issues associated with access, preservation, and reproducibility of digital content. The constantly shifting nature of the digital landscape, as well as the new digital tools, formats and technical (software and hardware) dependencies, shape the collection and preservation policies of institutions and organizations. Digitalization has

transformed our understanding of what the archive is, enabling new archival forms to emerge. In addition, digital technologies determine the way the archived material is presented as well as how this material may be relevant in the future, which complicates the issue of preserving electronic materials in web archives. These vast data repositories have unprecedented influence on the cultural practices of memory, and the humanities can play a significant role in reflecting, theorizing, and criticizing the digital transformation that is underway and is rife with challenges and ambiguities. In light of this transformation, the way cultural memory is formed is reconceptualized.

Web archiving, namely the process of collecting websites and the information that they contain from the World Wide Web typically through the use of automated processes, and preserving these in an archive, is a practice that started around the mid-1990s. Since then, the Web's cultural significance and its value as a hub of information have increased, making web archiving a valuable process that can ensure the retrieval of and long-term access to this information.

Conventional memory institutions such as national libraries/archives and university environments, cultural organizations, and community-centered archiving initiatives are all involved in archiving culturally important web content. Web content can be archived for various purposes—business, heritage, legal, historical and cultural—and web archives have been regarded as valuable resources for digital humanities, social sciences, and web history/Internet studies research. There has been considerable scholarly interrogation of the changes in the nature and function of archiving practices in the context of the transformation from analogue to digital and the related implications for scholars using web archives both as sources and as objects of study in their own right (Brügger; Milligan; Weber).

Upon its inception back in 1996, the *Internet Archive* aimed at "archiving the Internet itself, a medium that was just beginning to grow in use" ("About the Internet Archive"), and the nature of its content was ephemeral. Its founder, Brewster Kahle, envisioned a digital "Library of Everything," "containing all the published works of humankind, free to the public, built to last the ages" ("Celebrate the Internet Archive's 25th Anniversary!"). In its early days, the *Internet Archive* was able to capture the entire Web, yet the constant growth of the Internet has since made this impossible. In addition, websites are often regularly updated and constantly evolving, and although this is definitely an advantage, it also means that the information they contain can be lost forever before being captured as evidence. However, as Surya Bowyer notes, "even if the reality of absolute accumulation remains untenable, the idea appears to be the Machine's guiding principle … It is a 'general archive' in the sense that there appears no overriding theme guiding its acquisitions, and indeed any

user can choose to add a webpage, at a particular time, to its holdings" (44). As per the *Internet Archive*'s website, by now they have made more than twenty-five years of web history accessible, and in collaboration with various partners they continue to do so through *Archive-It*, their web archiving subscription service for collecting and accessing records of born-digital cultural material in different formats ("About the Internet Archive").

There are different methods of collecting online material from the Web, each one with its own strengths and limitations (Brown 46–68). Remote harvesting is the most widely employed method and the one used by the *Internet Archive*. The *Internet Archive* collects web content that is publicly available through the use of specially designed software, an automated program known as "crawler," which surfs the Internet harvesting websites from their locations on the live Web and allows for the browsing of webpages over multiple time periods. The hundreds of web crawls performed daily provide the snapshots or copies of websites (as they looked at the time of capture) that can be accessed via the *Wayback Machine*. The archived websites are made available online, providing a record of web content as it was available at particular points in time. The *Internet Archive*'s *Wayback Machine* allows users to visit archived versions of websites by typing a URL and selecting a date range. With over 778 billion stored webpages, the *Wayback Machine* is now the world's most extensive web archive. It is a useful tool to track how a website evolved over time and find pages that are no longer live on the Web; therefore it essentially enables a look at the World Wide Web's past. Still, certain problems remain, as, for example, the fact that the platform offers a limited range of search possibilities; the URL of the site in question must be known, as there is no way of searching by title, which prevents a more targeted navigation. Taking a computational approach, some researchers have focused on the opportunities and technical challenges the database presents (Sampath Kumar and Prithviraj; AlNoamany et al.), while others have emphasized the impact of the *Wayback Machine* on historical research methodologies and the use and value of the *Machine*'s diverse materials as historical resources (Rogers; Belovari; Milligan; Kaur).

