

# **DIGITIZED DIASPORIC MEMORY:**

Leveraging User-Generated and Open-Source Tools for Collective Audio Storytelling

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## **Abstract**

“Digitized Diasporic Memory” explores the relationship, intersections, connections, and divergencies of experiences between Black diasporic people. With an understanding of diaspora as networked, rhizomatic, and tentacled, the project seeks to create a space for connection, in an environment where connection is not easily accessed or sustained across these communities of people. The thesis draws heavily from the idea of personal networked thinking and expands into collective thinking, or what Anne-Laure Le Cunff describes as mind-to-mind networks, wherein several individuals connect their ideas.

The following document details the conception of open-source and open-access technologies which illustrate how our individual pasts weave in and out of each other. The first is a proof of concept for a relational database of crowd-sourced audio memories, and the second is a web application that maps and visualizes the connections between the submitted stories. The document also details the thesis study in which the technologies are put to the test by people of African descent residing on Turtle Island. “Digitized Diasporic Memory” is part database, part conversational archive, part open-access library, part collective memory bank, part digitized memory, and part chain of memories which bring to the fore the possible connections between Black diasporic experiences and narratives. It addresses the need for intra-diasporic validation, belonging, understanding across differences, and knowledge-sharing.

**Keywords**—African Diaspora / Archives / Audio / Communication / Digital Media / Open access / Open-source / Participatory Design / Sound / Storytelling / Decentralized Networks / Collective Memory / Memory Studies / Dialogue / Diaspora / Culture & Heritage / Relational Databases

## Land Acknowledgement

I would like to take the time to honour the original owners and custodians of the land on which we inhabit and create. The present thesis was conceived while I was residing on Anishinābe Akì Territory and in T'karonto, the ancestral territory of the Haudenosaunee Confederacy, the Anishinābe, the Wendat, the Chippewa, and the Mississaugas of the Credit River First Nations.

In the introduction to *Hungry Listening: Resonant Theory for Indigenous Sound Studies*, Dylan Robinson (2020) invites us to consider our listening biases, listening privilege, and listening ability as part of our critical listening positionality (p. 10). As the author explains, “by becoming aware of normative listening habits and abilities, we are better able to listen otherwise” (p. 11).

As a guest on these lands, I am committed to listening to Indigenous people and working towards the strengthening of solidarity between Black and Indigenous communities. I will continue to reflect on my geographic positioning, connection to indigeneity, understanding of embodied place, relationship to settler-coloniality, and decolonial justice.

## Dedication & Gratitude

I have many people to thank for the successful completion of this thesis. I am deeply indebted to the countless family members, friends, and teachers (both past and present) who were involved both directly and indirectly in the development of this thesis and to who I am today. I want to give a special shout-out to my *mama*, to my sister, to my classmates, and to Forever Venti for their advice, listening ears, and reassurance.

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## Chapter 1: Introduction

The Digital Revolution has significantly expanded access to the means of media and cultural production, owing to new forms of participatory culture and easy-to-use tools and interfaces (Banet-Weiser et al., 2014, pp. 1069, 1072). These emerging technologies have created potential avenues for increased visibility and accessibility of works by underrepresented groups (Ellerson, 2015; Oguamanam, 2018). However, the challenge of producing and disseminating stories to broader audiences remains for independent content creators, who lack the resources of more prominent media corporations (Bennett, 2015). Building on this idea of participatory culture, this research explores how digital storytellers from the African diaspora can leverage the affordances of low-cost, open-source tools and user-generated content to not only produce and distribute their stories on their terms, but also connect with other members of the diaspora.

Principally, the present thesis document details my exploration of technologies, platforms, and software applications that can be used to facilitate iterative audio storytelling within the African diaspora. Through these explorations, I conceived a proof of concept for “Digitized Diasporic Memory” comprised of three components. The first is a collaborative and relational archival database that illustrates how our individual pasts weave in and out of each other. The second is a web application that maps and visualizes the connections between the audio submission in the database in a non-linear manner. The third is a website that embeds the prior two components, provides context for the work, and informs audience members on how to recreate the project. The document also details the thesis study in which seven people of African descent residing on Turtle Island make use of the collaborative database for the first time. “Digitized Diasporic Memory” is part database, part conversational archive, part open-access library, part collective memory bank, part digitized memory, and part chain of memories which

bring to the fore the possible connections between Black diasporic experiences and narratives.

## **How This Project Came to Be**

I initially set out to write my thesis about using free and open-source software for content creation, and how these tools could empower people from marginalized communities to tell their own stories. Growing up, I was always fascinated with digital media production: video production, website design, graphic design, and fashion design. I loved editing videos and designing content, but was limited to free software. Back in the early 2000s, this meant Windows Movie Maker and Paint. Since then, a wide range of free open-source software (FOSS) have entered the market, and their capabilities are always improving. Unfortunately, a lot of the free tutorials, templates, support, and resources available online for media production are for proprietary programs and suites (i.e., the Adobes of the world). As a freelancer who works mainly with non-profits, I have been using these free tools for several years and wanted to create a platform that would provide tutorials on different creative techniques using these programs.

Then, the Winter 2021 semester happened. My classmate, Trish, and I paired up to create an online documentary for our Interactive Documentary course. We had each pitched the same idea — a doc on the politics of language — and realized that despite having grown up in different parts of the world and being from different cultures (I'm Congolese and born in Canada, she's Kenyan), a lot of our experiences mirrored each other's: we both had parents who were from different tribes and had had to reckon with the resulting cultural and linguistic tensions. As such, *In My Tongue* was born: a multilingual interactive documentary that investigates different languages, and the relationships people have with the languages they speak. For this project, we

interviewed our friends, our family members, and each other with the audio recording apps on our cellphones. The recordings were then divided into shorter segments, and these segments were turned into a database that was shared online in the form of a website.<sup>1</sup> The participants we interviewed were Kenyan citizens and Canadian citizens of Congolese, Zambian, Nicaraguan-Polish, and Kenyan descent.

As Trish and I combed through the audio recordings, we found many similarities and parallels — not just in our own lives, but between our participants. For example, Trish recognized an expression in Bemba spoken by a participant I interviewed because it was similar to an expression in Swahili. In doing this process, I also became aware of the limits of our approach. Despite being encouraged to deconstruct traditional documentary forms in the course, I found myself defaulting to the same approaches in footage collection that I had learned previously: a standard question-and-answer format where the interviewee is asked to answer with the question in the answer, with the intent to remove the interviewer’s questions in post-production. Additionally, interviewees wouldn’t hear other responses until the final documentary was live. As the interviewers and creators of the documentary, Trish and I had the power to edit the audio and steer the conversation in the direction we wanted. Our participants’ experience with the project was mediated solely through us. I considered how limiting and unnatural the typical interview format was, as opposed to how organic an ongoing dialogue was, and how much more interesting “off-script” tangents could be. As I listened to the other responses, I was reminded of other related memories and wondered how these tangents could be thematically and visually linked. I wondered how more interaction and exchanges could be created between participants as well, despite their geographical distance and the lack of familiarity with each other.

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<sup>1</sup> The web doc can be viewed at: [www.inmytongue.net](http://www.inmytongue.net)

## Framing the Research

As I considered these issues further, I became increasingly interested in this idea of archives as conversations and archives *of* conversations. I envisioned a conversational model wherein participants would be prompted to share a story, listen to the stories of others to unlock a memory, and then respond with another memory based on what they heard. By modelling conversation through interaction, the proximity between stories and participation collapses, revealing the fluidity of storytelling and the power of the collective voice. This power can be observed in a number of audio-based works by Black artists such as Rashaad Newsome's *Shade Composition* (2005), Michèle Pearson Clarke's *Suck Teeth Compositions (After Rashaad Newsome)* (2017), and Rebecca Bair's *We Are Not Who We Are Oppressed To Be (Black Speakers, White Walls)* (2018).

For my work, I intended to create a chain of memories from the collaborative sense-making between participants. These chains of memories, illustrated through a network graph, are sourced not just from the participants' memories, but from the lived experiences of their elders, and the ancestors before them. This can be likened to Tabita Rezaire's (2017) video artwork *PREMIUM CONNECT*, where one of the segments describes communicating with our ancestors as a "divine record of consciousness" or "divine Internet" which allows us to draw on the collective minds ("computers") and lifetimes of the ones who came before us. It also brings to mind concepts and keywords explored in *The Last Angel of History* (1996) such as "sonic Africa", "digitized diaspora", "sonic worlds", "digitized race memory", and the "sampling era". The latter term refers to the sampling era which collapsed all eras of Black music onto a chip, allowing for Black creatives to freely reference and cross-reference previous generations and sounds simultaneously. As I explored these concepts, a new objective for my thesis emerged:

- How can an exercise in recounting memories and exchanging with people of other ethnicities connect the African diaspora?
- How can a collective archive of open-access memories connect the African diaspora?
- How can open knowledge sharing and low-cost technologies be leveraged for accessible participation and rhizomatic content creation?

My hope is that, through storytelling, we can begin to unravel and unpack tensions, points of contention, and alienation within the diaspora.

## **Chapter Overview**

Following my exploration of the thesis’s origin, this document continues with **Chapter 2**, a literature and contextual review which looks at non-linear storytelling, orality, sampling, collective memory, knowledge sharing, open-source, digitized memory, decentralized networks, interactive documentary, transmedia storytelling, blackness online, connecting the diaspora, archiving, “rogue” archives, and counter-archives. In **Chapter 3**, I cover the critical, decolonial, participatory and collaborative methodologies that inform the project, as well as the following methods: research-creation, participatory workshops, accessible open-source tools, and iterative data collection. **Chapter 4** goes over my explorations of relational databases, interactive network graphs, live coding, and sample slicing using a variety of proprietary software and their open-source counterparts. In **Chapter 5**, I provide an overview of the thesis project, “Digitized Diasporic Memory”, detailing the happenings of the workshops, my findings, and the public-facing outputs. In the Conclusion (**Chapter 6**), I provide a recapitulation of the present document, discuss the scope and limitations of the research, and elaborate on future work and iterations.

## **Chapter 2: Literature and Contextual Review**

In this chapter, I present contextual works and literature that expand on the thesis project, touching upon orality, sampling, collective memory, knowledge sharing, open-source, open collaboration, digitized memory, being Black online, archiving, “rogue” archives, counter-archives, decentralized networks, and non-linear storytelling.

### **Non-linear Storytelling**

Conventionally, narrative as a meaning-making structure privileges plot structure and a linear sequence of events as effective means of communicating to an audience (Hancox, 2020, p. 334). Conversely, alternative modes of storytelling that live on various mediums and employ non-linearity have emerged, defying Western concepts of space and time (Hart, 2009, p. 187). As Hancox explains, transmedia’s capacity to tailor stories for particular platforms and audiences means that effective communication moves past ideas of structure and plot, encompassing more “ephemeral and emotive languages of aesthetics and mood” (2020, p. 334). Additionally, Hart (2009) suggests that the use of non-linear narratives, along with the use of repetition, the fusion of the metaphysical and physical worlds, the prevalence of images, and the non-closure in the works of Nigerian writer Amos Tutuola and Zimbabwean author Yvonne Vera make up an African literary aesthetic which is based in African oral arts.

As a framework to discuss the non-linear elements of “Digitized Diasporic Memory”, I am utilizing Nichols’s (2001) definition of the Poetic Mode, from

the six modes of documentation/subgenres of documentary film.<sup>2</sup> The Poetic Mode, as the author explains, forgoes specificity in time and place and conventions of continuity editing in favour of exploring patterns and associations that involve spatial juxtaposition and temporal rhythms (Nichols, 2001, p. 102). Indeed, the project offers a non-linear experience to audience members, as opposed to a rigid sequence of anecdotes. Although the participants and I “select and arrange [the raw material] into associations and patterns” (2001, p. 102), it is the audience members who ultimately decide on their experience. In this way, reality is represented “in terms of a series of fragments, subjective impressions, incoherent acts, and loose associations” (2001, p. 103). This opens up “the possibility of alternative forms of knowledge to the straightforward transfer of information” (2001, p. 103). The project brings audience members into the fold of our conversations, stressing “mood, tone and affect much more than displays of knowledge or acts of persuasion” (2001, p. 103). This fragmentation and ambiguity remain a “prominent feature” (2001, p. 104) of the work, wherein viewers get a small glimpse of each participant’s life, one short anecdote at a time.

### **Orality, Sampling, Collective Memory, and Knowledge Sharing**

Oral histories have long played an important role in African cultures, acting as a vehicle for knowledge sharing and highlighting the individual “as a vehicle to house this orality” (Smart, 2019, p. 19). We think namely of the role of the “griot”, a West African storyteller, poet, historian, singer, or musician considered by many as a repository of oral tradition (Ebine, 2019, p. 4). Though the griot is often represented as a singular character, the oral histories told are

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<sup>2</sup> In *Introduction to Documentary*, Nichols (2001, Chapter 6) identifies the six modes of documentation as follows: expository, poetic, observational, participatory, performative, and reflexive.

the product of generational storytelling. Indeed, the griot is a person whose role is to carry on collective memory (Paré, 2007, p. 51), as memory is by nature “multiple and yet specific; collective, plural, and yet individual” (Nora, 1989, p. 9).

This tradition of perpetual knowledge-sharing was especially critical during the Middle Passage and the era of colonization. Smart (2019) argues that the enslaved African people who were brought to the West Indies between the 1650s—1850s installed a “massive store of knowledge and culture within the New World”. This “library in crisis” embodied within their physical being contained a repository of skills and knowledge that were orally transmitted to the next generations (Smart, 2019). Many of these skills and knowledge are still in practice in the Caribbean today, and nods to African heritage such as the transmission of messages through drum calls have survived the transatlantic passages (Smart, 2019).

Bearing in mind the importance of repurposing narratives, morals, and sounds from the past, it is no wonder that sampling methods such as breakbeats formed the foundation of Hip-Hop and other Black musical genres (E. Davis, 2010, p. 80). In *The Last Angel of History* (Akomfrah, 1996), writer Greg Tate details how the sampling era collapsed all eras of Black music onto a chip to form a digitized race memory, allowing for Black creatives to freely reference and cross-reference previous generations and sounds simultaneously. As Huyssen (1994, p. 253) aptly surmised, “the more memory we store on data banks, the more the past is sucked into the orbit of the present, ready to be called up on the screen”. A notable instance of this is found in the closing track of Kendrick Lamar’s 2015 conscious rap album *To Pimp a Butterfly*. Sampling an interview of Tupac Shakur by Mats Nileskar, Lamar ends the track “Mortal Man” by pretending that he, in fact, is interviewing Shakur posthumously. As Lamar discusses the energy that drives his music and the energy’s occasionally uncertain origin, Shakur, seemingly, replies, “because it’s

spirits, we ain't even really rappin'. We just letting our dead homies tell stories for us" (Lamar et al., 2015). In a similar vein, Sharpe (2020, p. 99) highlights how the audio recorder both "transmits the words of people who are deceased" and is "capable of recording words that were uttered even prior to its invention". These utterances counter Sontag's (2003, Chapter 8) statement that "[m]emory is, achingly, the only relation we can have with the dead". Indeed, as Judith Butler reminds us in a series of paradoxes: "the past is irrecoverable and the past is not past; the past is the resource for the future and the future is the redemption of the past" (2003, p. 467).

