

**To cite text:**

Antonijević, Smiljana; Ubois, Jeff (2022). "Representing the Absent: The Limits and Possibilities of Digital Memory and Preservation", *Philosophy and Society* 33 (2): 311–325.

Smiljana Antonijević and Jeff Ubois

## REPRESENTING THE ABSENT: THE LIMITS AND POSSIBILITIES OF DIGITAL MEMORY AND PRESERVATION<sup>1</sup>

**ABSTRACT**

Digital preservation has significantly expanded over the past few decades, renewing old and creating new challenges related to provenance, integrity, completeness, and context in memory and preservation practices. In this paper we explore how, perhaps counterintuitively, a more extensive digital historical record offers greater opportunities to misrepresent reality. We first review a set of concepts and socio-cultural approaches to memory and preservation. We then focus on the multiplicity of digital memory and preservation practices today, examining their limits, possibilities, and tensions; specifically, we explore the challenges of decontextualized data, personal versus institutional preservation, and "outsider" digital collections that are willingly and/or forcibly excluded from official accounts. Through these discussions, we review examples of what we consider good digital memory and preservation practices that take new approaches to context and collaboration. Lastly, we explore the optimism inherent in seeking to preserve human knowledge over the long term and to make it accessible to all.

**KEYWORDS**

digital preservation,  
memory, big data,  
context, personal  
digital archiving

### Introduction

- ‘So you’re locked up good and tight, Johnny-san? No way to get that program without the password?’
- ‘The stored data are fed in through a modified series of micro-surgical contraautism prostheses.’ I reeled off a numb version of my standard sales pitch. ‘Client’s code is stored in a special chip; there’s no way to recover your phrase. Can’t drug it out, cut it out, torture it. I don’t know it, never did.’

Johnny Mnemonic, William Gibson

<sup>1</sup> The views expressed in this text are our own and do not represent the views of Lever for Change or Illinois Institute of Technology.

For more than fifty years, optimism has been the outstanding quality of the information technology (IT) industry in approaching the techno-human condition. And why not? The technologies developed over the last few decades have profoundly affected and transformed many societies, institutions, and individuals on earth. Although there have always been skeptics about the promised benefits of new technology (Hoos 1960), experts involved in creating IT today are increasingly expressing a profound sense of remorse (Sumagaysay 2020) for what they've wrought, and a sense of anxiety about what is to come, calling to mind the physicists of the 1950s as they confronted the realities of the atomic age.

The reasons for such remorse are well known: alarms about the risks of artificial intelligence, the ability of a small number of companies to persuade billions of people to believe in things that are not true, and the application of potentially life enhancing technologies by governments for surveillance and social control are only a few.

But what about the use of technology for memory and preservation, often contested in inter-ethnic, interdisciplinary and/or political memory disputes, and entrenched as the source of remorse? For instance, a cursory look at how Hiroshima is remembered today reveals a multiplicity of contrasted claims, while reckoning with both individual and collective past generates “empires of remorse,” as Bentley (2015) puts it. Will IT remain the source of optimism, at least in the area of memory and preservation, helping us enhance if not replace unreliable human memory and fragile archival sources with indestructible, incorruptible digital preservation exemplified in Gibson’s *Johnny Mnemonic*? Preservation and archiving in the digital age have shown some ability to address deep human needs and urgent social requirements. Formal and informal digital collections and archives are increasingly given a role in the popular imagination as repositories of what is real, true, authentic, and meaningful. It’s not just movies such as “Total Recall” and “Blade Runner” that revolve around what is in or is missing from personal and collective memories of tomorrow; the lives of individuals committed to preserving traces of the life today as meaningful records available in the future revolve around that premise too. From passers by recording acts of police brutality such as the murder of George Floyd, to Facebook users documenting their daily life, to Julian Assange and WikiLeaks ensuring that the evidence of economic and war crimes is being preserved, digital memory and preservation activities are omnipresent. Institutions such as the Internet Archive collect petabytes of material every year too, serving as the foundation for a broad digital ecosystem of digital memory and preservation.

But the last decade’s success in digital preservation has also illuminated new aspects of old issues, confronting us again with the challenges such as integrity, provenance, completeness, selection, and context. Willful distortion of the meaning of acts and remarks by careful selection or omission of relevant context has become increasingly easy and common. New sound, image, and video editing technologies can convincingly present anyone as doing or

saying anything. We are awash in the fake, and the fake is making it into the collections and archives that we depend upon.