The *Internet Archive*'s mission is to provide "Universal Access to All Knowledge" by preserving cultural artifacts in digital form that would be valuable to journalists, researchers, historians, and scholars, but also to the general public. As stated on their website, "[w]ithout such artifacts, civilization has no memory and no mechanism to learn from its successes and failures" ("Wayback Machine General Information"). Thus, both the *Wayback Machine* and *Archive-It* are directly linked to cultural memory, which, according to the *Internet Archive*'s founder and archivists, is the driving force behind their archiving efforts. The importance of the medium through which cultural

memory is communicated cannot be overlooked. Astrid Erll emphasizes that each medium "has its specific way of remembering and will leave its trace on the memory it creates" (389). This applies to the *Internet Archive*'s *Wayback Machine* and *Archive-It*, as well as to their archival practices and the interfaces that allow access to the archived content, which can have a profound impact on our understanding of the material that has been preserved. Today, cultural memory seems to be dependent primarily on digital media, and specifically American history and culture are increasingly mediated, therefore it is worth examining the current "memory boom" that is evident, in conjunction with the technologies and media that facilitate it. As Andreas Huyssen asserts in his work *Present Pasts: Urban Palimpsests and the Politics of Memory*, "we cannot discuss personal, generational, or public memory separately from the enormous influence of the new media as carrier of all forms of memory" (18). Digital materials are mutable digital entities, prone to revision much like memory itself, as people use and reuse them, alter them, manipulate them and reassign meaning to them, in an ongoing process of memory renegotiation, revision, and reconstruction. This process is intertwined with the devices, tools, and practices that enable it; media and technology inform memory and shape the way we remember things past. The transition from analogue to digital comes along with a redefinition of the notion of memory itself and one question that arises is: what are the implications of this transition for the ways in which memory is inscribed, stored, and recalled? In this media-saturated environment, where the pace of change—be it technological, social, or otherwise—is hard to keep up with, there is a sense that various aspects of cultural heritage are at risk. The proliferation of information in the digital domain results in the accumulation of "heterogeneous and conflicting pasts in the present" (583), to use Rodney Harrison's expression. Harrison notes that "in the contemporary world, we risk being overwhelmed by memory" (580). He refers to this process as "a 'crisis' of accumulation of the past" (580), foregrounding the importance of collective forgetting, which involves an active revaluation of the past and, in his view, constitutes an indispensable part of collective memory (588). Such reflections are especially relevant to the archiving and preservation of digital content. The limits of what can be archived today are being significantly extended, as we are witnessing an explosion of born-digital material, and yet it seems that the volume of all that is being created and recorded is beyond human capacity to manage, process, and review. Ina Blom posits the question: "[H]ow can a world of networked mobilities,—relays, updates, negotiations, associations, and speculations—even be archived? How to decide where connectivity starts and where it ends?" (13). Any attempt to archive the Internet is a highly challenging (if not unattainable) task, due to the overwhelming and practically impossible-to-

handle bulk of material but also due to the often ephemeral nature of web content. In order to effectively deal with this "'crisis' of accumulation of the past," deciding what to keep and what to discard becomes critical.