In a similar vein, Tabita Rezaire's (2017) video artwork *PREMIUM CONNECT* explores the function of ancestral and traditional memory, and how it relates to technology, computer memory, quantum physics, Ifa Divination, and the underground network of plants. As one of the protagonists explains, we only live for one lifetime and can only remember so much as one human being (Rezaire, 2017). However, by tapping into our collective and/or ancestral memory, we can connect to a worldwide web of sorts, where we access the memory of many lifetimes (Rezaire, 2017). This "postmemory", "mémoire trouée", "received history", "absent memory", "inherited memory", as Hirsch (2012, p. 3) explains, alludes to the compelling — albeit controversial — idea that memory can be generationally transferred to individuals who weren't present at the time of an event. Through "Digitized Diasporic Memory", I hope to tap into our overlapping traditions and collective ancestral memory as members of the African diaspora.

## **Open-source and Open Knowledge Sharing**

Leveraging this collective intelligence, as Pierre Lévy (2003) defined, draws individuals together to form new communities of knowledge and enables the dissemination of knowledge within a networked society. Collective intelligence

applies not just to generational knowledge sharing, but also peer-to-peer business, coordinating collective action, and open-source software (see Figure 1).

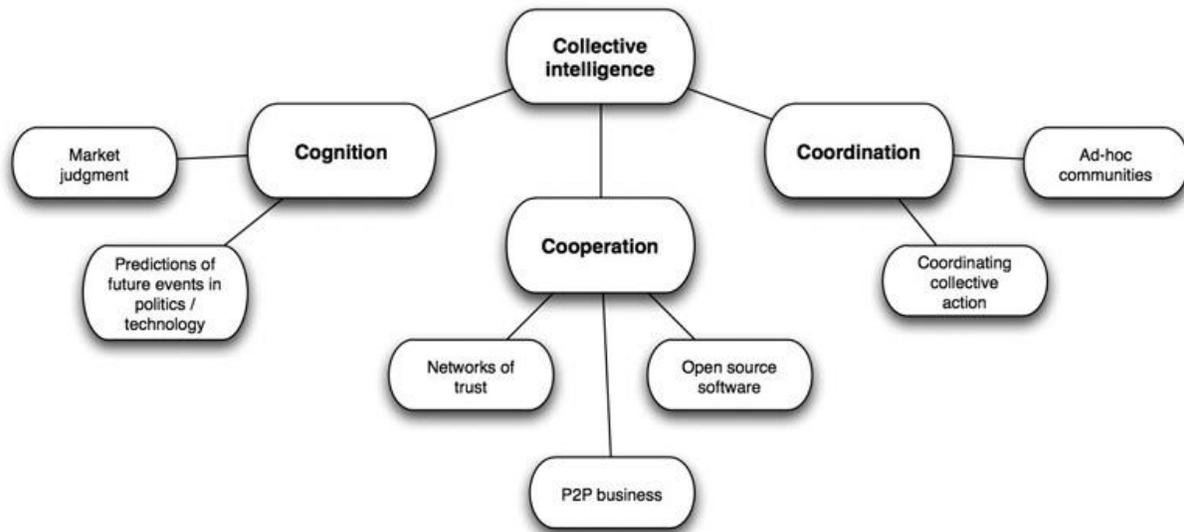


Figure 1—Types of collective intelligence<sup>3</sup> (Creative Commons Licence BY 2.5) (Generozova, 2006)

The latter refers to the open-source software movement, a term coined by Christine Peterson (Neary, 2018). The movement is a radical retake of copyright law wherein the use of open-source licences for all software is encouraged (Carillo & Okoli, 2008). In opposition, proprietary (or closed-source) software contains code and an underlying design which is obfuscated by the developer (Lessig, 2006, p. 139). To fit the definition of “open-source”, software must:

1. allow for free redistribution and not restrict anyone from selling, giving away, or aggregating the program,

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<sup>3</sup> This diagram is based on the examples and types of collective intelligence discussed in the books *Smart mobs* and *The wisdom of crowds* (Generozova, 2006)

2. include un-obfuscated access to the source code,
3. allow for modifications and derived works that can be distributed under the same terms,
4. explicitly permit the distribution of the software built from a modified source code,
5. apply the attached program rights to everyone the program is redistributed to without restriction, and
6. be technologically neutral. (Open Source Initiative, 2007)

Open-source software cannot:

1. allow discrimination against persons or groups,
2. discriminate against fields of endeavour,
3. depend on a particular software distribution, and
4. restrict other software. (Open Source Initiative, 2007)

Working under the framework of *copyleft* licences, users and developers form online communities to create valuable software for the general public (Carillo & Okoli, 2008). Contributors often collaborate on code using distributed version control platforms like GitHub and Gitlab, and everyone who makes an edit to the software is typically listed in the repository, down to the particular file they edited. This open collaboration approach subverts the idea of authorship, ownership, and control; as Lessig (2006, p. 150) highlights, government power is constrained when code is open to the public. This rethinking of intellectual property rights as it relates to innovation, traditional Indigenous knowledge systems, legal frameworks, and open collaboration in the African context has been studied extensively by researchers from the Open African Innovation Research (Open AIR) initiative.

Open-source and copyleft licences are not without their detractors, however. Although its opposition to proprietary software and profit-motivated

corporations may present a utopic and progressive vision, The Organization for Ethical Source (2022) has criticized open-source for what they claim is its critical role in anti-immigrant violence, racist policing, mass surveillance, protestor suppression, the deployment of inhumane weapons, and other worldwide human rights abuses. Detractors have also noted the increasing corporatization of open-source software projects, and the inequitable profits generated for corporations from the free labour of volunteer developers (Horn, 2020b; Liu, 2018; P2P Foundation, 2020). Likewise, when considering open collaboration as a whole, the P2P Foundation (2020) gives the example of traditional open licences which may allow Indigenous communities to retain the knowledge of medicinal herbs created by their commons, but are still at risk of corporate bodies who do not practise benefit or profit-sharing. This highlights what Robinson (2020) describes as the “Western imperative for all knowledge to be accessible at all times”, which sits in contrast to the “situated and context-specific practices of Indigenous knowledge sharing guided by protocol” (p. 21). Indeed, notions of knowledge as ‘freely accessible’ and ‘open’ have “historically been invoked to exploit countries” in the Global South (Traynor et al., 2019) as well as on Turtle Island. As Traynor et al. (2019) explain:

British and Dutch colonial scientists characterized resources in South Africa as “belonging to no one” under the doctrine of *terra nullius* in order to take biodiverse plants and produce botanical science. To the extent that their activities involved appropriation of such materials and research results, the colonial scientists appeared, however, to be less concerned about openness and free accessibility for all. Indeed, the *terra nullius* doctrine was not restricted to science, but widespread among colonial authorities, who used the principle and that of *mise en valeur* to justify land seizures from Indigenous peoples.

A number of *copyfarleft*, *ethical source* and *copyfair* licences have emerged to address some of these concerns, reintroduce stronger reciprocity, or parody

their predecessors (Blue Oak Council, n.d.; Horn, 2021; Klepek, 2020; P2P Foundation, 2019, 2020), namely:

- The Anti-Capitalist Software License (Pipkin & Nasser, 2020)
- Cooperative Work License v 1.0 (French, 2020/2021)
- The Hippocratic License (The Organization for Ethical Source, 2021)
- ml5.js Code of Conduct (ml5.js, 2021)
- Leftcopy Social License ('LSL') (Witts, 2022)
- Nonviolent Public Licenses (Thufie, 2021)
- ACAB License (Grey, 2017/2021)
- Peer Production License (Magyar & Kleiner, 2019)
- the fuck around and find out licence v0.1 (Horn, 2020a)
- Fair Source License (Fair Source License, n.d.)

In order to reconnect free and open-source software to their radical, corporate-unfriendly beginnings, Liu (2018) suggests tapping into open-source communities as “gateways” to bolder, more radical politics of decommodification for both information *and* the material resources required to sustain information production. These considerations were important to keep in mind because a number of the storytelling tools I’ve worked on are built on top of existing open-source software projects. I had to be mindful of the volunteer labour that went into developing these various tools and ensured that I gave back to the software development communities by reporting bugs, contributing to the documentation, and submitting pull requests to improve the code. These considerations were also important because the crowd-sourced audio recordings which were generated during the thesis study are open access. Although the cultural works we produced would fall into the realm of creative commons (as opposed to the software licences mentioned earlier), it was still important for me to inform participants about open licensing and decide on a licence collectively.

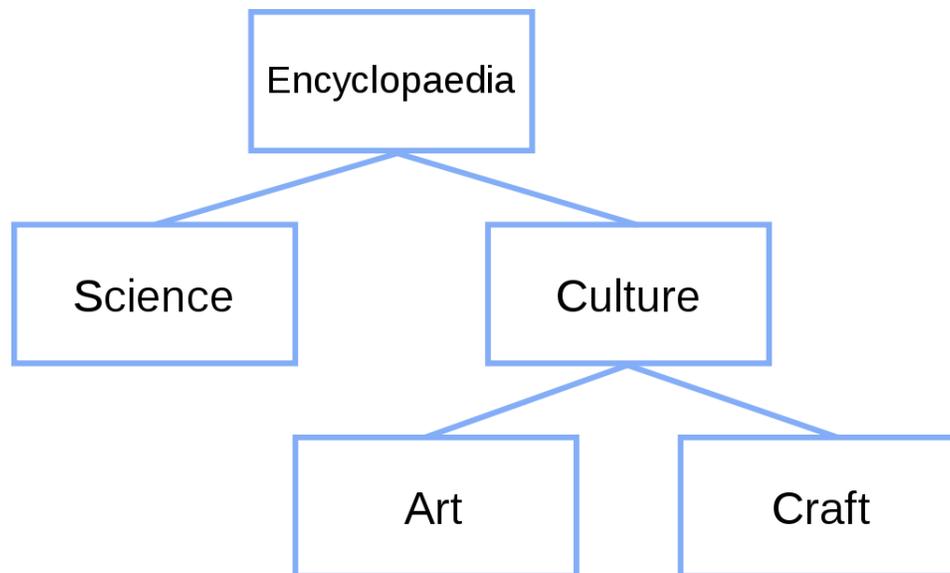
## **Digitized Memory, Decentralized Networks, Interactive Documentary, and Transmedia Storytelling**

The advent of computer technology has brought a number of possibilities in the way of memory. Much like the printing press revolutionized knowledge sharing, so, too, did the possibility of saving documents in a seemingly ever-expanding, immaterial storage and retrieving them in the same state that they were stored. As Wendy Hui Kyong Chun (2008) notes, the conflation of storage and memory undermines *and* underlies the archival promise of digital media. New media and computer technology race towards what Chun (2008) calls the bleeding edge of obsolescence, tethering between the past and the present. Memory, the author maintains, is in a state of constant degeneration, and does not equate to storage:

[A]lthough artificial memory has historically combined the transitory with the permanent, the passing with the stable, digital media complicates this relationship by making the permanent into an enduring ephemeral, creating unforeseen degenerative links between humans and machines. (Chun, 2008, p. 1)

This promise of digital computers as “permanent memory machines” (Chun, 2008, p. 20) is baked in an environment of “rapid obsolescence”, the vanishing of historical consciousness, and narcissistic amnesia (Haskins, 2007, p. 406). In addition, much of the information we store on computers is organized in tree-structured directories wherein information is accessed through subdirectories (see Figure 2). This model, however, doesn’t necessarily reflect how information is recalled (Le Cunff, 2020c). Tangentially related documents may live in different directory folders, with few efficient ways of creating links between them. Furthermore, these rigid, artificially created hierarchies do not

consider the fact that a file/concept/idea can fit into many different directories, and this hinders the discovery of new patterns (Le Cunff, 2020a).