In this paper, we explore how, perhaps counterintuitively, a more extensive digital historical record offers greater opportunities to misrepresent reality. For those who understand social reality as consisting of bits that can be preserved, transmitted, and reassembled, bigger datasets and richer multimedia deepen a conviction in faithful representation of past events. But that is exactly the condition that William Gibson (Op.cit.) personified as Johnny Mnemonic – a technologically mutated cyborg enhanced with highly sophisticated software that enables his brain to function as a vast and highly secure data storage that can preserve, transmit, and playback visual and other data. Although created to have perfect memory, this anthropomorphic data storage doesn't know – and never did know – what the data that it carries actually mean, what kind of reality it represents. In a stark contrast to the Buddha who doesn't need to *recollect* because he *knows*, Johnny Mnemonic needs to recollect because he does not know.

To further explore these issues, we first review several concepts and socio-cultural approaches to memory, preservation and archiving from ancient to digital times. We then focus on the multiplicity of digital memory and preservation practices today, examining their limits, possibilities, and tensions exemplified in the challenges of decontextualized data, personal as opposed to institutional preservation, and in “outsider” digital collections such as WikiLeaks, Paradise Papers, and Sci-Hub that both willingly and forcibly are excluded from official accounts, despite – or because of – the significance of the information they contain. Through these discussions, we review examples of what we consider good digital memory and preservation practices that take new approaches to context and collaboration. Lastly, we explore the optimism inherent in seeking to preserve human knowledge over the long term and to make it accessible to all.

## Approaches to Memory

Located in the realm of the divine as Greek *Mnemosyne*, Roman *Monta*, or the Aztec *Tezcatlipoca*, memory has always been regarded as one of the essential personal, collective, and even divine capacities. In Buddhist scriptures, it is this capacity that differentiates eternal from fallen Gods, those whose memory has been lost or distorted, and who have thus been incarnated as humans. Only the Buddha, the omniscient one, is capable of *knowing* - not of *recollecting* – the past. In both Buddhist and Platonic texts, *mneme* (memory) is superior to *anamnesis* (recollection), as being able to recollect the past implies a failing of having previously forgotten it; the perfect ones do not need to remember as they never forget (Eliade 1963: 119).

And while in contemporary science fiction imagination this kind of ultimate memory derives from the power of software (Gibson 1981) or an experimental drug (Asimov 1982), mythological thought associated ultimate memory

with the close conceptual and etymological relations with origin, archive, and governance, skillfully illustrated in the familial and hierarchical relationships among the deities. *Mneme*, the muse of memory, and her sister *Arche*, the muse of origin, were the daughters of the supreme god Zeus and *Mnemosyne*, the goddess of memory. Etymologically, *arkhō* underpins the notions of *ex arkhes*, from the beginning; *árchōn*, a ruler, in the sense of a governmental official, and; *arkheion*, a public building where the official documents are stored (Derrida, Prenowitz 1995).

This intersection reveals points to some important qualities and challenges of knowing, remembering, recollecting, and accessing the past. Being divinely touched by the Muses, like a poet or a historian, meant being bestowed a privileged access to Mnemosyne's knowledge of origins, commonly articulated in narratives about genesis, and recognized as true stories about sacred, or strong time, contrasted to chronological time (Eliade, op.cit.). But in addition to insights into the sacred time, Mnemosyne's gift to humans also includes the capacity of remembering secular, chronological time. Plato metaphorically describes that gift as a block of wax in a person's soul upon which a person imprints his or her experiences, leaving traces of the past.

Yet this gift generates at least three problems. First, the object of memory is always and only the past; there is an inherent contradiction of memory as it represents the presence of the absent. This contradiction is inevitably intertwined with mistakes, such as the risk of mistaking the imagined for the remembered, or through (un)intentional misrecognition and misinterpretation of the traces imprinted upon the 'block of wax'.

The second problem is that Mnemosyne's gift to humans often generates opposition from the prevailing political, commercial, or religious authorities of a given time, as they are engaged in the memory politics of what societies are compelled to remember and to forget. There is a reason that film, video, and discussion of the Tiananmen protest is not available for viewing in China, that disclosure of combat footage showing activities of US forces in Iraq has resulted in years of confinement for Julian Assange, and that characterization of the current Russian and Ukrainian war in anything other than prescribed terms is punishable in both countries. Mneme and Arche may be the daughters of Zeus, but that doesn't always help when their gifts challenge contemporary authorities intent of controlling the past as a way of controlling the future, as George Orwell (1949) famously put it.