In addition, it is worth noting that in our digital age a tension can be detected between computation and memory. The digital is often regarded as a threat to the archive, which can potentially lead to a loss of cultural memory, as Wendy Chun aptly puts it in her study *Programmed Visions: Software and Memory*. Software, in her view, "enables a logic of 'permanence' that conflates memory with storage, the ephemeral with the enduring. Through a process of constant regeneration, of constant 'reading', it creates an enduring ephemeral that promises to last forever, even as it marches toward obsolescence or stasis" (137). This applies to the *Wayback Machine*, with regard to the way information is compiled and stored and to the selection criteria of what is preserved. Wendy Chun observes that "the IWM has solved the extremely time-consuming task of selecting the enduring from the ephemeral by saving everything" (138). The archive's aim is to create a "library of the Internet" (170). The result, in her view, is an odd library and "[t]he IWM's greatest oddity … stems from its recursive nature: the IWM diligently archives itself, including its archives, within its archive" (170).[1] She concludes, therefore, that despite its creators' original intentions to collect and preserve material that was deemed valuable to the public, the *Wayback Machine* eventually became "an automatic archive of everything" (138). In this regard, the *Internet Archive* only *superficially* appears to be offering a solution to the problem of disinformation by turning "electronic wastelands" of information into a repository of cultural knowledge that handles and organizes the various online materials, thereby contributing to the formation of a "healthier" information ecosystem, given that information is stored only on the basis of the algorithm, which can result in an accumulation of heterogeneous material. The *Wayback Machine*'s archiving practices are not uncontroversial or unambiguous, and various scholars have expressed their concerns. Kalev Leetaru, for instance, notes that the archival landscape the *Wayback Machine* offers is "incredibly uneven," highlighting that "far greater understanding of the … *Wayback Machine* is required before it can be used for robust reliable scholarly research on the evolution of the web" ("How Much of the Internet"). This would involve documentation on its algorithms and crawlers, and the decisions informed by them, as well as more detailed logging data and statistics about the digital artifacts in storage. Given that archives are not neutral or impartial repositories of records, such a documentation could increase the visibility of the archival system and shed light on the collections' possible inner biases and the system's embedded logics. According to Leetaru, these logics could be, for instance, the selection criteria and whether these are inclusive and open to debate and discussion,

or the prioritization of the webpages' archiving and the factors by which it is determined ("How Much of the Internet"). An important consideration pertaining to issues of social and cultural significance of the archived material is which dominant groups influence the decisions as to what should be preserved and the sites of control the archive may be subject to. The power dynamics associated with processes of remembering and forgetting as well as the cultural, political, and economic contexts within which the archive functions, have an impact on its construction and the material that may or may not be included and subsequently on how the past is recorded, archived, and accessed.

The above remarks bring to the fore the *imperfect* nature of the *Wayback Machine* and help us to further illuminate the relationship between the formation of memory and web archiving practices. At the same time, what is also highlighted is the intermediary state of the archived materials that are waiting to be "regenerated" (Chun 172), that is to be framed within a new context, interpreted, and inevitably changed in the process. By examining the creation and construction of digital archives, we gain insight into the ways in which archiving practices shape access to the past and can even transform the historical events themselves and how these are remembered by the public. In David M. Berry's words, "The archivization produces as much as it records the event" (103). Thus, the archive emerges as a fluid and constantly evolving entity, and in this sense it has affinities with memory itself, which is dynamic and under constant negotiation. Against this backdrop, the notion of web archives as neutral, static repositories of cultural memory is contested, giving way to their understanding as dynamic digital spaces of cultural production and exchange that are constantly updated and transformed. Hence, the nature of cultural memory itself is also transformed, which certainly affects the ways in which scholars study and utilize online resources.

Although there is a variety of other organizations offering similar services and tools, such as *archive.today* (https://archive.ph/), *UK Web Archive* (https://www.webarchive.org.uk/ukwa/), and *Archive Team* (https://wiki.archiveteam.org/),[2] the *Internet Archive*'s *Wayback Machine*, despite its flaws, is considered one of the most consistent and reliable sources in the industry. The users are given free access (without paywalls, password protection or other mechanisms of restriction) to a variety of content. Brewster Kahle, the *Archive*'s founder, has emphasized the importance of free access to knowledge and the role of the *Wayback Machine* as "a crucial resource in the fight against disinformation," stating that they are "preserving history as it unfolds, keeping track of who's saying what and when—all without charging for access, selling user data, or running ads" ("Internet Archive"). At this point,

it is worth considering the role of human input in the archival practices as this is demonstrated in the *Internet Archive*'s *Archive-It* service.