*Figure 2—A tree structure showing the possible hierarchical organization of an encyclopedia, by Cbuckley (Public Domain)*

One compelling approach to this issue has been the advent of evergreen notes. Popularized by researchers Anne-Laure Le Cunff and Andy Matuschak, and inspired by Ted Nelson’s concept of hypertext, these evergreen notes take the form of public/personal note sites that are navigated through bidirectional links. Each note is a webpage that reads like a short diary entry or a quick note on an idea. The note page contains hyperlinks to other note pages, and those note pages indicate which pages link to them (backlinks). Evergreen notes have spurred the development of platforms that I’m loosely referring to as “second brain” applications. This constellation of applications has also been dubbed personal wikis, personal knowledge bases, personal knowledge management (PKM), memory banks, digital diaries, digital gardens, networked thinking, zettelkasten note-taking, and mind maps. Popular “second brain” tools include TheBrain, Roam Research, OneNote, Notion, TiddlyWiki (and its many flavours), Foam, Obsidian, Athens Research, and Logseq. “Digitized Diasporic Memory” draws heavily from these tools and from this idea of personal

networked thinking. The thesis expands into collective thinking, or what can be described as mind-to-mind networks, wherein several individuals connect their ideas together (Le Cunff, 2020d). In a public notebook/digital garden on metacognition and networked thinking, Le Cunff (2020b) described the concept as follows:

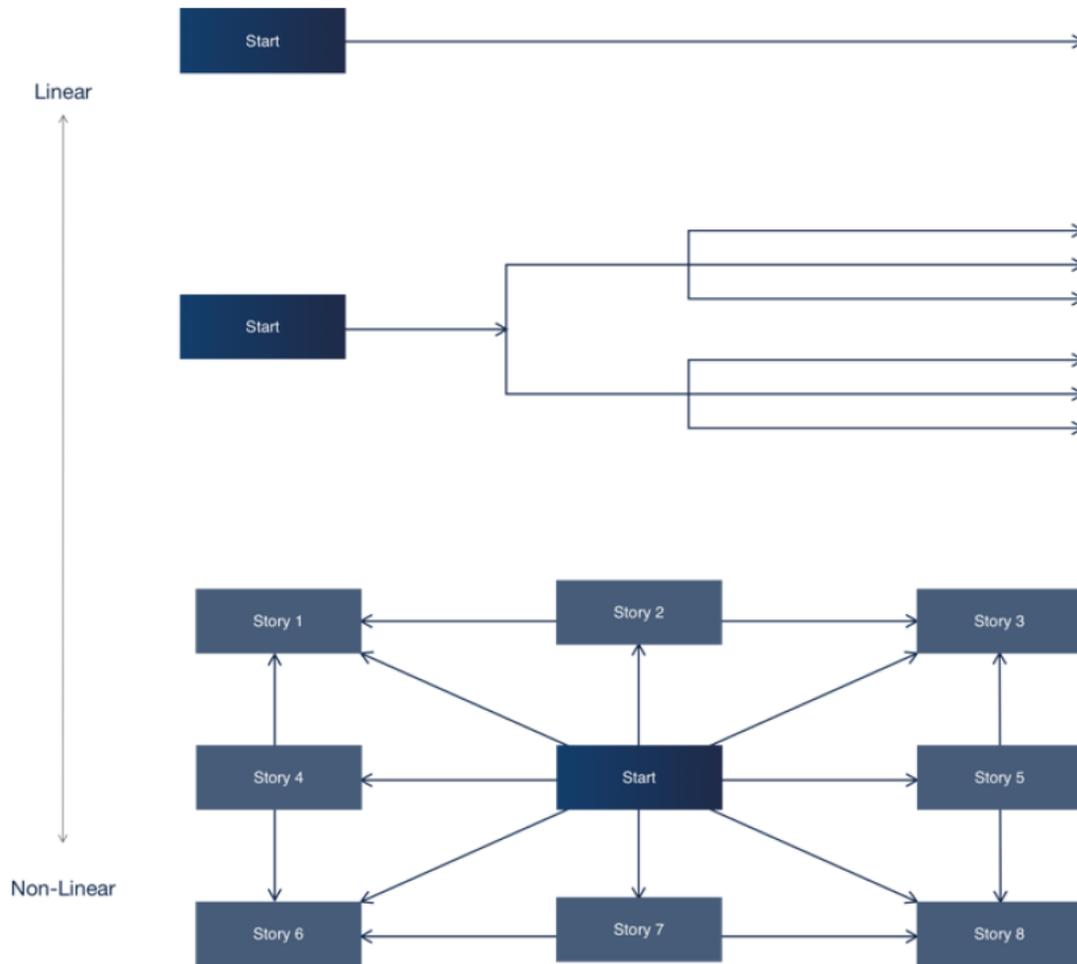
The Internet is a giant mental network. In theory, it would be possible to create a miniature version of the web by creating one node with some content (an idea, a thought) and to ask people to create a branch of that node with a label of their own—based on what the initial node made them think about. People would keep on adding nodes, which would create interesting stories, like a non-linear *cadavre exquis*.

Recalling earlier online communities, Le Cunff (2020e) reflects on threaded conversations and the important affordance of online conversations. The author notes how in real-life, conversations can take on many tangents in a sequential fashion, but there's usually an unspoken need to keep in mind the original topic, evidenced by common utterances such as “What were we talking about again?” or “What was I saying?” (Le Cunff, 2020e). Online, however, there's the possibility of exploring each and every tangent separately, creating infinite nesting (Le Cunff, 2020e).

This model of decentralized networks can extend beyond online communities. Several open-source social media applications have adopted an open standard of federated, autonomous networks known as the fediverse (a portmanteau of federation + universe). Anyone can set up a server (or “instance”), and all the servers in the fediverse can communicate and interact with each other in a peer-to-peer fashion (Raman et al., 2019). In other words: imagine if anyone could host their own versions/instances of Twitter, Facebook, and YouTube. Each of these instances would have its own set of users, but the users from your instance of YouTube could receive updates from users of my instance of Twitter thanks to our shared communication protocols.

Notable federated software platforms include PeerTube, Mastodon, Hubzilla, Pleroma, Friendica, and Pixelfed, and common protocols include ActivityPub, DiasporaNetwork, Ostatus, Zot, and Zot6. This emphasis on peer-to-peer interaction aims to circumvent centralized control and ownership, as Web3 and blockchain technologies purport to do.

Decentralization can even apply to online interactive documentaries (i-docs). As Leung (2021) highlights, i-docs have introduced participation via several user-generated outputs, and iterative, non-linear relationships. This enables participants to become co-creators, increasing their stake and authorial control over the project (Leung, 2021). Leung's model of linearity (Figure 3) highlights the spectrum of narrative modes, from linear to non-linear. "Digitized Diasporic Memory" pushes Leung's model of interactive documentary further down the line of non-linearity. In the public-facing visualization of the archival database, audience members are presented with a network graph where each audio segment is a node, and they have the option of selecting any node. As such, every node is a "start", and every "start" has its own story.



*Figure 3—Degrees of linear and non-linear narrative and the different types of interactive documentary, by Lilian Leung (2021) (used with permission from the author)*

This flat, networked structure works well for transmedia storytelling which, at its core, is dialogic and multilayered (Hancox, 2020, p. 335). Transmedia allows for increasingly horizontal modes of authorship and further deconstructs the amateur community and expert practitioner binary (Hancox, 2020, p. 335). In a survey of Australia’s Big hART arts and media company, Co-Founder and Creative Director Scott Rankin described their collaborative community approach as follows:

It became clear that we weren't running with a top-down 'tree-shaped' model; we were more like a bamboo plant with a complex and ever-shifting root system that ran the company and resulted in our strong and consistent creative productivity. It was much more a rhizome-based structure. (Wright et al., 2016, p. 33)

## **Black Movement Online: Connecting the Diaspora**

From calling cards to Whatsapp, telecommunications technologies have allowed rhizomatically dispersed and displaced members of the diaspora to connect. While reflecting on Blackness in cyberspace, Rubin (2016, p. 74) argues that, "Blackness as an identity has never been fixed to place but rather finds itself articulated through space and, more importantly, time. Movement has defined black identity and served as an origin in and of itself." The movement of people and information in space is essential to connecting the diaspora, but not all interactions are made equal. Space, as Green and Singleton (2006, p. 859) posit, is racialized, sexualized, gendered, and classed. Indeed, they explain that the "ease of access and movement through space for different groups is subject to constant negotiation and contestation, and is embedded in relations of power" (E. Green & Singleton, 2006, p. 859). These power relations, however, are often obfuscated to characterize spaces — both online and off — as "colour-blind" and "egalitarian". Despite the projections of early Internet scholars, who touted online spaces as more inclusive and democratic than mainstream media, racism is "rampant in online contexts" (Ramasubramanian, 2016, p. 334). As Bratton (2015) aptly surmises, "it is far less important how the machine represents a politics than how 'politics' physically is that machinic system" (44). Imbued within a larger society of systemic oppression, the "machines" that occupy and surround our spaces embody these politics. Tangibly, this is evidenced by maps of undersea Internet cables which show how rarely the cables go from Africa to North America or the Caribbean (Satariano et al., 2019).

At the same time, technological innovation has provided the Black community with the conduit to communicate its fluidity, defying archaic binaries (Rubin, 2016, pp. 74, 77). Tabita Rezaire (2014) employs the term “Afro Cyber Resistance” to describe “a manifestation of cultural dissent towards western hegemony online” as well as a visual and cultural gesture that contests the online representation of African cultures and bodies. For instance, this allows Black people who participate in online natural hair groups to communicate the multiplicities of our hairs, body extensions, and personas. As Terranova (2004, p. 8) states, the political dimensions of culture, thus far, have been “conceived mainly in terms of resistance to dominant meanings”. Bringing to mind Stuart Hall’s (2006) theories on encoding and decoding, Terranova (2004, pp. 8–9) continues by stating that, “the set of tactics opened up have been those related to the field of representation and identity/difference (oppositional decodings; alternative media; multiple identities; new modes of representation)”. There’s a cultural struggle waged in this representational space, as Terranova (2004, p. 37) argues.

Consequently, the influence and impact of African American culture on Internet culture and social media at large cannot be understated. Visual representations of Black individuals — especially Black women and femmes — are often the basis of digital memes, so much so that the term “digital Blackface” has been used to denote the phenomenon. Beyond visual aesthetics, the appropriation of Black speech is prevalent, with African American Vernacular English (AAVE) wrongly being misattributed as “netspeak” with no acknowledgement of its origin (Cristal et al., 2021; Roth-Gordon et al., 2020). This phenomenon is especially prevalent on TikTok, a rapidly growing video-based social media where users can use the audio from another user’s video and repurpose the sound outside of its original context. The popularity of Black sounds and choreographies on the platform (especially when performed by non-Black users) but simultaneous shadowbanning, silencing, and deplatforming of Black content creators has left many frustrated, as evidenced by

the 2021 #BlackTikTokStrike by Black content creators (Forman, 2021; Lorenz & Zornosa, 2021; McClay, 2021; Pruitt-Young, 2021).

Conversely, some members of the diaspora are also using the audio-based functions of social media websites to engage in meaningful, inter-diasporic dialogue. On platforms such as Twitter Spaces and Clubhouse, scheduled conversations can be found on topics ranging from dispelling xenophobic rhetoric in South Africa to addressing the tensions between African Americans, African immigrants, and Afro-Caribbean immigrants living in the United States. During the live audio sessions that I've witnessed, participants often share anecdotes, stories, and cultural customs from their lives with other members of the diaspora. Although some discussions can get heated, I find that they effectively facilitate intra-racial learning opportunities, and these modes of encounter have influenced the design of "Digitized Diasporic Memory".

### **Archive & Counter-Archive**

Historically, the western definition of a library gave little credibility to African oral tradition. This was indicative of the refusal to view African people as "the creators of original cultures which flowered and survived over the centuries in patterns of their own making", which historians are unable to comprehend unless they review their approaches and relinquish their prejudices (M'Bow, 1985, p. xix; Smart, 2019, p. 17). Cherry-Ann Smart (2019) details the ties between the first appearances of libraries in the West Indies and the colonial presence of the Spanish, British, French, and Dutch. She notes that even when library services were expanded to include emancipated Africans, these collections served the interest of the elites and prioritized the story of Europe (Smart, 2019, p. 16). Meanwhile, the stories of the "ordinary folks" — the enslaved and the dispossessed — were ignored, as they were not regarded as "agents of this shared past" (Smart, 2019, p. 16). As Achille Mbembe posits, the

archive is a sepulchre that buries the remains and debris of previous lives to “establish an unquestionable authority over them and to tame the violence and cruelty of which the ‘remains’ are capable” (2002, p. 22). In a similar vein, Derrida (1995, p. 2) in *Mal d’archive* [*Archive Fever*] highlights the archive as a source of power, especially for those magistrates who historically kept records and spoke, called on, recalled, and imposed the law.

In her book *Immaterial Archives: An African Diaspora Poetics of Loss*, Jenny Sharpe (2020) addresses the paucity of documentary evidence concerning the lives of Black people during slavery and post-slavery. She does this by focusing on Caribbean artists and writers who localize European archives by infusing material documents with African-derived epistemologies. The “immaterial”, in this case, refers to the intangible quality of affect — dreams, spirits, and visions — as well as the degraded status of African-descended languages, knowledge, and cultures within colonial archives, and the lessened status of the humanities in an information society (Sharpe, 2020). Sharpe also uses the term in a gendered manner, as the book traces a female gendering and regendering of the invisible, silent, and elusive spaces of immateriality.

When considering the present thesis project, we can argue that the Internet plays a vital role in how my collaborative database came to be. Today, the web has brought a number of affordances to archiving, giving rise to collaborative counter-archives and “rogue” archives. In her book *Rogue Archives: Digital Cultural Memory and Media Fandom*, Abigail De Kosnik (2016, p. 1) details how collective, public memory went from being the domain of the state — the ultimate tool of nation-building as Achille Mbembe reminds us (2002; Valcin, 2021, p. 14) — to falling into the hands of rogues. This shift, the author explains, occurred when earlier forms of transmission were displaced by digital networked media (De Kosnik, 2016, p. 1). As public Internet access became more widespread in certain regions, rogue, amateur archivists began choosing what *they* believed was worth preserving and building their own

cultural memory institutions, and further eroding the hold the state maintained on public memory (De Kosnik, 2016, pp. 1–2). Furthermore, the actual meaning of what is archivable is shifting, as contemporary innovation takes into consideration storage, retrieval, interconnectivity, and hyperlinkability (Pinchevski, 2011, pp. 255–256). According to De Kosnik (2016, pp. 76–77), rogue archives are distinct from other forms of archiving because they allow users to download or view or download the cultural texts in their entirety; are freely accessible online (i.e. without paywalls); are not limited by copyright law; are founded outside of traditional memory institutions; are dedicated to the long-term preservation and persistent publication of contents; are staffed by volunteers; and their workers and founders are people who do not possess formal training in records management or archiving. Based on these criteria, “Digitized Diasporic Memory” can be considered a rogue archive. Indeed, the present thesis project seeks to co-curate a culturally relevant archival collection that highlights the “lives, struggles, products, institutions of ‘ordinary folks’” as “agents” of our shared past (Smart, 2019, p. 16).

Despite the web’s widened realm of possibilities and frontiers, Haskins (2007, p. 405) invites us to critique the Internet’s promise of collective authorship, diversity, and interactivity. Indeed, when considering the subjects of my thesis work, it can be said that rogue archives of Black knowledge have not eschewed difficulties. I am thinking namely of the controversy surrounding the 2013 viral Harlem Shake dance trend and the black squares of 2020. The first issue surrounds the Harlem Shake, a dance that originated in the 1980s in the predominantly African American neighbourhood of Harlem in New York City, USA (Keating, 2013, p. 100). In 2013, Baauer, an American DJ, released a song titled “Harlem Shake” which was the basis for the viral dance trend of the same name. At its height, the meme generated 4,000 YouTube uploads per day and effectively buried YouTube videos of the original Harlem Shake (Asega et al., 2017; Soha & McDowell, 2016). Artists Salome Asega, Ali

Rosa-Salas, Chrybaby Cozie, and other Litefeet dancers, who are the keepers of the original Harlem Shake, developed an interactive video game in response to the controversy (Asega et al., 2014). Their work investigates the history of the dance and principally focuses on the role of digital media platforms in “archiving the legacy of contemporary dance movements” (Sud, 2014). In particular, the work centres around the virtual suppression of the genuine Harlem Shake because of the titular meme’s co-option of the name, and the difficulties faced by urban arts communities with respect to thoughtless appropriation and ownership (Sud, 2014). This erasure, as the artists put it, “is an act of violence [...], a devaluation of black cultural production for mass media palatability” (Gomes, 2014).