Finally, the third problem is the diversity of traces of the past, which Ricoeur (2004) differentiates as written, affective, and corporeal. Do they align? If not, which of these is authoritative, or regarded as true? Written and ultimately archived traces are what constitute the official history of an era or event, and are the foundation for work by students, historians, and scholars. Affective and corporeal traces, which constitute lived, experienced past imprinted in the souls, minds, and bodies constitute a different realm. These internal traces are contrasted to 'the external marks with which written discourse is constructed,'

and pose a vital challenge of how such immaterial traces of the past can be preserved and recalled (*ibid.*: 14).

The primacy of written over oral and other types of preservation resulted in the institution of the archive and “selective tradition” (Williams 1961/1971) becoming the most authoritative source for exploring, recalling, and understanding the past. Regarded as the space that preserves original records, the archive symbolically assumed the role of Mnemosyne adjusted to the age of positivism. For epistemological and methodological followers of August Comte and Leopold von Ranke, the truth about the past could have been inferred scientifically, just as the laws of physics, by meticulously collecting and analyzing archival materials.

This ‘allure of the archives’, as Farge (2013/1989) calls it, was challenged in the second half of the 20th century, when the perception of archive as a cultural construct that privileges certain aspects of the past and excludes others made archives the subject rather than the site of research (Blouin 2004). Cultural theory, postcolonial studies, and similar lines of research highlighted the existence of multiple pasts – underprivileged, dissident, and other undesired pasts that never found their way to the official archival records.

In addition to the increased awareness about debatability of the past, as Appadurai (1981) described it, late 20th and early 21st centuries brought other developments important for destabilizing the primacy of archives and written traces. One is the development of (new) social history that focuses on history from the bottom up, “seeking out how ordinary people lived and acted in the past” (Tilly 1980: 668). As the subject of research became populations commonly excluded from official narratives and records – workers and peasants, women, heretics, and so on – examination shifted towards various non-deposited sources, such as ego documents from personal sources, written and non-written materials discovered in attics and similar informal storage sites, oral histories, and so on. Similarly, a turn in the hermeneutic tradition, which concentrated on history as remembrance found in personal and cultural memory, as well as in folk histories, refocused research attention on the unofficial and not necessarily written sources (Little 2017). This has more recently been institutionalized in the efforts such as the Shoah Foundation’s *Visual History Archive Online*, which collects testimonies of holocaust survivors.

Finally, recognition of the importance of intangible cultural heritage and its preservation articulated in UNESCO’s *Convention for the Safeguarding of the Intangible Cultural Heritage* further endorsed “living documents” and tacit knowledge – such as oral traditions, social practices, and rituals – as vital for recalling and understanding the past.

These multiple parallel approaches to memory – official and unofficial, written and multimodal, lived and recorded, collective and individual – became additionally complex with the ever wider adoption and sophistication of digital technologies, which we discuss in the next section of this paper.

## Multiplicity of Digital Memory and Preservation

...we have allowed in the past all those advances in technology, which has profoundly changed our social and individual life, to take us by surprise...Our business is to be aware of what is happening, and then to use our imagination to see what might happen, how this might be abused, and then if possible to see that the enormous powers which we now possess thanks to these scientific and technological advances to be used for the benefit of human beings and not for their degradation. (Huxley 1962)

Spoken sixty years ago, Huxley's words referenced above seem more relevant than ever. Technological advances are not only swiftly multiplying and diversifying, but their socio-political embeddedness fluctuates swiftly too. Only two months ago it was thought socio-politically, if not technically, impossible (at least in "western democracies") to disable nearly all content coming from .ru (i.e. the Russian) or any other country domain name, yet we are witnessing such a tectonic shift today as part of the Russo-Ukrainian War. What are some other tectonic and gradual shifts we are witnessing? What are some of the main risks that could result in degradation of our digital memory and preservation practices? What are the examples of good practices at both individual and collective levels that enable us to use technological advances for the benefit of human beings, and what can we learn from such examples?