Archive-It is a paid service that allows institutions to create and share their own collections, while also providing tools, training, and technical support. According to the *Internet Archive*'s website, since 2006 "over 800 organizations … including libraries, cultural memory and research institutions, social impact and community groups, and educational and open knowledge initiatives" have used their web archiving services and "40 billion born-digital, web-published records" have been preserved ("About Archive-It"). The collections include different types of material and are searchable and publicly accessible; users can download the archived material "for additional preservation and sharing" ("About Archive-It"). The fact that the archived material is freely accessible to the public is particularly important, especially given that we are witnessing, as Kalev Leetaru notes, "the rise of the parallel web" ("A Vision of the Role and Future of Web Archives"), namely the creation of multiple versions of the web that exist in parallel with the rest of the web's content, primarily due to the proliferation of social media. Corporations such as Metaplatforms, Inc. (formerly known as Facebook), for example, store and control the users' material, thus creating commercially-owned digital archives that are not publicly available and preventing their users or the web archiving community from accessing the content and archiving parts of it that may be valuable for future generations. The *Internet Archive* collaborates with the *Archive-It* users to further "the shared ethos of ensuring perpetual access to diverse, cultural, and historically-relevant digital collections from around the world" ("About Archive-It"). Meanwhile, web archiving is considered a collective effort, which involves a broader community of scholars, researchers from a variety of fields as well as other interested parties and stakeholder groups, and promotes the values of diversity, inclusivity, and free access to information.

Through the *Wayback Machine* and the *Archive-It* services, the *Internet Archive* allows a look back to the Web's past and through this to the American past, as many of the archived materials relate to American politics, history, and culture. Below we take a closer look at two thematic collections from *Archive-It* entitled "Black Lives Matter Movement" and "Resistance." We then continue with two additional examples from the *Wayback Machine* that concern Route 66 and American locative gaming practices. These specific topics highlight the *Wayback Machine* and *Archive-It* as valuable tools that enable one to explore and analyze historic moments in American history. Race, politics, and media constitute important factors which when talking about the United States, and when discussed in conjunction with American Studies, demonstrate its interdisciplinarity due to the combination and synthesis of many disciplines—history, literature, games, art, popular culture—that capture the complexity

and diversity of American culture. This wealth of materials could serve as a valuable resource for American Studies scholars, historians, and other researchers in the future and possibly provoke inquiry, trigger discussions and bring forth new perspectives and interpretations.

By juxtaposing *Archive-It*'s collections and the ones provided by the *Wayback Machine*, we call attention to the differences between these two components of the *Internet Archive*, although both are intended for the archiving of webpages. While the *Wayback Machine* allows the general public to easily add web content to its collection, *Archive-It* is "a full-featured end-to-end suite of services for institutions collecting, managing, preserving, downloading, and providing public access to web and born-digital archival collections" ("About Archive-It: FAQs"). *Archive-It* also offers a variety of tools for managing the stored collections, as well as a series of other services, such as "integrations, APIs, and connections with cataloging, preservation, and access services used by libraries, archives, and others" ("About Archive-It: FAQs"), essentially enhancing the collection's visibility and enabling its connectedness with various archiving institutions. Therefore, we could argue that the *Archive-It* service, with its customizable features, allows the creation of "curated" collections that can be systematically and effectively handled by the *Archive-It* partners, and more importantly, these partners remain in control of their archives, being able to access them even when their use of the service ceases. Yet, as mentioned above, the common denominator in both the *Wayback Machine* and *Archive-It* is that the preserved material can be freely and publicly accessed.