The second issue in Black digital archiving that I mentioned in the previous paragraph follows a similar pattern. The “black squares” are a reference to #TheShowMustBePaused, an initiative by Black music executives Jamila Thomas and Brianna Agyemang in the wake of George Floyd’s murder (Idliby, 2020). In an Instagram post with white text against a black background, the movement’s creators invited the music industry to reflect and pause on the ways it profits from Black art and disenfranchises Black employees (Sinanan, 2020; #TheShowMustBePaused, 2020). The movement quickly proliferated, with numerous celebrities and major brands posting blank black squares along with the hashtags #TheShowMustBePaused, #BlackoutTuesday, #BlackLivesMatter, and #BLM (Sinanan, 2020; Wellman, 2022). The creators of the movement, however, did not call for people to post black squares and did not associate their initiative with Black Lives Matter (Haylock, 2020; #TheShowMustBePaused, n.d.). As the movement gained momentum, its mission became further obscured and distorted; soon, black squares flooded the Black Lives Matter hashtags and the feeds of users around the world (Haylock, 2020; Wellman, 2022). A number of protestors and activists critiqued what they viewed as performative allyship, as the increasing number of blank posts drowned out resources, images, critical updates on the ongoing protests,

and information that had been shared for the last few years under the Black Lives Matter hashtags (Haylock, 2020; Sinanan, 2020; Wellman, 2022).

These issues in archiving can be likened to what Achille Mbembe (2002, p. 23) calls *chronophagie* [time-devouring, time consuming]. *Chronophagie* removes “any subversive factors in the memory” and expunges any problematic elements from the past (Valcin, 2021, p. 14), softening feelings of guilt, anger, shame, or resentment that the archive may incite or maintain through its function of recall (Mbembe, 2002, p. 24). By commodifying memory, the distinction between “victim” and “executioner” is destroyed, enabling the state to accomplish its long-time dream: “the abolition of debt and the possibility of starting afresh” (Mbembe, 2002, p. 25). Although I cannot entirely mitigate all the possible dangers of digital archiving, I am attempting to address some of these issues with “Digitized Diasporic Memory” by developing a separate space of engagement that is open-source, circumventing the need to rely on proprietary social media and their algorithms. Additionally, the “Digitized Diasporic Memory” can be rhizomatically recreated an infinite number of times with a small subset of participants. Thinking through the thesis project’s manner of engagement *and* its digital infrastructure is critical because as Achille Mbembe reminds us, there cannot be “a definition of ‘archives’ that does not encompass both the building itself and the documents stored there” (2002, p. 19).

## Chapter 3: Methodologies, Conceptual Frameworks, and Methods

“Digitized Diasporic Memory” makes use of a hybrid methodology that engages with numerous dimensions of scholarly research. The following chapter details the variety of critical, decolonial, and participant-driven methodologies and concepts which informed the participatory methods and research-creation process.

### Methodologies

#### The Agency of “Ordinary” People

As detailed in the previous chapter, western ideals of the library gave little credence to African oral histories and the lives of those in the diaspora. For those who have been excluded — whether intentionally or unintentionally — the last asset they have is, often, their story (Rankin, 2016, p. 35). As a practice in “rogue” counter-archiving, “Digitized Diasporic Memory” hopes to defy the previous library practices detailed in Smart’s (2019, p. 17) paper. Indeed, the project hopes to be a culturally relevant database of memories by “ordinary folks” from the African diaspora as agents of a shared past. In the context of this project, I put this concept into practice by not limiting the participants to people who are exceptional orators, are experts in audio recording, or have extraordinary stories to share, veering away from Black exceptionalism which mandates that a Black person must be outstanding for their story to be told.<sup>4</sup> Instead, I accepted anyone who met the study’s criteria. As Burgess (2006, p. 202) recalls, the lived experiences and cultural practices of

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<sup>4</sup> For more reading on “Black exceptionalism” and “#blackexcellence”, see Ahmad (2019) and Asare (2021)

“ordinary people” can become a site of political potential and negotiation. In doing so, I hope to showcase what Bryce (2010, p. 169) described as “the agency of ordinary people as both makers and participants in culture”. Furthermore, this project (and many like it) is driven by the belief that the chance to tell one’s story “empowers individuals and communities, and that sustainable change occurs from within empowered communities” (Hancox, 2020, p. 334).

It is also important to note that the present thesis project doesn’t seek to create a massive network of submissions or engage every single member of the African diaspora. Besides the evident time and resource limitations, my main aim for this iteration of the project is to bring human-specificity through the participation of small but translocal communities. Indeed, I hope to create connections between members of small diasporic communities that are geographically dispersed. From there, I want to encourage others who encounter the current iteration of the project to create their own versions with the help of learning resources. This engagement allows “ordinary” people to facilitate their own collaborative archive, furthering the connections between members of the diaspora in a rhizomatic manner.

### Participatory Engagement and Collaborative Sensemaking

In “Between Archive and Participation: Public Memory in a Digital Age”, Haskins (2007, p. 408) calls for a deeper engagement with digital archives: “It is one thing to collect and digitize large quantities of memorial artifacts; it is quite another to display them in ways to stimulate not only spectatorship but also meaningful participation”. Thanks to the Internet’s strong support for creating and sharing, this meaningful participation can arise through the emergence of a new “participatory culture” (Jenkins et al., 2006, p. 3). Gambarato (2013, p. 87) furthers our understanding of a participatory project by distinguishing it from an interactive project in the following passage:

An interactive project allows the audience to relate to it somehow, for instance, by pressing a button or control, deciding the path to experiencing it, but not being able to co-create and change the story; a participatory project invites the audience to engage in a way that expresses their creativity in a unique, and surprising manner, allowing them to influence the final result. Participation occurs when the audience can, with respect at least to a certain aspect of the project, influence on the set of components, such as the story.

Indeed, a participatory approach to non-fiction transmedia design relies on participatory design principles, facilitation, and maximalist audience participation (Karlsen, 2018, p. 26). With this approach, we go from designing stories to designing platforms where the audience can influence the final outcome of the project (Karlsen, 2018, p. 26). This open-ended, bottom-up approach empowers participants to influence the project from the beginning, not just after the project is released (Karlsen, 2018, p. 26). Although “Digitized Diasporic Memory” doesn’t make use of the most “maximalist” forms of participation,<sup>5</sup> it still incorporates participatory principles. In *Introduction to Documentary*, Nichols (2001) defines the Participatory Mode as when:

The filmmaker steps out from behind the cloak of voice-over commentary, steps away from poetic meditation, steps down from a fly-on-the-wall perch, and becomes a social actor (almost) like any other. (Almost like any other because the filmmaker retains the camera, and with it, a certain degree of potential power and control over events.) (p. 116)

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<sup>5</sup> In *Media and Participation: A site of ideological-democratic struggle*, Nico Carpentier (2011) draws on Pradip Thomas’s (1994) comparison of micro- and macro-participation to distinguish minimalist participation from maximalist democratic participation. Maximalist participation balances representation and participation; includes multidirectional participation; combines micro- and macro-participation; attempts to maximize participation; has a broad definition of the political as a dimension of the social; and, focuses on heterogeneity (Carpentier, 2011, p. 17).

Indeed, I took the role of an active participant and facilitator in this project, taking on a more reflective and responsive relationship and moving towards the diary/personal testimonial (Nichols, 2001, p. 120). My interventions, reflections, and reactions are heard throughout the project. That said, the author's caveat in the above block quote about being a social actor "*almost*" like any other is an important one. Although I am also a subject in this project, I ultimately decided on the final output and presentation. Nichols (2001) calls this the "ethics and politics of encounter", which is "the encounter between one who wields a movie camera [in my case the audio recorder] and one who does not" (2001, p. 116). Grappling with this power imbalance can be challenging but important to reflect on. As such, I made sure to be transparent with participants about how the recordings will be used and discussed licensing in the final meeting. Participants were also encouraged to record their own submissions, and allowed to manage access to their submissions. Additionally, I honoured requests for attribution.

All in all, I made use of recorded conversations as a form of social encounter with my participants, bringing "different accounts together in a single story" (Nichols, 2001, p. 122). I would fall into the component of participatory documentarians who "seek to represent [our] own direct encounter with [our] surrounding world" (2001, p. 123). As such, my audience members witness "a form of dialogue between filmmaker and subject that stresses situated engagement, negotiated interaction, and emotion-laden encounter" (2001, p. 122). After all, "meaning, from a poststructuralist perspective, is seen as intersubjective and is created through competing discourses" (Iseke-Barnes, 1997, p. 207). This move towards multi-authored storytelling and increasingly interactive modes goes beyond the inevitable use of technology: it is also a deliberate decision to "radicalize the nature of the form" (Hancox, 2020, p. 334). Solanas and Getino (1970) offer a compelling perspective on the power of this intersubjective dialogue between people of different nations, stating that:

Testimony about a national reality is also an inestimable means of dialogue and knowledge on the world plane. No internationalist form of struggle can be carried out successfully if there is not a mutual exchange of experiences among the people, if the people do not succeed in breaking out of the Balkanization on the international, continental, and national planes which imperialism is striving to maintain. (1970, p. 6)

I hope that through dialogue, we can begin to counter alienation between members of the diaspora as the result of settler-colonialism. As a social transaction, the storytelling and sense-making process engage participants in a communicative relationship (J. E. Davis, 2002, p. 19). By co-creating and identifying stories, the readers/listeners and storytellers become a “we”, nurturing a sense of solidarity and affective bonds (2002, p. 19). When the story is told and retold, “‘my story’ becomes ‘our story’” (2002, p. 19).

## **Methods**

### Participatory Workshop Recruitment and Iterative Data Collection

An important aspect of “Digitized Diasporic Memory” is the use of crowd-sourced audio recordings. To put the database’s proof of concept to test, I conducted a study from February 16<sup>th</sup>, 2022, to March 20<sup>th</sup>, 2022, wherein participants and I collaboratively contributed to the database and met to discuss the submissions. To participate in the study, interested individuals had to identify as being Black/of sub-Saharan African descent (including Afro-Caribbean, Afro-Latine, etc.), be over the age of 18, and complete an Interest Screening Form (see Appendix A — Participant Screening Form). The form asked for demographic information, the kinds of sounds they would like to contribute, and their availability. The study received approval from OCAD University’s Research Ethics Board on February 6<sup>th</sup>, 2022, and I began sharing recruitment materials on social media shortly thereafter, employing a snowball

recruitment strategy and email recruitment strategy (see Appendix B — Marketing Materials). I shared the marketing materials on my social media pages (Facebook, Instagram) and on several Black-Canadian Facebook groups, which were in turn shared by my contacts on their own social media pages. Additionally, I asked several organizations to share my materials on social media. I also emailed two Black Canadian organizations which served the elderly, as well as an art council for older adults.

In total, ten people completed the interest form. As the number of interested participants was under my 10-person cutoff, I invited everyone who completed the form to join the study. Four workshops were conducted to explain the project, provide demos of the technologies, reflect on the experience, and record discussions about the submissions which would be fed back into the database. As the audio submissions rolled in, I conducted qualitative engagement as well, noting the themes, similarities, and patterns between the shared memories. When participants and I discussed what had been submitted so far, I noted these unexpected links between our entries.

### Research-Creation Using Open-Source, Accessible Tools

Throughout my time at OCAD, I conducted numerous experiments, studies, and investigations with front-end web technologies (HTML, CSS, and p5.js) as well as open-source self-hosted applications. Some were done in the context of schoolwork, and others were tested out of autodidactic curiosity. Although the majority of my dabbling wasn't done with my thesis in mind, these experiences inadvertently informed the more intentional research-creation process which followed. "Research-creation" is an emergent field of research in the humanities and social sciences which addresses contemporary modes of knowing and media experiences (Chapman & Sawchuk, 2012). As an integral part of the study, research-creation projects usually include an artistic

output, a creative process, or an experimental aesthetic component. With “Digitized Diasporic Memory”, the goals of my research-creation pursuits were to:

- facilitate real-time, audio-based collaborations in a way that would be easy for participants to engage with;
- showcase the archive’s database to the public in a way that facilitated the download of individual audio segments; and,
- devise potential outputs, visualizations, etc. using the database’s contents.

In the Fall of 2021, I started to document this process as part of my independent study course on my thesis blog, [www.thesis.candide.xyz](http://www.thesis.candide.xyz). As I explored the creation of new forms of interfaces and programming, I found myself repurposing existing software applications. Rather than create something new from scratch, I opted to use existing technologies in unintended and unusual ways. Although I explored both proprietary and open-source software, I found a lot more flexibility with open-source tools as I was able to tweak the software further, understand its processes better, and collaborate with fellow users as well as developers. Ultimately, these research methods allowed me to generate art and code, engage with new technologies, investigate networks, and collaborate with people in various open-source communities. The results of these explorations are discussed further in the next chapter.

Although I enjoyed experimenting with various, increasingly complex technologies and tech setups, it was vital to keep my users in mind: both the participants who would be submitting audio recordings and anyone who wanted to recreate the project. In “Enabling Polyvocality in Interactive Documentaries through ‘Structural Participation’”, Green et al. (2017, p. 6318) report that almost all of the tools listed in MIT’s *Docubase* require web (HTML5,

CSS, JavaScript) or mobile (Android/iOS) development skills. The authors rightfully note that the technical skills required to configure and engage with these tools “exclude all but the most determined non-professionals” and represent a challenge in making i-Docs more participative. The authors cite Popathon, a series of open-source interactive online video storytelling workshops, as a step towards bridging these technological gaps, although familiarity with JavaScript is still required (D. P. Green et al., 2017, p. 6318; Mozilla, 2013). These considerations were vital in my research-creation process and helped me narrow down which platforms to use. For my workshop-based study, it was important to strike a balance between facilitating the creative production of audio and teaching participants how to use the tools. Sometimes, this meant opting for a proprietary tool for a portion of the project or providing more options because it would be easier for more participants to understand and use. This approach extended to hardware as well, as I encouraged participants to use whatever recording device they had on hand that they were comfortable using, whether it was a phone recorder or an external microphone. During the synchronous meetings, this also meant using the audio recorded from the videoconferencing software. This approach was inspired in part by Lilian Leung’s (2021) “Future through Memory” thesis project which enabled participants to produce industry-grade photogrammetry renderings using the cameras that participants had on hand (smartphone camera, DSLR, etc.). This low-cost, DIY approach to creation and media production fascinates me, and can be likened to what Sherry Millner (2001) describes as “cheap/bargain media”. In Millner’s opinion, cheap media “may hold out the promise of greater access and immediacy of production for women—particularly for women without access to professional schools and high-tech equipment” (2001).