In this section, we address some of those questions by focusing on several key problems, illustrated with examples of what we consider good digital memory and preservation practices.

### De/contextualized Big Data

Both institutional and personal archiving assumes new dynamics, meaning, possibilities, and challenges in the immense digital data ecosystem developed in the last fifty years. From NSA records to Facebook profiles, to genomic and financial data, to geolocation and beyond, intentionally and unintentionally left and gathered digital traces create extremely rich, multifaceted individual and collective imprints upon a digital "block of wax". Ham's (1981) prescient paper termed this transformation *the post-custodial era*, foreshadowing one of the main paradoxes of digital preservation that "gives us abundant information [while] it creates an environment hazardous to its preservation" (Ham 1981: 209).

Related to digital memory and preservation, one of the most consequential risks is the focus on big data and an implicit belief that, with enough data, digital traces will speak for themselves about the past. However, although the possibility of creating more complete, multimodal historical records opens great new opportunities, it also obscures the fact that memory is always a representation of the absent, thus introducing greater risks of confusing representations with reality. The bigger the dataset, the stronger the faith in its representational validity; the greater the storage capacity, the deeper the belief

in digital immortality. But, as Poster (1990) points out, “each method of preserving and transmitting information profoundly intervenes in the network of relationships that constitute a society” (Poster 1990: 7). As we mentioned in the previous section, if social reality is understood to consist of data or bits that can be preserved, transmitted, and reassembled as that selfsame reality, confusion is inevitable. Yet, current technological capacities change nothing in Plato’s timeless observation that “when the mind applies the imprint of the absent perception to the perception that is present, the mind is deceived in every such instance” (194a).

A closely related risk is confusing a dataset as a *collection* of data with the *context* of data. No matter how comprehensive and detailed, datasets are arbitrarily assembled and semi-isolated units in a broader environment. Neglecting this inadvertently advances a myopic view that makes us “too little aware of the larger historical and social landscape that surrounded us” (Ham 1981: 20). It also illustrates an occasional tendency in digital preservation to approach context in the positivistic sense, as if there were an objective and stable container of data, separable from activities, actors, or objects perceived to be located and/or happening *within* that container (Dourish 2004: 22). This is in stark contrast to the phenomenological understanding of context as constructed through social interaction, and accordingly relational, dynamic, and occasioned. It is the intangible, tacit, transient, and (inter)personal that construes context; without it, neither could reality exist, nor could a meaningful memory and/or historical record about that reality be preserved. As Doris Lessing (1997) delicately observed, “this is always the difficulty, trying to record the past. Facts are easy: this and that happened; but out of the context of an atmosphere, much behavior – facts – social and personal, seems, simply, lunatic” (Lessing 1997: 313).

Is there a threat, then, that promises of digital preservation might endanger meaningful future existence of our socio-cultural records turning them into decontextualized “factual lunacies?” Or are there strategies and practices that will allow us to pass on a more meaningful record of our times to future generations?

In that regard, Cal Lee (2011) argues about the importance of distinguishing what he calls “the broad notion of context, constituted by the interactions and relationships” from “the more specific set of contextual information that is reflected in information systems” (Lee 2011: 99). He also proposes nine sets of contextual items that can help a user better understand entities in a digital collection: object, agent, occurrence, purpose, time, place, form of expression, concept, and relationship (Lee 2011: 106). Lee’s suggestion resembles Keir Winesmith’s (2017) provocation “Against Linked Open Data”, which points out that institutions struggle just to collect good data, let alone to use the data effectively, strategically, and in a meaningfully contextualized way. Winesmith therefore rightly argues that Tim Berners-Lee’s (2006) technical principles of linked data should be preceded by a more basic yet broader set of social principles: collect the data, use it, contextualize it, and share it.

These principles, related to what some have termed the social life of information, have already been implemented in a number of digital memory and preservation projects that are very creative, educational, widely used, and representative of new genres. For example, project [1917: Free history](https://project1917.com) (<https://project1917.com>) contextualized the unfolding and experiences of the Russian revolution of 1917 by providing daily postings of primary source materials from roughly 300 historical figures from 1917 in a Facebook-like website highlighting the centenary of the revolution. It's worth a closer examination.

Source: <https://project1917.com>

Drawing on primary sources such as diary extracts, letters, photographs, poems, films, paintings, and news articles, and addressing topics ranging from the plot against Rasputin to life inside the Kremlin to musical performances, train delays, and the weather, the team running the project presented a view of events as they unfolded to (mostly eminent) persons living in 1917.