"BLACK LIVES MATTER MOVEMENT" (ARCHIVE-IT)

The "Black Lives Matter Movement" is a small collection, which includes only seven listed items, mainly online newspaper articles and a YouTube video. It was created by the New Brunswick Free Public Library and concerns activities related to the Black Lives Matter Movement in New Brunswick, NJ, covering events that took place in the area. Archiving started in June 2020 and covers a short period of time, as is evident by the items' dates. For example, one of the stored webpages links to an article by Molly O'Brien entitled "Peaceful Protests Take Shape in Streets of New Brunswick." The article was featured on the *New Brunswick Today* website on 20 June 2020 and reports the peaceful protests that took place in the city, in memory of George Floyd, a black man from Minnesota who was a victim of police violence. Although this collection only covers events on a local scale and in a specific timeframe, it sheds light on certain aspects of the Movement that may prove valuable for historians researching this topic in the future.

"RESISTANCE" (ARCHIVE-IT)

The thematic collection titled "Resistance" is a collection of websites dedicated to "documenting and embodying grass roots political resistance activities in the United States in the wake of the election and inauguration of Donald Trump" ("Resistance"). It was created by the Columbia University Libraries and there are 197 items listed. Archiving began in April 2017 and, as per the collection's description, there were "periodic re-crawls of those websites that continued to be updated, and new websites were added to the collection as they were identified" ("Resistance"). The updating of the collection ceased in February 2021, shortly after the conclusion of Donald Trump's administration. The collection includes websites that focus on:

> protest/demonstration planning; calls to action and guidelines for political participation by citizens; official statements in response to controversial executive orders; campaigns to contain and mitigate the effects of specific dramatic policy shifts; published whistleblower or other reports of dissent by government officials; official congressional investigation reports; and newspaper board editorials addressing impeachment. ("Resistance")

One characteristic example is the website entitled "La Resistencia." According to *Archive-It*'s description, "La Resistencia is a grassroots organization based in Washington State working to end the detention of immigrants and stop deportations" ("Resistance"). The organization was founded in 2014 and today its mission is to "support and engage with people detained at the Northwest Detention Center in Tacoma, Washington" ("La Resistencia"). Its members protest against the detention and deportation system and take action, with the aim that the Northwest Detention Center (NWDC), where asylum-seekers crossing the US-Mexico border often end up, is shut down. Self-defined as a "volunteer community group" ("La Resistencia"), this is one of the grass roots political resistance groups whose activities were intensified during Trump's administration as a response to policies that targeted and marginalized immigrants and refugees.

The archived content in both collections is searchable and offers multiple search and discovery capabilities; for instance, users can narrow down their results by choosing the creator, publisher, date or type of entry. One can also enter a search query to find a specific site or search the text of the archived webpages. In recent years American society has been grappling with issues of systemic racism and inequality. Given the current social and political climate in the United States, with issues of police violence, racial discrimination, and suppression of ethnic minorities, and the US refugee/immigration crisis occupying center stage, it is understandable why collections such as the ones briefly presented above are of utmost importance. The diverse sources to which the *Wayback Machine* and *Archive-It* offer access

illuminate how American society has been—and is to this day—forged through conflicts and negotiations within its multiethnic societies and how different versions of history may have been constructed, contested, and revised over the years.

ROUTE 66 (WAYBACK MACHINE)

Upon typing "Route 66" as keyword, the *Wayback Machine* returns results about fifty websites that link to various web objects. Each one of the results provides information about the number of distinct webpages copied from a specific host-website and of the images, audio files, and moving image files that have been archived (which can also be accessed through separate webpages, depending on the type of file one may be searching for). The results also contain the number of captures per website, the date range within which these captures were made, as well as statistics and data visualization about each website.