## Chapter 4: Explorations

This chapter goes over my exploration of the different technologies used in the thesis project. “Digitized Diasporic Memory” is a collaborative database of audio stories which respond to each other, and these audio recordings can be downloaded, repurposed, remixed, etc. As such, I experimented with different platforms, software applications, and technologies that could store the files, organize them as a database, allow the public to download the files, and create links between them. I also tested different methods of repurposing the core database to visualize and understand the entries in a different way. Each section details the benefits and limitations of the software applications that were tested and their variants, as well as a justification for the selected platforms and technologies.

### Relational Databases

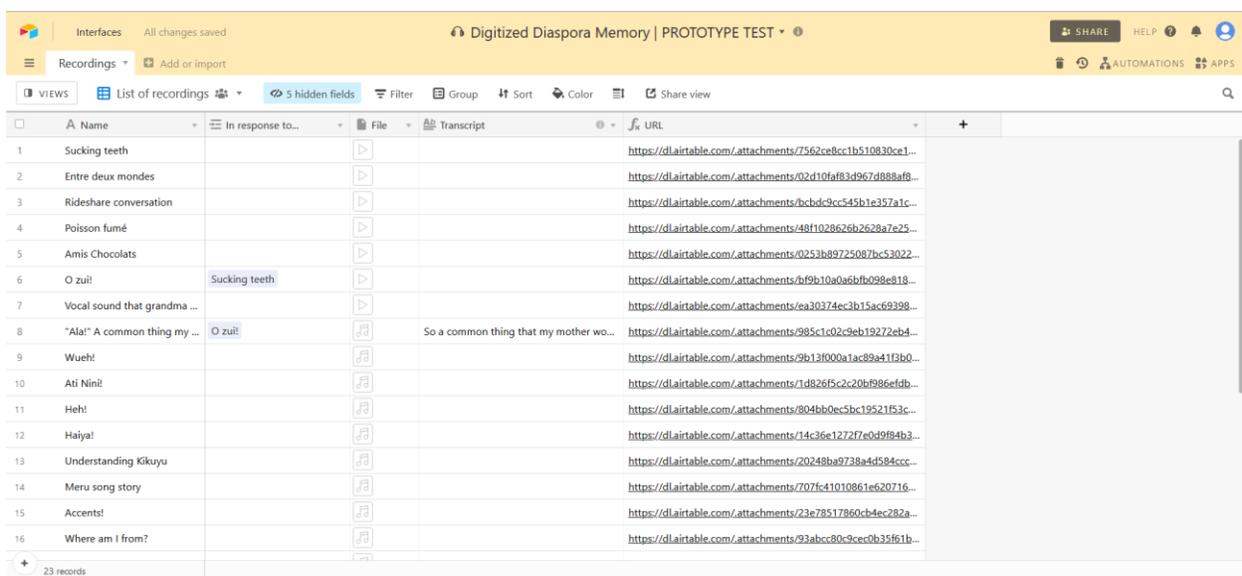
At its core, “Digitized Diasporic Memory” is a database of sounds that respond to each other. As such, using a relational database web application made the most sense. As Oracle (n.d.) defines:

A relational database is a type of database that stores and provides access to data points that are related to one another. Relational databases are based on the relational model, an intuitive, straightforward way of representing data in tables. In a relational database, each row in the table is a record with a unique ID called the key. The columns of the table hold attributes of the data, and each record usually has a value for each attribute, making it easy to establish the relationships among data points.

In this section, I’ll discuss two relational database cloud applications that I’ve tested to collaboratively store the participants’ audio recordings.

## Airtable

The initial database exploration was done using Airtable, a low-code, collaborative spreadsheet-database hybrid cloud application. In Airtable, each column represents the same type of data or “field”. Fields can be short text, long text, formulas, file attachments, dates, phone numbers, and much more. Where Airtable shines, however, is in its ability to make links between entries, or “records”—be it within the same table, or across different tables.



|    | Name                         | In response to... | File                                   | Transcript | URL   |
|----|------------------------------|-------------------|--|------------|---|
| 1  | Sucking teeth                |                   |  |            | <a href="https://d1airtable.com/attachments/7562ce8cc1b510830ce1...">https://d1airtable.com/attachments/7562ce8cc1b510830ce1...</a>   |
| 2  | Entre deux mondes            |                   |  |            | <a href="https://d1airtable.com/attachments/02d10fa83d967d888af8...">https://d1airtable.com/attachments/02d10fa83d967d888af8...</a>   |
| 3  | Rideshare conversation       |                   |  |            | <a href="https://d1airtable.com/attachments/fc6bd49cc545b1e357a1c...">https://d1airtable.com/attachments/fc6bd49cc545b1e357a1c...</a> |
| 4  | Poisson fumé                 |                   |  |            | <a href="https://d1airtable.com/attachments/48f1028626b2628a7e25...">https://d1airtable.com/attachments/48f1028626b2628a7e25...</a>   |
| 5  | Amis Chocolats               |                   |  |            | <a href="https://d1airtable.com/attachments/0253b89725087bc53022...">https://d1airtable.com/attachments/0253b89725087bc53022...</a>   |
| 6  | O zui!                       | Sucking teeth     |  |            | <a href="https://d1airtable.com/attachments/bf9b10a0a6f8b098e818...">https://d1airtable.com/attachments/bf9b10a0a6f8b098e818...</a>   |
| 7  | Vocal sound that grandma ... |                   |  |            | <a href="https://d1airtable.com/attachments/ea30374ec3b15ac69398...">https://d1airtable.com/attachments/ea30374ec3b15ac69398...</a>   |
| 8  | "Ala" A common thing my ...  | O zui!            | So a common thing that my mother wo... |            | <a href="https://d1airtable.com/attachments/985c1c02c9eb19272eb4...">https://d1airtable.com/attachments/985c1c02c9eb19272eb4...</a>   |
| 9  | Wueh!                        |                   |  |            | <a href="https://d1airtable.com/attachments/9b13f000a1ac89a41f3b0...">https://d1airtable.com/attachments/9b13f000a1ac89a41f3b0...</a> |
| 10 | Ati Nini!                    |                   |  |            | <a href="https://d1airtable.com/attachments/1d826f5c2c20b1986efdb...">https://d1airtable.com/attachments/1d826f5c2c20b1986efdb...</a> |
| 11 | Heh!                         |                   |  |            | <a href="https://d1airtable.com/attachments/804bb0ec5bc19521f53c...">https://d1airtable.com/attachments/804bb0ec5bc19521f53c...</a>   |
| 12 | Haiya!                       |                   |  |            | <a href="https://d1airtable.com/attachments/14c36e12727e0d9f84b3...">https://d1airtable.com/attachments/14c36e12727e0d9f84b3...</a>   |
| 13 | Understanding Kikuyu         |                   |  |            | <a href="https://d1airtable.com/attachments/20248ba9738a4d584ccc...">https://d1airtable.com/attachments/20248ba9738a4d584ccc...</a>   |
| 14 | Meru song story              |                   |  |            | <a href="https://d1airtable.com/attachments/707fc41010861e620716...">https://d1airtable.com/attachments/707fc41010861e620716...</a>   |
| 15 | Accents!                     |                   |  |            | <a href="https://d1airtable.com/attachments/23e78517860cb4ec282a...">https://d1airtable.com/attachments/23e78517860cb4ec282a...</a>   |
| 16 | Where am I from?             |                   |  |            | <a href="https://d1airtable.com/attachments/93abcc80c9cec0b35f61b...">https://d1airtable.com/attachments/93abcc80c9cec0b35f61b...</a> |

*Figure 4—Airtable user interface with the following fields (from left to right): short text field, link to another record field, attachment field, long text field, formula field*

Since Airtable allows to attach files to each record and can preview most file extensions (including audio!), it was the perfect choice for initial exploration. Using special formulas, it was also possible to have a field that displayed where the file was stored in Airtable’s storage, which could allow for embedding the audio files in other applications.

During the month of January 2022, I collaborated with friends to test the ease of using Airtable as a collaborative storage space. Airtable provided several benefits for this initial test, including easily inviting people to the base via a

link, a mobile app to directly upload audio that may have been recorded on the participant's phone, and the ability to send a daily digest of entries to participants.

The limits of Airtable, though, are in the storage capabilities. Since I'm on a Student Pro plan until the end of my studies, I'm afforded all the bells and whistles that come with the premium plan such as automations, increased storage space, and a larger window of revision history. However, once I revert to the Free plan, I may run into some issues with the base if the data stored exceeds 2 GB.

Another issue relating to storage is the URLs. When a file is uploaded to an attachment field in Airtable, the link to its storage in Airtable's server can be retrieved using a formula field (Skelly, 2018). This is useful for embedding the audio in other web applications. For instance, if someone wanted to embed the audio on their website, they could use the URL as the source, rather than downloading the audio and uploading it to their own server. However, the use of Airtable's storage as a content delivery network (CDN) to "*hotlink*"<sup>6</sup> attachments on their server has been discouraged by an employee of the company on their public forum (Hahn, 2019). The employee also mentioned that Airtable cannot guarantee fully static URLs for attachments (Hahn, 2019). As such, if Airtable decides to change how they generate links for attachments, it would break applications that embed audio using links to Airtable's server.

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<sup>6</sup> *Hotlinking*, also called *inline linking*, refers to an object which is directly linked from another site or server (Computer Hope, 2020). For instance, if I copied the link to an image I found on another website, and embedded that same image on my own site using said link, it would be considered *hotlinking*. Images are typically used as hotlinks, but in this context, I'm referring to audio files. *Hotlinking* is typically frowned upon because it causes "unwanted bandwidth usage" on the host site and "copyright concerns" when its done without permission (Mozilla MDN Contributors, 2021).

Additionally, because Airtable is a closed-source, centralized app that couples the database and storage on the user's end, there is no way of knowing if a file that was deleted from Airtable's user interface was truly deleted from its server. As several power users have remarked in the application's forum, files that had since been deleted via the Airtable interface were still accessible via the URL (Friedman, 2019; JackM, 2020; Morris, 2021; stonkykong, 2021). This abstraction and coupling of storage and database are also problematic when considering the possibility of Airtable's demise. If Airtable were to cease to exist, so would its storage backend, which end users don't have access to. With these considerations in mind, I began searching for alternatives.

### NocoDB

In the last few years, a slew of Airtable dupes and clones have emerged (Baserow, SeaTable, Rowy). In my opinion, the standout alternative of the bunch has been NocoDB. Branding itself as an open-source Airtable alternative, NocoDB is available not as a service, but as a template code that can be self-hosted on Heroku or Docker. This allows users to deploy their own clone (or instance) of the application on the server of their choice. Although lacking some of the features of its proprietary counterpart, NocoDB provides everything needed to host "Digitized Diasporic Memory"'s database: a variety of field types, multi-user real-time collaboration, file attachments, and the ability to create links between entries.

The advantage of NocoDB over Airtable is the way it handles file attachments. To upload files to their NocoDB instance, users can configure a variety of cloud storage services as a plugin, with many offering generous free plans. Presently, users have the option of creating accounts for and connecting Minio, Google Cloud Storage, DigitalOcean Spaces, Vultr Object Storage, OvhCloud Object Storage, Linode Object Storage, UpCloud Object Storage, Backblaze B2, Amazon Simple Storage Service (S3), or Scaleway Object

Storage. When a user uploads a file to their NocoDB base, it is automatically uploaded to their storage and can be accessed both via their NocoDB interface and via their account with the cloud storage service. As such, users can ensure that third parties cannot access a deleted file from its link to the storage server.

Additionally, the fact that NocoDB provides open-source code, a template for self-hosting, and databases decoupled from their storage means that there are several fail-safes that can ensure the longevity of the project. If the NocoDB project is abandoned or goes unmaintained, my project will stay alive since I'm operating my own copy of the code on Heroku. Other users may even decide to fork the project on GitHub to continue maintaining the project from another branch. If Heroku shuts down, I can migrate my NocoDB instance to another analogous platform and maintain the file storage references.

NocoDB is not without its flaws, however. Since it is an application that has to be self-hosted, the user is required to maintain and manually update the software on their own. As a relatively new project in perpetual beta, updating is frequent, with new releases launching multiple times a month. Additionally, at the time of writing, NocoDB lacks the ability to undo modifications or a mechanism to preview audio files within the application. On Firefox, this means that audio files are opened in a separate tab to preview, but on Chromium-based browsers, the user is prompted to download the file. If the corpus of submitted audio recordings were to become large, downloading each file might become onerous for someone who simply wants to preview the audio. These limitations prevented me from fully adopting NocoDB as a complete replacement for Airtable.

As such, I decided to use both Airtable and NocoDB for the final project. Airtable was used for the study's collaborative data sourcing because of its ability to preview audio files within the application, its undo feature, and its

ease of use. The database was then transferred to NocoDB, with audio files uploaded to Backblaze Object Storage via the integration. The general public has access to an embedded, read-only version of the NocoDB database (<https://diasporamemory.com/database>), and the thesis output makes use of storage links provided via Backblaze.

## **Interactive Network Graphs**

Although the cloud relational database applications detailed in the previous section provide a simple way of cataloguing the audio segments, the relationships between the different audio nodes may be hard to visualize. Seeing the entries as rows in a spreadsheet may help to sort and order the entries but does not provide as strong of a visual aid as something like a network graph. As such, I decided to represent the submissions as nodes and their relationship as edges, recalling the rhizomatic nature of the thesis concept. The present section details some of the software I tested to create a network graph in which sound could be embedded and the accidental way this software was found.

### TheBrain

In my quest to find an efficient way to manage my thesis writing, I found TheBrain. The summer semester of my grad program was marked by a lot of explorations, presentations, and multiple rounds of feedback. I soon found myself drowning in all the scattered suggestions and fragments of ideas. One suggestion from a CFC mentor was tucked away in a word document titled after the lecture date and filed in an endless stream of subfolders. Meanwhile, a suggestion by my primary advisor that could be connected to that CFC mentor's note was hidden away in my notebook where I also took work notes. How could I meaningfully connect these disparate thoughts, suggestions,

references, and ideas without copy-pasting everything in a giant, endless Word doc?

As detailed in Chapter 2, the limits of the traditional directory tree/hierarchy system folder structure were quickly becoming apparent. I began looking for a Zotero integration or plugin that could create links between bibliographic references, tags, and ideas and found TheBrain in the process. I was instantly fond of its animated network graph/mind-map, and how it made links to ideas in an organic, non-linear (albeit, still somewhat hierarchical) manner. When you clicked on a node, it would zoom in and out of a graph that displayed all the other nodes it was connected to, and this was what I had initially envisioned for *In My Tongue's* interface. As such, using this application as a tool for both thesis planning *and* prototyping seemed ideal.