For people living in 2017, this was a surprisingly effective way to recreate something of the experience of living in 1917. The perspective of persons living then was made vivid by the surprise and the uncertainty reflected in their daily writings, which stood in contrast to the perspective of us living today and knowing what was to come for many of those quoted. Expert historians worked to ensure materials were authentic and representative of the times. Yet, those valuable primary sources were not presented as a digital emulation of traditional collections, as is commonly the case with digital archives. Instead of a traditionally cataloged collection of materials from 1917, or a series of de-contextualized archival materials used to enforce storytelling from a singular point of view – the tacit narrative, as Ketelaar (2001) calls it – this was an effort to give actuality to the past, enabling today's audience to empathize with people who lived through this historical event.

To prevent loss of context, materials were situated not just in time and place, but in a web of social arrangements, including political and social hierarchies, scientific and artistic breakthroughs of the time, as well as the daily worries and delights of the wide socioeconomic strata, from the poor vying for bread on the streets of Petrograd, to aristocracy enjoying ballet performances. Also, the 1917 materials were presented in the form familiar and appealing to today's audience – as short, daily social media feeds, using hashtags to highlight the most important themes (e.g., *#The Winter Palace*, *#The Uprising Headquarters*, and so on), and announcing the most important developments in the “breaking news” form that built on today's audiences' primed reception of such developments as particularly important (e.g., breaking news on November 7, 1917 at 9:30pm: “Revolutionary troops opened fire at the Winter Palace”).

Interactivity built into the project was one of its main features and advantages, and it had several forms and layers. At one layer, historical materials and actors interacted with each other: Vladimir Lenin would post the information about president Wilson's speech to Leon Trotsky's social media profile; Grand Duchess Olga would mark on her profile that she was with Tsarevich Alexei at the Alexander Palace in Tsarskoye Selo, and so on. On another level, the audience interacted with historical materials and actors in many forms, from reacting to the posted material with thumbs up or angry emojis, over taking historical quizzes, to participating in a Time Machine Tinder that would suggest a 1917 partner to a today's user. Finally, the users also interacted with each other by responding to comments, providing materials or information that other users asked about, and so on.

In sum, authentic materials selected to be truly representative of events, expertly curated to show those materials in relation to each other through sequential arrangement and interactive presentation, proved very effective not

just in presenting the data about 1917, but in recreating lived experience and atmosphere of the time. Project1917 went beyond archiving and into production and publishing. As Kaufman (2018) notes, "...archives that recognize themselves as media producers, too, in their preservation and access roles ... often have an easier time of articulating their mission publicly in the digital age" (Kaufman 2018: 1).

The project was so successful that, upon its formal completion in 2018, the users refused to end this digital engagement with the past and started their own #1918 Live project. Unlike the original Project 1917 that did not depend on user-generated content, although it was intensive in user engagement and interactivity, the follow-up was user generated and maintained. Very interesting, as it was, the follow-up was short-lived, indicating challenges with personal versus institutional digital memory and preservation activities.

### Personal and Participatory Archives

Since 2000, the possibilities of participatory knowledge production such as folksonomies, tagging, and crowdsourced transcription significantly enriched the landscape of digital memory and preservation, marking a specific turn towards participatory archive (see: Benoit and Eveleigh 2018). Through complementing or enhancing institutionally provided content, this type of engagement enables individuals to contribute personal or local materials, transforming the past from a closed historic experience to an ongoing process where everyone has the agency and opportunity to engage as a local expert, a story-teller, or an archivist. This approach yielded surprising results such as Wikipedia, PhilaPlace, and Ancestry.com, but many challenges still loom large.

One challenge with emphasizing personal approaches is that users often prefer to be story-listeners rather than storytellers, as Sumer and Nelson (2017) observed in the Goodman to Garver project. The project focused on digital preservation based on public history and encouraged anyone with a story to add it to the digital collection, but the response was limited. Sumer and Nelson thus concluded that the biggest challenge for participatory digital projects is "likely to be found not in the technical phase of coding and development, but rather in the social phase of cultivating a group of willing and eager participants" (Sumer, Nelson 2017: 5). Despite twenty years of Web 2.0 development, the vast gap between a majority of consumers and a minority of producers of online content is still a significant challenge.