Route 66 holds a special place in American history and culture. Many of the websites relating to this iconic US highway, otherwise known as the Will Rogers Highway, the Main Street of America or the Mother Road, focus on its impact on American culture. The "Historic 66" website (www.historic66.com), for instance, offers a "turn-by-turn road description" that takes the visitors on a journey through the eight US states that Route 66 traversed (as it officially no longer exists), highlighting roadside attractions and providing information and pictures of landmarks along Route 66, some of which have disappeared by now. Thus, users become acquainted with important—albeit forgotten—aspects of American history, and this contributes to the preservation of cultural memory as regards the highway's significance ("Historic 66"). The website is still live on the Web, although via the *Wayback Machine* one can access snapshots of the website that date back to 2001, when the website's layout and content were considerably different. In this sense, the *Wayback Machine* allows users to take a trip to the World Wide Web's past and revisit older versions of websites, a trip which also involves their exposure to historical knowledge.

LOCATIVE GAMES (WAYBACK MACHINE)

Another example of revisiting older versions of websites is American locative gaming practices. Preserving digital games has been problematic, with Megan A. Winget also arguing that "it will be impossible to preserve videogames without the existence of structured documentation that describes the game's technical components as well as the context in which it was played" (1876). The *Wayback Machine* could be viewed as such an attempt to document and organize digital game elements, thus preventing them from becoming "electronic wastelands." Locative games are mobile apps that involve the

virtual augmentation of real-world locations, with which mobile phone users are required to interact in order to play the game. *Ingress* (2012-) and *Harry Potter: Wizards Unite* (2019-2022) are two of the most popular American locative games both produced by Niantic, Inc. The games feature a transmedia narrative that can be experienced through various platforms. Some of the elements of *Ingress* are now accessible only through the *Wayback Machine*, as is the case with the *Ingress Investigate* website. In a similar manner, although *Harry Potter: Wizards Unite* was shut down in January 2022, *The Taskforce Times* is one of the websites where the game's narrative was featured and can now be found only in the databases of the *Wayback Machine*. The web archive then contributes to the historicization of the evolution of *Ingress*, but also to the archival preservation of *Harry Potter: Wizards Unite*.

Through an exploration of the *Archive*'s materials, one can gain access to personal narratives of diverse social groups, examine the role of certain political figures, and better understand the impact of important historical events, phenomena or institutions. However, in order for the interested individual or researcher to engage with the collections more effectively and productively, organizing diverse materials around specific topics and themes, as well as supporting collections with contextual information and descriptive material would be necessary. This would provide context to the collected items and subsequently result in a more meaningful user experience. This way, the materials could serve as valuable resources for historical research, being gradually integrated into the procedures and methods of American Studies, but also this large data repository could serve as research object itself for the study of American culture. According to Johanna Hartelius, the *Wayback Machine*'s combination of "a weak structure and a massive archival scope" (383) results in an experience of displacement for the user, "an anxious placelessness" (385), where one is "lost among an abundance of items without a way to engage with them meaningfully" (385). The solution she proposes is building "meaning through structure," "an ordering of stored artifacts" through which "access becomes more than copious delivery" (389). Returning to the "electronic wastelands" evocation, this way the user experience would not be one of wandering in a wilderness of information but rather one that is framed as targeted and meaningful. Besides the sheer amount of data, which is impressive, there is also the issue of making the digital content truly accessible, in the sense of facilitating a better understanding of the materials preserved. To this end, purely computational approaches might be problematic. Instead, a humanities-oriented approach could enable one to deal more effectively with the technologies and tools at one's disposal.