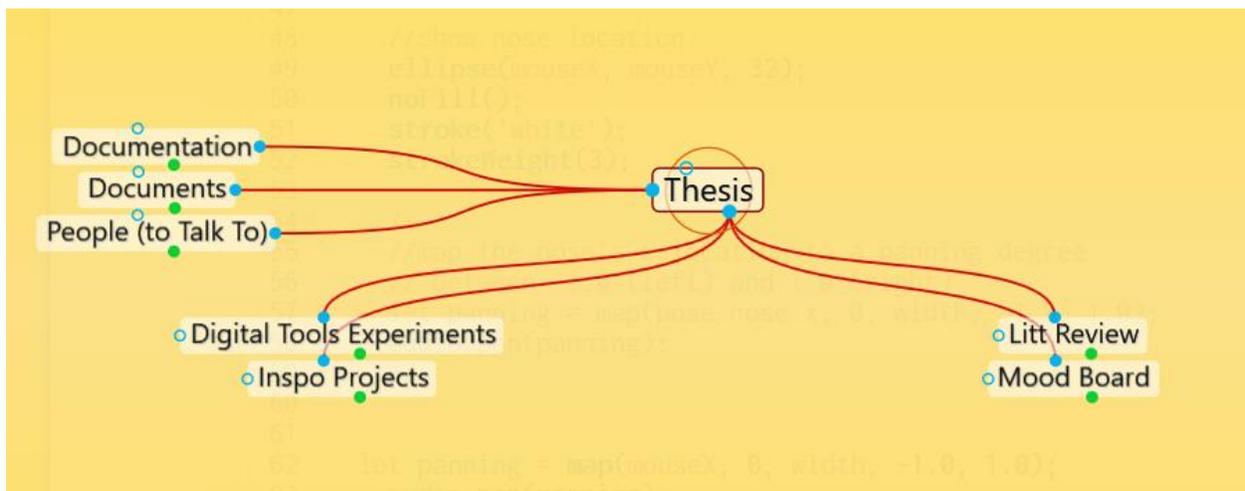
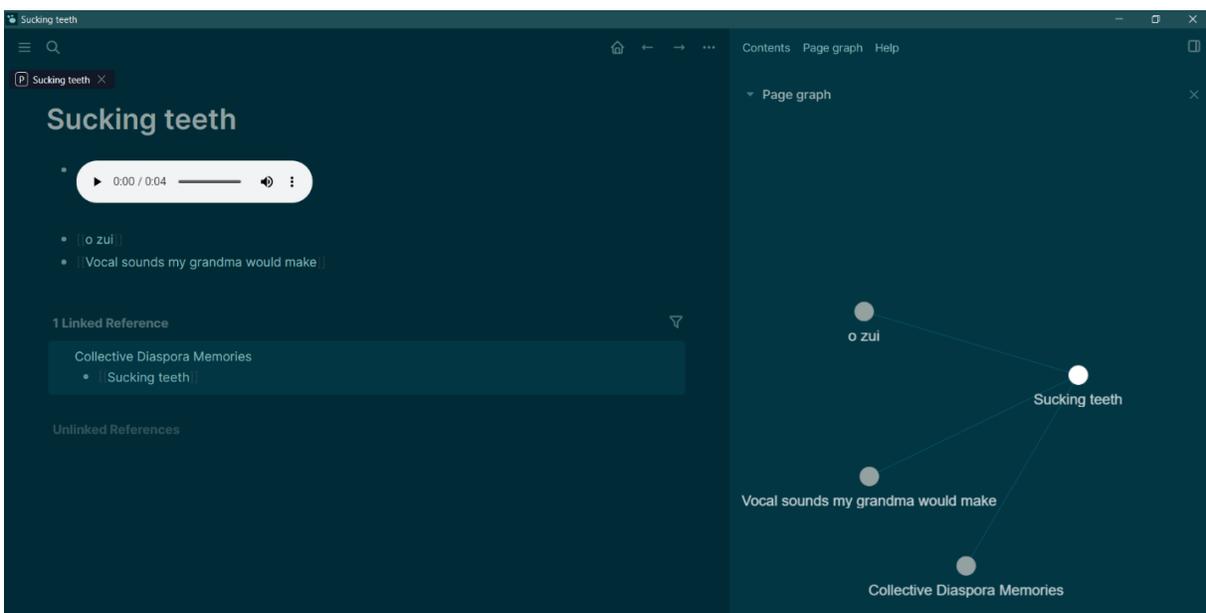


Figure 5—TheBrain’s network graph

TheBrain’s limits, however, became apparent once my free trial expired. At times, the app refused to open, sending me into a panic—until I realized that it was hiding below all my apps and prompting me to upgrade. The free-not-trial version was severely limited: I was no longer able to embed and make references to files on my PC—an essential feature that allowed me to keep files in their respective folders as opposed to copy-pasting.

## Logseq

After much perusing, I found an open-source alternative that stole my heart: Logseq. Describing itself as a 'digital knowledge garden', Logseq is and still appears to be a solid free and open-source alternative to TheBrain, and even has features that TheBrain lacks. Although Logseq doesn't have the fancy node zoom animation, it does allow to embed PDFs, PDF annotations, videos, YouTube timestamps, pictures, HTML pages, and audio files (both on the PC and hosted online). Being able to embed sound to the pages and map them on a graph made the possibility of using Logseq as an audience-side output of the thesis even more promising. Furthermore, Logseq creates its own connections between pages by seeing if a page's title appears in the text of other pages, and these connections are showcased in the "Unlinked References" section of each page. Additionally, with an editable style sheet and open-source code, it is possible to customize the look and feel of the application in an unlimited number of ways.



*Figure 6—Logseq user interface (default theme) displaying a node's page and the page's graph.*



*Figure 7—Logseq user interface (default theme) displaying the graph view.*

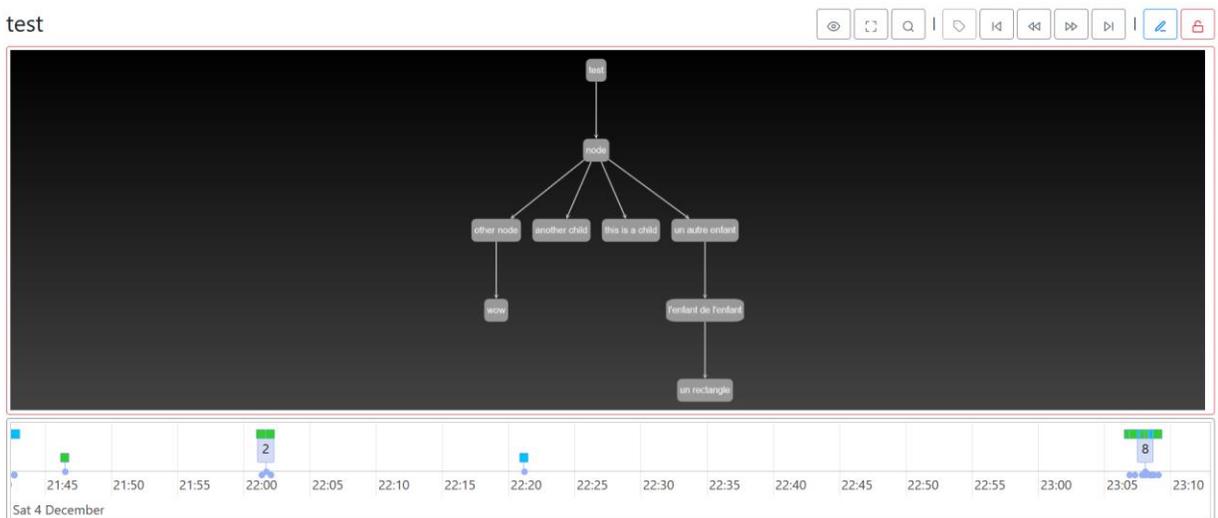
My initial idea was to connect the participants and I would to the same Logseq “brain/graph” folder using a cloud drive of some sort since Logseq graphs can be opened from anywhere via Logseq’s website or desktop app. All each device/user needs is access to the folder, which simply consists of Markdown (.md) files, extensible data notation (.edn) files, and a cascading style sheet (.css).<sup>7</sup> That said, the setup didn’t fare well with multiple users editing the folder in real-time, since this created conflicting files. Real-time collaboration on Logseq, at the time of writing, is part of Logseq’s development roadmap but isn’t available yet.

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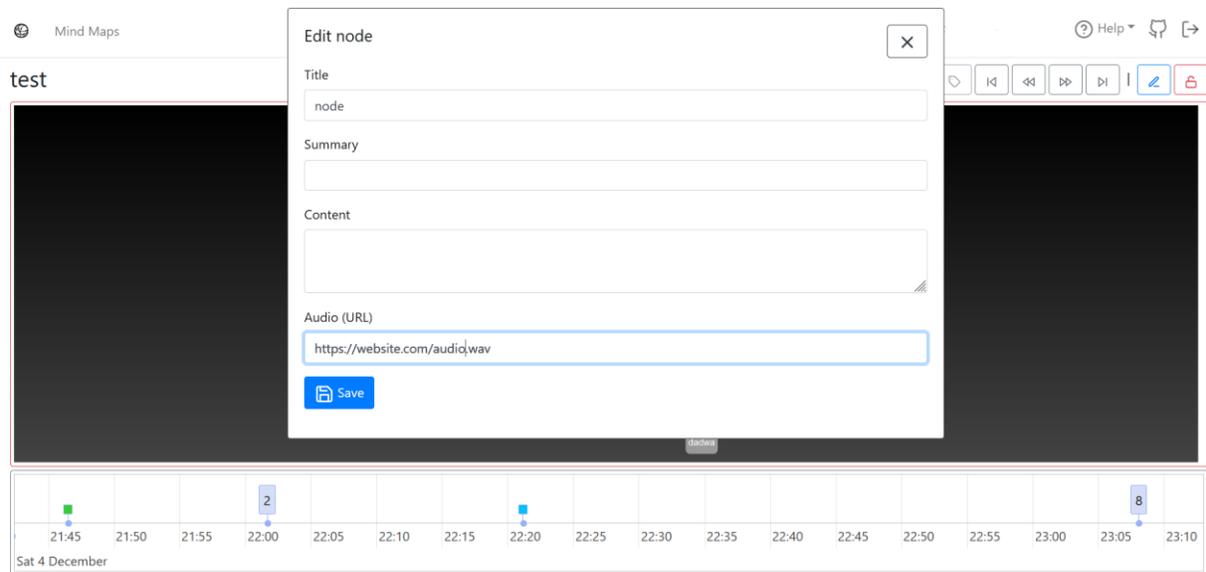
<sup>7</sup> For an explanation of this exploration in video form, visit the following link: <https://diode.zone/w/t7bZPupoQk3qJrSzM8o3H8>

## Hivemind

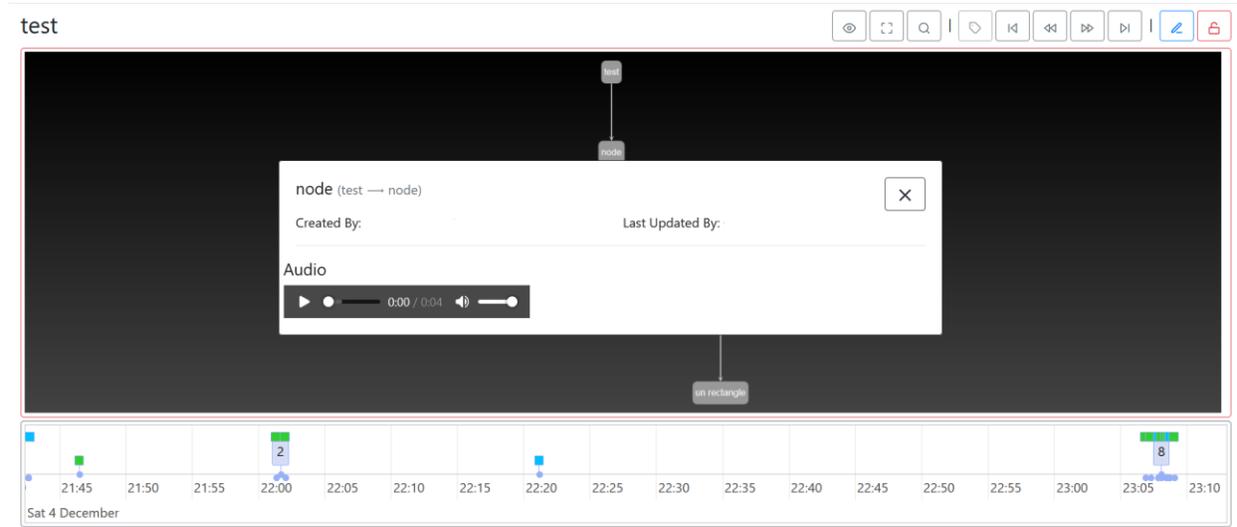
I once again began to look for alternatives, but I was unable to find an application that could generate collaborative, real-time network graphs in which audio could be embedded in the nodes. While perusing GitHub, I found a small open-source project called Hivemind which allows for collaborative (in real-time), version-controlled mind mapping (Mukhopadhyay, 2020/2022). Initially, the app only allowed for a title, summary, and content text to be added to each node. That said, after consulting the source code and with the help of Aditya Mukhopadhyay, the maintainer, I was able to contribute a pull request which added the ability to preview an audio file hosted online.



*Figure 8—Hivemind user interface displaying mind map tree*



*Figure 9—Hivemind user interface displaying node editing mode*



*Figure 10—Hivemind user interface displaying node preview mode*

Although the real-time collaboration worked wonderfully, this application presented several limitations which prevented me from adopting it. For instance, although the project allowed for real-time collaboration, there was no ability to invite other accounts. As such, everyone would have to use the same credentials to access the graph, and there would be no way of knowing who contributed what. Additionally, there was no way of exporting or



In the summer of 2021, I attended a workshop called “Making Music with Live Coding” taught by Sebastien Callender and hosted by the Digital Arts Resource Centre (formerly SAW Video). In this workshop, I was introduced to Orca, loopMIDI, and VCV Rack. I also got to experiment with Ableton Live’s MIDI Slicing algorithm, which can slice up a recording based on certain parameters and assign the different identified sounds to a note. These notes can then be played with another external musical instrument or interface using MIDI.