Another challenge is that individually provided content sometimes introduces unverified and/or difficult to verify materials and information. As we mentioned in the Introduction, fake news and other dubious materials fill out our digital spaces from YouTube to Twitter to the Internet Archive, potentially remaining as manipulated imprints of this time. Or consider 'deep fakes' – the use of AI to cheaply and quickly edit video to put the face of one individual over that of another. The potential for manipulation of these video-editing technologies were immediately and widely apparent. Major online platforms

thus worked to remove ‘deep fakes’ from public view, while others suggested that systems of blockchain, timestamping, hashing and other technological solutions could make such fakery difficult to produce and easier to spot.

Though technological solutions may sometimes help solve what are essentially human or social problems, the underlying issue is the conflict between those intent on editing the past to fit present needs, and those intent on reliably preserving both the present and the past to the best of their ability. This struggle is often exemplified and enhanced through an imbalance in the power relations between institutions and individuals, an imbalance that is ripe for change. Creating an effective counterweight to the centralized corporate and governmental control of memory is essential to preserving a diversity of viewpoints and access to contested material.

One counterweight is personal digital archiving. As we previously mentioned, more recent focus on the social history of “ordinary people” brought attention to ego documents in personal digital collections and various other non-deposited sources – from grandparents’ digital photo and video collections of their grandchildren’s every step and milestone, to scholars’ personal repositories of research notes and photographs. Such personal digital resources, collected and economically supported by individuals – with creators, maintainers, and users often being the same individual or a set of individuals – have emerged over the last twenty years, developing at a pace that has driven the creation of events and user communities, such as the series of Personal Digital Archiving conferences held since 2010 at the Internet Archive, the Library of Congress, and at various other institutions. By their nature, personal digital archives are distributed, decentralized, difficult to catalog, relatively unconstrained by institutional policies, laws, and control, and generally not motivated by commercial considerations.

This is in sharp contrast to the commercial sectors’ inclination to capitalize on the human need for memory and remembrance. Among the celebrities, recent technological developments have already been used to digitally render the late Carrie Fisher in the latest “Star Wars” movie, while Kim Kardashian interacted with her dead father through a hologram she received as a birthday gift. For the wider public, a recently launched, arguably benign version of deep-fakes, *Deep Nostalgia*, enables users to bring their deceased back to life by using AI that animates faces from old family photos, while AI-based solutions such as Luka and Replika generate chatbots based on the deceased’s text messages and social media posts. Again, there is the allure, the promise, and the risk of representing the absent as if it has neither been a representation nor the absent. And there is the critical risk of entrusting our most valuable and most intimate materials to commercial services.

We thus believe that the future of digital memory and preservation largely depends on further empowering individuals to preserve their own materials and to challenge commercial interests whenever necessary. Instead of being in the power of commercial services, individuals need an option to record, share, and preserve their thoughts, activities, and memories in a way that makes them

stewards of their content, and that enables them to in some way influence the presentation of themselves if not exercise a right to be forgotten.

Working more effectively with not for profit institutions is another way forward. A few organizations, such as the Permanent Legacy Foundation, are building services intended to serve individuals and their descendants, while projects such as Perkeep are devoted to building tools for preserving personal data. Successful partnerships between institutions and individuals or communities, where institutions provide necessary infrastructure, know-how, and sustainability for digital preservation, can also be seen in the initiatives such as *The Genocide Archive of Rwanda* and *Visual History Archive Online*, focused on preserving testimonies and oral histories of survivors and other witnesses of some of the most traumatic events in the 20th century. Somewhat different in content but equally significant is the *StoryCorps* project, which has been recording, preserving, and sharing personal life stories of everyday Americans for the past fifteen years.

Sometimes, however, preserving unwanted memories and knowledge, such as those of genocide and other war crimes, becomes mainly, or even exclusively, possible through what we call outsider projects, very briefly discussed in the following segment.

### Outsider projects

Without re-litigating their ethics, as the parties involved have extremely hard and incompatible ideological positions, we believe that ‘outsider’ projects such as WikiLeaks, Paradise Papers, or Sci-Hub will be a long-lived feature of the preservation, publishing, and archival landscape. Namely, these projects show two elements highly important for digital preservation. One is the real power of decentralized web, which demonstrates that (for now) it is still possible to share and preserve materials over the objections of governments and corporate interest, willing to employ huge financial and technical resources to limit access to those materials. Outsider projects that promote the free global flow of information, as well as transparency and integrity in academic publishing, are therefore so important. Second, these projects, started and maintained by a handful of people, demonstrate how a committed cohort of supporters determined to remember and to provide access to materials in ways others would prohibit can serve millions of people.