Digital media offer new means to preserve, retrieve, and represent the past and hence influence the shaping of social memory, by allowing

historical material to be easily accessed and widely distributed. Andrew Hoskins argues that "[t]he new media of memory render a past that is not only potentially more visible, accessible and fluid than that which preceded it, but that also seems at one level more easily revocable and subject to a different kind of 'collective' influence and shaping" (29). The Internet and the extensive connectivity it affords has transformed the ways in which history is perceived and engaged with; a significant shift is that users are no longer mere consumers but also creators and contributors of content. Thus, archiving and preservation practices have been popularized and this, in turn, seemingly promotes, "at least in theory," as Ina Blom remarks, "a radical democratization of memory" (13), although, as she notes, the reality is very different and consists of "[a] proliferation of digital paywalls and passwords" (13) that threaten information equality and free access to knowledge. At the same time, it is becoming increasingly difficult for users to navigate this landscape where a plethora of information is readily accessible but what originates from a reliable source is compromised and misinformation is widespread. Discussing the "mediatization" of memory, Andrew Hoskins again highlights an important consequence concerning the historicity of digital materials and the preservation of cultural memory; he states that "the digital era opens up conflicting and simultaneous horizons (or even 'fronts' on the past) that are rapidly being assembled, torn up and reassembled … by all those who have ready access to the increasingly affordable tools of digital recording and production, editing and dissemination" (28). Therefore, in this newly emergent, complex landscape characterized by the fluidity and accessibility of the past due to its interplay with the media and technologies available today, the shaping of cultural memory acquires a more public and participatory dimension, as we explain below.

In line with these observations, it could be argued that the *Wayback Machine* not only preserves cultural memory, but also expands it through its participatory aspects. Jussi Parikka observes that "[t]raditionally, the archive was a place for storage, preservation, classification and access" (113). Parikka considers digital archives like the *Wayback Machine* subject to ephemerality, vulnerable to limited duration and decay, and in need of constant maintenance. Although the *Wayback Machine*, in being a digital archive, runs the risk of becoming obsolete, it could be argued that it does not merely preserve cultural memory, but it potentially expands this memory. This is achieved through its participatory aspect, as it allows users to actively engage in the process of culture making by themselves adding material to it. Moreover, the *Wayback Machine* does not only remediate events that are part of our cultural memory, but it also modifies them. Gabriella Giannachi points to the shifted role and status of the digital archive, which "[n]o longer purely centers for

storage and preservation," but has "become [one of] the main repositories for the capture, preservation, reinterpretation, [and] sharing … of the act of remembering" (76). We argue then that the *Wayback Machine* exemplifies this observation, since it is not only that "[a]nyone with a free account can upload media to the Internet Archive" ("About the Internet Archive"), but the users may also continue commenting on specific documents and texts even after their obsolescence, as is revealed in the website itself. This is because users are granted the opportunity "to inform the understanding of an event not only at the time when an event may have originally occurred, but also in the aftermath of it" (75), as Giannachi would argue. In fact, archival practices of researching, collecting, and exhibiting information have been appropriated by amateurs/non-specialists who may use the *Wayback Machine* to publish obsolete webpages to their social media profiles in order to start a conversation about these pages. If this is the case, to use Giannachi's words, "The document must therefore be read as an inter-document, not so much a proof of a past event, but … [it] may lead to the generation of new types of interpretation and so produce further documents" (75) that could also be added to the archive.

In a similar manner, in 2021, the *Internet Archive* hosted an online webinar, entitled "Reflecting on 9/11: Twenty Years of Archived TV News" where "[s]cholars, journalists, archivists, and data scientists [would] discuss the importance of archived television to understand unfolding history" ("Understanding 9/11"). Thus, the information about 9/11 was not only archived but also expanded by the creators of the *Internet Archive* and the participants themselves. The recall of a memory does not only regenerate an event but in the course of doing so, it modifies it. What all this calls attention to is "the general trend toward participatory and interactive forms of user engagement," as well as a "growing interest in repeating, replaying, and re-performing documents as part of our everyday lives" (Giannachi 76). Through the act of distributing, re-distributing, and sharing, we "may produce further documents for others to replay within the archive" (76), which again demonstrates that the archive is a dynamic rather than a static digital entity. In this respect, the *Wayback Machine* could be said to exemplify Henry Jenkins's definition of participatory culture as "one which embraces the values of diversity and democracy through every aspect of our interactions with each other," rendering us "capable of making decisions, collectively and individually," as well as "express[ing] ourselves through a broad range of different forms and practices" (2). Indeed, the *Wayback Machine* is an open-bordered, democratic, and participatory archival system that permits the inclusion of documents by users themselves.