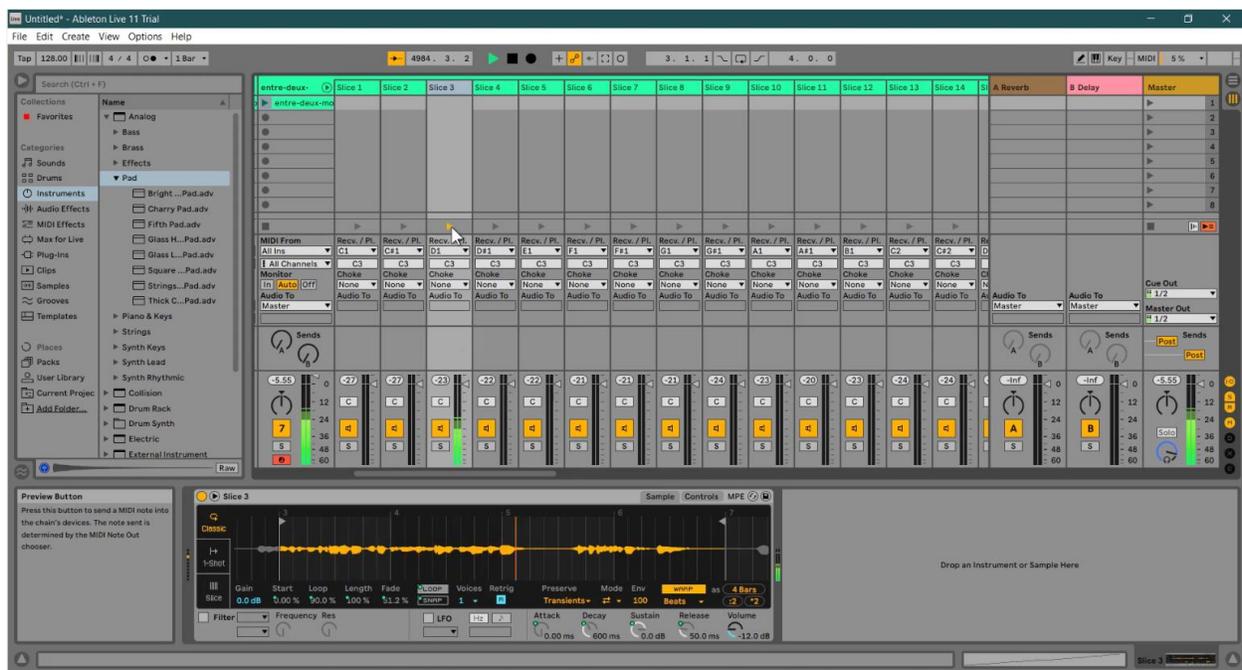
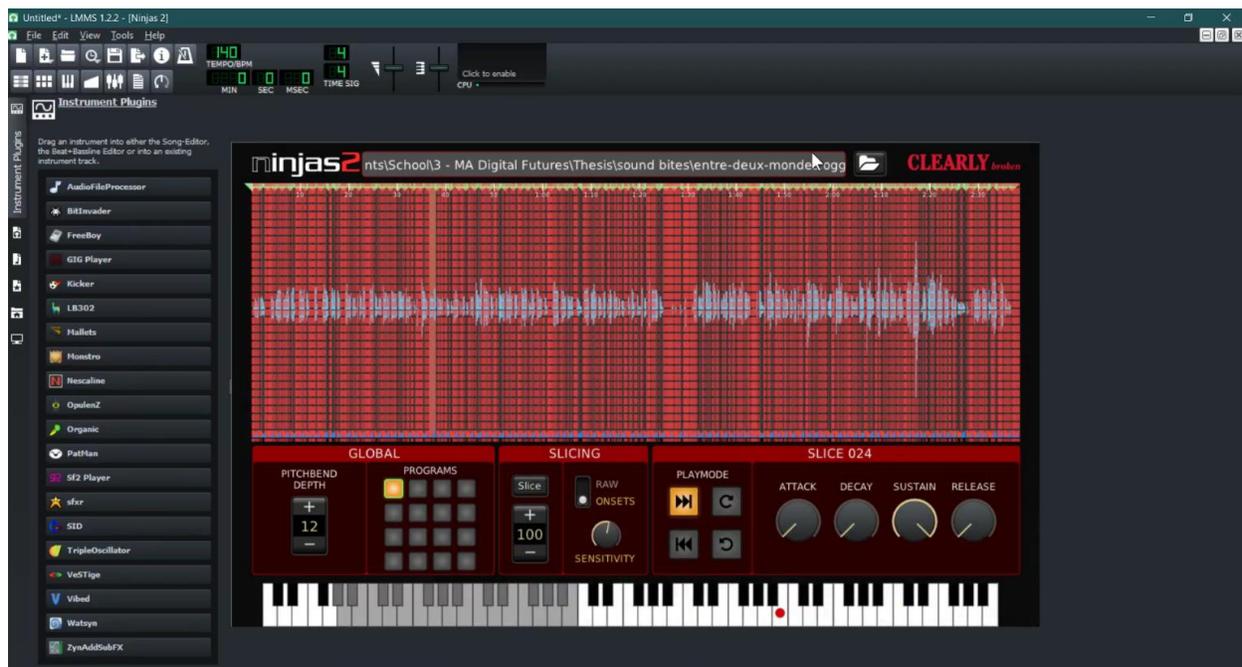


Figure 12—Ableton Live user interface displaying sample slicing feature

I was curious to see how this could work with speech instead of musical loops. How would the algorithm slice up my narration into samples? How would it sound if I were to play it like a real instrument? Since Ableton is a paid program, and my hope was to leverage free and/or open-source software, I looked for free alternatives that had this sample slicing feature.

## Ninjas2 + LMMS

I found this plugin called Ninjas2, and downloaded LMMS, a free and open-source digital audio workstation, to access Ninjas2's interface. From there, I was able to recreate a similar MIDI slicing mechanism and connected this new instrument to one of Orca experiments that my live coding instructor shared with us using loopMIDI.



*Figure 13—LMMS user interface with Ninjas2 plugin*

These experiments in sample slicing and live coding were a big breakthrough for me at the time. It opened the idea of repurposing the recorded narration so that it can be abstracted, non-figurative, not necessarily decipherable, not necessarily understandable, and out of context. This can be likened to an interview segment in *The Last Angel of History* (Akomfrah, 1996), wherein novelist Ismael Reed compares being an African American with being an alien attempting to tell their experiences to “earthlings” who don’t believe them and who chalk their “unbelievable” experiences to paranoia. In the

abstraction, some things might be recognizable to some, some things might make sense in different ways, and some things might sound like certain things but not quite. It brings to mind the appeal of language to the non-fluent onlooker: how it sounds, not just what is being said.

## Chapter 5: “Digitized Diasporic Memory”

The present chapter details the first iteration of “Digitized Diasporic Memory”, diving into details of the workshops, the study’s findings, and the three public-facing outputs: the archival database, the network graph, and the project website.

### The Workshops

To put the collaborative database experimentation detailed in the previous chapter to the test, I conducted a series of workshops from February 20<sup>th</sup> to March 20<sup>th</sup>, 2022. After the initial recruitment period, I sent an email to the people who responded to the interest form to organize the first meeting, to provide a link to the consent form, and to send along a landing page hosted on Notion which contained an overview of the project with instructions.

#### First Workshop

Once a date was set, I invited participants to an initial information session on February 20<sup>th</sup>, 2022. The session was attended by three of the participants and hosted on Jitsi Meet, an open-source virtual meeting platform that is similar to Zoom and Google Meet but doesn’t set time limits and allows for overlapping speech.<sup>8</sup> During this one-hour meeting, I introduced myself, asked everyone to introduce themselves, discussed the inspiration for this

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<sup>8</sup> Linguistics scholar Deborah Tannen uses the term “cooperative overlap” to describe “a pattern of cooperative sentence building in which the listener picks up the thread of the speaker and supplies the end of the speaker’s sentence, which the speaker then accepts and incorporates into the original sentence without a hitch in rhythm and almost without a hitch in timing” (1981, 2005, p. 71). As the use of videoconferencing software increased during the pandemic, several news outlets have noted how platforms like Zoom hinder cooperative overlap because additional simultaneous speech is suppressed or silenced (Boland et al., 2021; Kurzius, 2021).

work, explained what this project was, previewed the prototype test, went over the consent form, and discussed some deadlines.

Next, I gave demos of the various technologies that could be used to participate in the project; some were planned, while others were done on the fly at the request of participants. I covered audio recording and minor editing using Audacity, an open-source digital audio editor on desktop, and Dolby On, a mobile application for audio recording, enhancements, and simple editing. I also provided different resources for automated transcriptions and did a demo of Airtable (a collaborative spreadsheet-database hybrid) to show participants how to add to the database from their computers or phones. In the last portion of the workshop, the participants and I brainstormed prompts, recorded audio, and practised submitting to the database. This last portion also allowed me to answer any initial questions and redemonstrate certain techniques. The participants were then invited to contribute to the archive asynchronously until the next meeting. The following day, I sent a closed-captioned recording of the meeting to participants and also embedded the recording on the participant's Notion page. In the end, we settled on the following prompts:

- Recreate the sound of something you constantly heard growing up.
- Recreate a sound that you wish you could hear again.
- What's an expression your family would say that stuck with you?
- What is something you dreaded hearing? (Sound it out)
- How did/do your parents/caregivers/adults around you express their frustrations? Mimic the sound.
- How did/do your parents/caregivers/adults around you express their joy/celebration? Recreate the sound.
- Sing a song.
- What is something you looked forward to hearing growing up?
- What do you think your language(s) sound(s) like to someone who doesn't understand?

- If you speak multiple languages: what is something you can say in one language but not the other?
- Describe a memorable time when you had to switch languages?
- (If you've never lived in the country/countries your family is from, or have been away for some time) Where do you consider home? Do you feel a loss of connection with your identity? Do you consider Canada/current residence your home?
- What is an expression used in your cultural wedding?

### Second Set of Workshops

Two weeks after the initial meeting, I held the second set of recorded meetings: option #1 was held on Sunday, March 6<sup>th</sup>, and attended by three of the participants, while option #2 was held on Tuesday, March 8<sup>th</sup>, and attended by two of the participants. This gave participants more options to take part in the study based on their availability. The goal for this second set of meetings was to go through the audio recordings that had been submitted thus far and talk about them. The purpose was twofold:

- 1) Familiarize participants with each other's contributions in case they didn't get the chance to hear them before, and;
- 2) Stimulate new contributions between participants in a more organic way than asynchronous conversations.

During the workshops, I played several audio recordings from the database and invited participants to respond if they felt compelled to. Sometimes, I shared my thoughts first, and sometimes, participants chimed in first. Once it seemed like there were no more contributions, I moved on to the next audio recording. That said, if a participant wanted to come back to a topic, I allowed it—tangents were a big part of the project after all. After the meeting, I gathered all the

audio recording files together and used Kdenlive to trim the longer recording into shorter segments that could be fed back into the database. My rationale for determining when to start and end a segment was based on when the speaker changed (save for some occasions where speech overlapped). Besides determining the start point and endpoint of the segments, no further editing was done. I wanted to reveal the power in the hesitation, the significance in the silence, and the importance of the things that would typically be edited out.

### Third Meeting

Two weeks later, on March 20<sup>th</sup>, I held the project's final workshop, which was attended by two of the participants. During this meeting, the participants and I reflected on the experience, discussed what worked and what didn't work, learned about different Creative Commons licences, reviewed my creative mood board for the public-facing outputs, and discussed the next steps. Afterwards, I sent an email to all the participants with a link to the meeting recording, an explanation of the database's migration to NocoDB, as well as a feedback form that would facilitate the selection of a Creative Commons licence (see Appendix D — Feedback and Licence Selection Form). Participants were given two more weeks to contribute to the database and received a gift card as a thank you.

## **Study Findings**

By the end of the study, over a hundred audio segments of over 2 hrs of recordings from seven participants (including myself) were catalogued inside the database. Although ten people completed the interest form and were invited to participate, four of the participants had either withdrawn from the study midway through, didn't submit any recordings, and/or didn't attend any workshops. Of the seven remaining participants (including myself), four listed

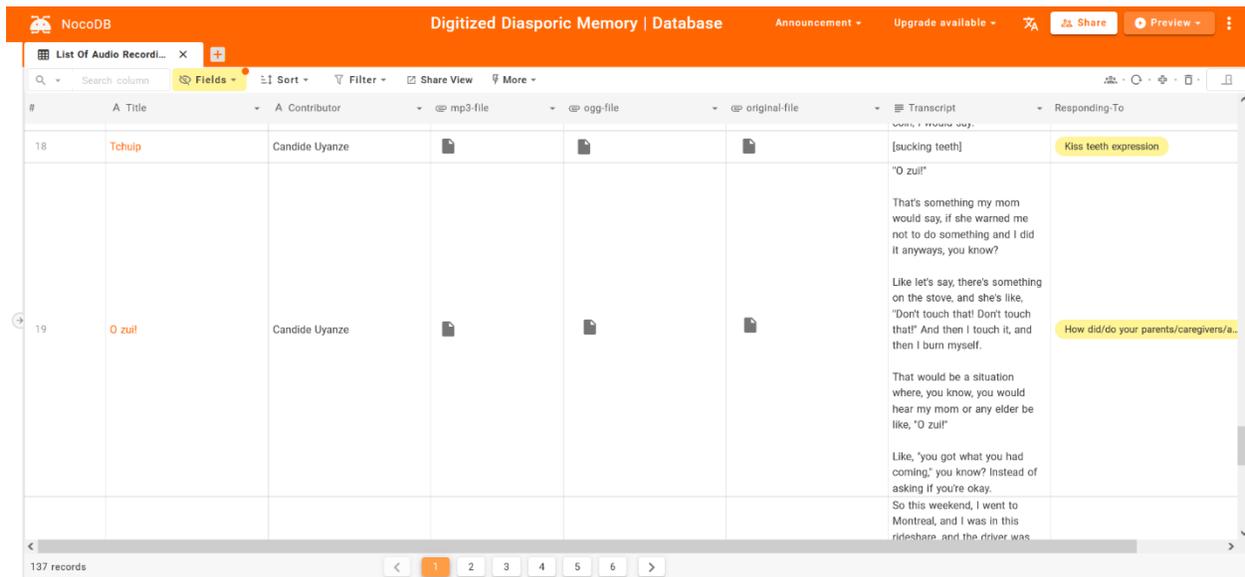
their ethnicity/cultural background as Congolese, one was Jamaican, one was Kenyan, and one was Burundian. The participants were located across Turtle Island on the territories of the Anishinābe Aki, Haudenosaunee, Wendat, Chippewa, Mississaugas of the Credit River First Nations, and Lenape. The participants understood Lingala, Tshiluba, Jamaican Patois, Kirundi, Kikuyu, Swahili, French, and English, with the latter being the only one understood by all participants. As such, the majority of the audio submissions were in English, with some in French, Lingala, Jamaican Patois, and Swahili. The over-representation of colonial languages (English and French) highlights the challenge of language in Black diasporic cultural engagement.