While many “insider” digital humanities projects, collections, and archives sadly end up abandoned (see: Gibbs 2011), outsider projects resist not only passive neglect, but also very active attempts of forcefully silencing and disappearing them. Somewhat as *memorizing Vedic chants* requires an astonishing dedication to faithfully preserve and pass on oral traditions in an unbroken form, outsider projects require similar levels of dedication to preserving and passing on in an uncensored and uncorrupted form materials perceived to be of high societal importance.

## Conclusion

Perfect ones, such as the Buddha, might not need to remember because they never forget. For the rest of us imperfect mortals, memory and preservation of memory is vital. There are many forms of remembering. Sometimes it is an old love letter carefully hidden in a basement box for years. Other times, it is a collection of old love letters shared online. Yet other times it is sacred knowledge passed from one generation to another through community rituals, or preservation of millennia old and unbroken oral traditions in the form of Vedic chants. From cave paintings to DNA-based archival storage systems (Bornholt et al. 2016), many factors shape preservation of knowledge and traces of the past – what kind of ‘wax’ and storage system do we use, what type of traces and knowledge are being preserved, who created them, who can access them and how.

Certainly, there is much to fear from the challenges we have discussed. Trust in the value of technological progress has declined (Anderson 2016); hopes that AI might eliminate drudgery or aid medical diagnoses have been replaced by concerns about unemployment and mass production of fake news. Public sentiment towards the technology industry has shifted too; big data is on par with big oil, big pharma, and big tobacco. The unanticipated consequences of initiatives such as *Neurolink* (a human-machine interface) can only increase such concerns. More than ever, memory and technologies of memory are misused as political weapons to enable repressive systems of government, and more subtly, to chill free expression and open debate. The technical solutions under development are, like all new technologies, certain to generate their own new problems, and probably some remorse among their early proponents.

But in the end, the act of preservation is a deeply optimistic one that includes both the intention to serve as a good ancestor to future generations, and an effort to create some representation of the absent. Looking forward, we still hope for a world that includes individual and institutional archivists, and systems that strengthen the role of the individuals and voluntary associations in ensuring long term access to digital information. The optimism reflected in the Internet Archive’s mission to provide free and universal access to all human knowledge, or in other efforts such as the Arch Mission Foundation’s project to “permanently archive human knowledge for thousands to billions of years” is as important to the future as the more cautious efforts to limit the risks posed by new technology.

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Smiljana Antonijević i Džef Uboa

### Predstavljanje odsutnog: granice i mogućnosti digitalne memorije i očuvanja

#### Apstrakt

Mogućnosti i obim čuvanje digitalnih podataka i dokumenata značajno su uvećani tokom proteklih nekoliko decenija, što je obnovilo stare i otvorilo nove izazove vezane za njihovu provinijenciju, integritet, potpunost i kontekstualizaciju. U ovom radu razmatramo kako, možda kontraintuitivno, opsežni digitalni zapisi današnjice pružaju više mogućnosti za iskrivljeno predstavljanje stvarnosti. U prvom delu rada dajemo osvrт na neke od značajnih koncepcija i društveno-kulturoloških pristupa temama sećanja i čuvanja podataka. Potom se fokusiramo na višeslojnost današnjih praksi vezanih za digitalno čuvanje, ispitujući njihove granice, mogućnosti, i tenzije. Konkretno, analiziramo probleme dekontekstualizacije podataka, individualno nasprot institucionalnog čuvanja, te "autsajderske" digitalne kolekcije koje su dobrovoljno ili prisilno isključene iz zvaničnih tokova i narativa. U tim promišljanjima analiziramo primere koji inovativnim pristupom uspešno rešavaju izazove digitalnog čuvanja. Rad završavamo osvrtom na svojevrsni optimizam inherentan nastojanjima da se ljudsko znanje dugotrajno sačuva i učini široko dostupnim.

Ključne reči: digitalno čuvanje, sećanje, velika količina podataka, kontekst, lične digitalne arhive