The exploration of the *Internet Archive* and its components, the *Wayback Machine* and *Archive-It*, reinforces the value of web archives to new audiences and disciplines. Archives become a growing source for scholarly

research, while at the same time, researching, collecting, and exhibiting information is no longer the task of the professional archivist. This being the case, web archiving emerges as a collective effort that takes place on a global scale and is further enhanced by participatory structures, instant connectivity, and virtual interactivity. How the websites and digital collections made available via the *Internet Archive* will be used in the future and in precisely what ways they will preserve and shape American cultural memory remains an open question. However, the examination of the intersection between memory and digital media shows us that in the Digital Era cultural memory is constantly re-constructed, revised, and updated. Naturally, the possibilities that digitalization affords in the process of culture-making come with a set of challenges, among other things regarding our perception and understanding of history. Ultimately, the users' active engagement with the *Wayback Machine*'s and *Archive-It*'s archived material can possibly enable them to make sense of the American past and how they relate to it, but also help them realize and appreciate the meaning that the past assumes in the current context; this participation in the production of meaning, which is closely linked to the processes of identity construction and culture-making, informs the present and possibly opens up new paths for the future.

Notes

[1] This also relates to what Joanne Garde-Hansen suggests about the *Internet Archive* being "a self-archiving phenomenon," a prime example of media forms and practices "that use themselves to remember themselves" (72).

[2] *Archive Team* is a long-running site of web archiving, a "loose collective" of volunteers dedicated to saving websites in danger of going offline. For more information, see Ogden.

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Biography

Paschalia Mitskidou (pmytskid@enl.auth.gr) is a Ph.D. candidate in the Department of American Literature and Culture, School of English, Aristotle University of Thessaloniki (AUTh), Greece. She holds an M.A. in Creative Writing from the University of Western Macedonia and a B.A. in History from the Ionian University. Her Ph.D. project concentrates on virtual reality in contemporary American culture and the ways in which the historical past is reconstructed through virtual reality narrative practices. She has presented findings of her research in international conferences in Greece and abroad. She was a tutor in the undergraduate courses "Workshop in Critical Writing: Fiction" (2022) and "Computer Literacy and Research Skills: Literary Studies" (2021) at the School of English, AUTh. She is a member of the Hellenic Association for American Studies (HELAAS) and the *Multimodal Research and Reading Group* of the School of English, AUTh. Her research interests include contemporary American fiction and digital culture, interactive digital narratives, and virtuality in the context of new media technologies. She is a freelance writer and editor, and a private tutor of Greek as a foreign language.

Vasileios (Vassilis) N. Delioglanis (deliogla@enl.auth.gr) has taught as an adjunct lecturer in Greek universities, while also teaching English at Primary State School Education in Greece. He holds a Ph.D. in Locative Media and North American Literature and Culture (from the Aristotle University of Thessaloniki), funded by the Board of Greek State Scholarships Foundation (I.K.Y.). He also holds an M.A. in American Literature and Culture, and a B.A. in English from the School of English, AUTh, Greece. He is the webmaster and a member of the European Association for American Studies (EAAS) as well as a Board member of the Hellenic Association for American Studies (HELAAS) and a member of the *Multimodal Research and Reading Group* of the School of English, AUTh. His research focuses on contemporary American literature and culture, locative media and games, and the fusion of literary practice with new media technologies. His monograph, entitled *Narrating Locative Media*, is going to be out in 2023 by Palgrave Macmillan. Some of his published articles appear in *Ex-centric Narratives: Journal of Anglophone Literature, Culture and Media* (HELAAS), and *GRAMMA: Journal of Theory and Criticism: The Cultural Politics of Space* (AUTh).