As much as it posed a challenge, the fact that all the participants spoke English allowed those of us who could attend the workshops to interact with each other in a meaningful manner. This was especially made clear during the second set of workshops when the participants and I listened to and used the existing submissions as conversation starters. Although it took some time for everyone to feel comfortable with chiming in, I soon found myself having to do less and less facilitation. During the recording sessions, we explained the meanings of certain expressions to each other, noted some similarities in our own dialects (ex: the repetition of syllables, sounds, or words to show emphasis), and noted how many of the expressions we submitted hinted at the caution bestowed upon us by our elders. Although some expressions were not readily translatable or fully intelligible in English, we were still able to engage in cross-cultural sense-making, building upon the previous speaker's remarks with reference points from our respective cultures. What I found the most powerful in these exchanges was that the sense-making occurred amongst each other to further ties and rekindle lost connections, defying settler-colonial alienation.

## Thesis Outputs

### Public-Facing Audio Database

Once the study was completed, I started the transfer process from Airtable to NocoDB, Airtable’s open-source counterpart. I began by deploying my own copy of the NocoDB application on Heroku and connecting my Backblaze B2 account to NocoDB as a plugin. This way, any attachments that I added to my NocoDB projects would be uploaded to Backblaze. Once that was done, I prepared the Airtable table for export. This involved making sure that all the audio files were named according to their titles and renaming them if needed. Afterwards, I used a browser extension to download the audio files in bulk since Airtable is unable to do so natively. Next, I exported the table as a comma-separated values (CSV) file to import into NocoDB.



| #  | A Title | A Contributor  | mp3-file | ogg-file | original-file | Transcript  | Responding-To                           |
|----|---------|----------------|----------|----------|---------------|---|---|
| 18 | Tchulp  | Candide Uyanze |          |          |               | [sucking teeth]<br>"O zull!"<br>That's something my mom would say, if she warned me not to do something and I did it anyways, you know?   | Kiss teeth expression                   |
| 19 | O zull  | Candide Uyanze |          |          |               | Like let's say, there's something on the stove, and she's like, "Don't touch that! Don't touch that!" And then I touch it, and then I burn myself.<br>That would be a situation where, you know, you would hear my mom or any elder be like, "O zull"<br>Like, "you got what you had coming," you know? Instead of asking if you're okay.<br>So this weekend, I went to Montreal, and I was in this rideshare, and the driver was | How did/do your parents/caregivers/a... |

*Figure 14—Digitized Diasporic Memory Database  
(via <https://diasporamemory.com/database/>)*

Once the text data was imported, I deleted the columns which referenced audio files stored on Airtable’s server and created two new columns: one for the .OGG files, and one for the .MP3 files. This was to ensure browser

compatibility for any web applications which made use of the audio. Since the audio files provided by participants were in a variety of formats, I used Audacity to convert the files to .OGG and .MP3 in bulk. Once completed, I uploaded the converted files to their respective record in the database. Now that the database transfer was complete, it was ready to be shared with the participants in “Editor” mode, as well as with the public in “View-Only” mode.

### Network Graph

Logseq, an open-source knowledge base, was used to create the interactive network graph of audio nodes. The network graph allows for a more visually comprehensive understanding of the database in a way that a spreadsheet cannot. To translate the database into a network graph, I began by downloading the NocoDB project as a CSV file. Next, I used a Python script created by a GitHub user “Arrowyz01” (2022/2022) to quickly generate Logseq pages from the CSV. This script was developed following a conversation I had with the developer on one of their GitHub Issues pages.<sup>9</sup> For the script to work, I had to create a template Logseq page in Markdown which would be used for each audio segment and replace any variable text with header fields from the CSV file. My template contained the audio player, a section for the transcript (if provided), and a section for the related audio which I dubbed “Connected Thoughts/Connected Memories”. The variables of this template were the links to the audio files on Backblaze B2, the transcript text, and the connected audio. From there, the Python script was run to generate all the necessary Logseq pages in Markdown. The next step was to give the user interface a makeover by editing the Cascading Style Sheets (CSS) file. Once the interface looked less like Logseq and more like “Digitized Diasporic Memory”, the customized graph

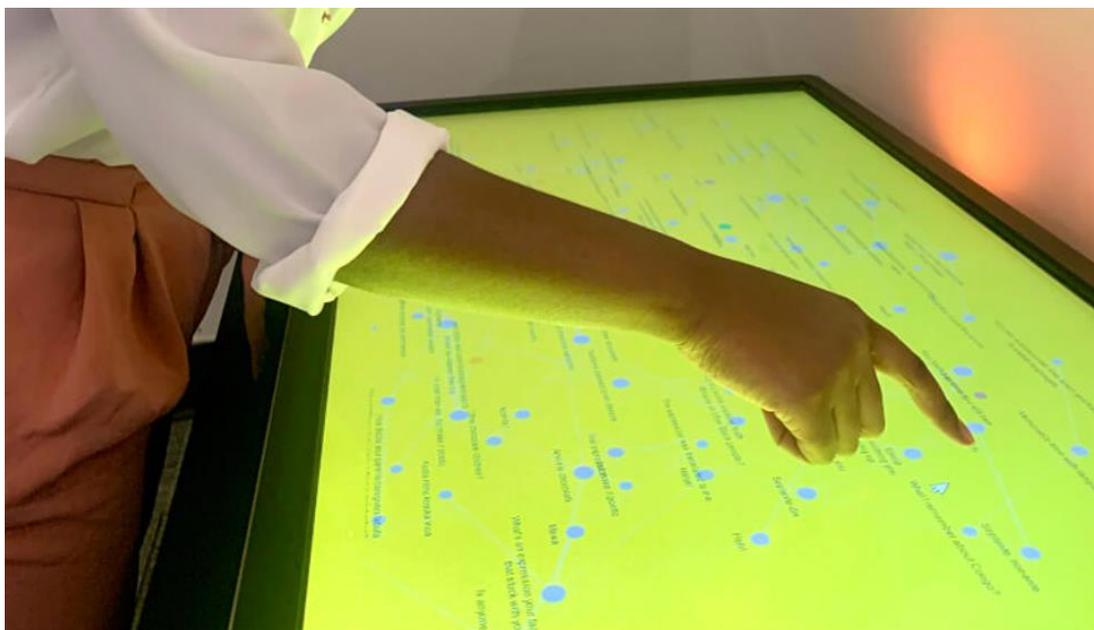
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<sup>9</sup> A record of this conversation can be found here:  
[https://github.com/Arrowyz01/csv2logseq\\_block/issues/1](https://github.com/Arrowyz01/csv2logseq_block/issues/1)

was exported as HTML files and hosted on GitHub pages. For the 2022 Digital Futures Thesis Exhibition and OCAD University GRADEX, I displayed the network graph on a touch screen (see Figure 16).



*Figure 15—Diasporic Memory Network Graph  
(via <https://demo.diasporamemory.com>)*



*Figure 16—Diasporic Memory graph on a touch screen  
(photo credit: Unnikrishnan Kalidas)*

## Project Website

The final step was to create a larger project website that would explain the project, provide some context, detail the steps to reproduce the project, link to the thesis document, embed the database, and direct audience members to the networked graph. I began the website design process on Penpot, an open-source design and prototyping platform similar to Figma. Once I mapped out the website's style guide, page taxonomy, and layout, I used Publii, a static site generator, and Visual Studio Code to develop the website. The project's overarching style guide was also applied to the network graph application and public-facing database so that the design was cohesive. The final website can be accessed at <https://diasporamemory.com/>.



*Figure 17—Digitized Diasporic Memory Website  
(via <https://diasporamemory.com/>)*

## Chapter 6: Conclusion

### Recapitulation

“Digitized Diasporic Memory” was initially born out of a desire to push interactive documentaries further and mediate intra-racial conversation through audio-based storytelling. Over the last two years, the thesis project has transformed into a humble suite of platforms built on top of existing software; these include a collaborative method of engagement and audio crowd-sourcing (relational archival database), a visualization of the archive’s submissions (network graph), and a resource for anyone wishing to reproduce the project (website). The thesis is informed by past scholarly writings on non-linear storytelling, orality, sampling, collective memory, knowledge sharing, open-source, digitized memory, decentralized networks, interactive documentary, transmedia storytelling, blackness online, connecting the diaspora, archiving, “rogue” archives, and counter-archives.

For this research-creation project, I employed critical, decolonial, participatory, and collaborative methodologies as well as accessible tools, participatory workshops, and iterative data collection as methods. These approaches informed my explorations of relational databases, interactive network graphs, live coding, and sample slicing using a variety of proprietary software and their open-source counterparts. Once I settled on the technologies to use, I put the participatory engagement and crowd-sourcing to the test with a month-long study. During this period, seven participants (including myself) brainstormed prompts, recorded stories and reflections, uploaded the recordings to a shared database, listened to each other’s submissions, and responded to each other. Once the study came to a close, I transferred the audio to a public-facing database platform, generated a visualization of the submissions, and embedded these outputs and more on the “Digitized Diasporic Memory” website.

## Scope & Limitations

Admittedly, developing a project which is truly participatory at its core is difficult. In a survey of the challenges of interactive documentaries (I-docs) that prioritize participation, Karlsen (2018, p. 27) highlights a conference proceeding that criticizes a number of I-docs as replicating the same “tokenistic” forms of participation and “centralized authorial production structures” as traditional, linear documentaries (D. P. Green et al., 2017, p. 6318). While “executionary agency” is afforded to participants, collaborators still lack “structural agency”—in other words, the “ability to inform the context in which this dialogue occurs” or the ability to “initiate their own conversations” [or in my case, recording session meetings] (D. P. Green et al., 2017, p. 6318).

Although I believe that “Digitized Diasporic Memory” incorporated some compelling dialogical participatory elements, it didn’t truly give participants structural agency, as I was the one who selected or produced the method of engagement, the platforms to host the audio, the meeting schedule, the methods in which the submissions would be visualized, the overarching graphic design, and the method of presentation. This level of participatory engagement is difficult to achieve in the context of a Master’s degree, where the responsibility and authorship of the work fall primarily on the graduate student. Additionally, bureaucratic processes, administrative time constraints, the ongoing pandemic, and a growing number of academic expectations may limit the researcher’s capacity for and the possibilities of deeper engagement. The challenge of developing a participatory project is made more difficult when we consider the “complex relationships between participants and the dynamics of collaboration and exploitation” (Leung, 2021, p. 44). Much like numerous open-source communities rely on the unpaid labour of volunteers, we must keep in mind the labour discussion “in the repertoire of rogue

archives” just as much as the labour of individuals “within a community tasked with the responsibility of remembering” (Leung, 2021, p. 44).

## **Future Work and Further Iterations**

The work detailed in this thesis has only begun to scratch the surface of digitally mediated intra-racial dialogue. Assuming this study were to continue, I would have liked to explore different scopes in terms of the crowd-sourcing of audio segments. How would “Digitized Diaspora” look if it was focused on certain ethnic groups, a bigger age range, or in other languages? My hope is that the project is taken further than where my limited language skills and cultural knowledge can take it. Furthermore, there is potential for exploring different modes of engagement, both digital and analogue, in the style of the *cadaver exquis*. For instance, I could draw inspiration from the following works:

- *Foldable Sounds Collective*: a pandemic initiative wherein participants exchanged sounds with strangers via emails, editing and layering recordings together to create a track (Geraci et al., 2020; Shape, 2021);
- *Question Bridge*: a branching narrative i-doc on Black male identity where each participant answers one or more questions from a previous participant and then asks another question for the next participants (Johnson et al., 2012); and,
- *The Quipu Project*: A collective memory archive and interactive documentary which gives voices (through a free telephone line) to Peruvian people who were forcefully sterilized in the 1990s (Court & Lerner, 2015; MIT Docubase, 2015).

It would have also been interesting if “Digitized Diasporic Memory’s” engagement had happened in person as originally planned to introduce an element of location-based specificity. Admittedly, even though online networks have enabled connections to open-source and decentralized

methods, in-person co-creation is still vital to dynamic systems (Leung, 2021, p. 42; Uricchio et al., 2019).

In addition to expanding the modes of engagement, I would have liked to experiment further with the database's potential outputs. These include an in-built remixing engine, a more immersive use of sound (using virtual reality, augmented reality, octophonic audio, directional sounds), gesture-based interactivity, and the use of machine learning and artificial intelligence. Lastly, I hope to work on developing tangentially related digital initiatives in the area of Afro-diasporic sounds and languages. Specifically, I'm interested in expanding the languages available in consumer-level text-to-speech (TTS) libraries and services to include more African, Afro-Caribbean, and Afro-diasporic languages, dialects, and accents. The limited selection of TTS languages available on proprietary services such as Otter.ai, Sonic, and Descript was a time-consuming hindrance for both the current thesis and its predecessor, *In My Tongue*; the matter necessitates further investigation.

## **Final Thoughts**

Although the present thesis document has come to a close, the possibilities for "Digitized Diasporic Memory" have just begun. This project has radically shifted my approach to open source community building, archives, networked thinking, and documentary. In effect, the thesis highlights the need for more intentional communities of memory and sites of engagement for Black people across the African diasporic. I hope that this project inspires and empowers you to create and engage in memory work through open creative production and collaboration.

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# Appendices

## Appendix A — Participant Screening Form

Digitized Diaspora Memory | Interest Form

<https://airtable.com/shrtXCyYgISCPlkwhn>

**Digitized Diaspora Memory | Interest Form**  
(Deadline: Feb 11th 2022)

Thank you for your interest in participating in this research study for Digitized Diaspora Memory: Leveraging User-Generated and Open Tools for Collective Audio Storytelling!

**ABOUT THIS STUDY**

The purpose of this study, completed as part of a graduate thesis at OCAD University, is to connect the larger African diaspora through digital storytelling. Selected participants will contribute to an open access database of audio snippets and memories which can be sampled, reused, repurposed, remixed, etc. by the public.

If you are selected as a participant, you will be asked to contribute audio recorded responses to the audio-recorded memories of other participants, and other participants will have the chance to engage with your audio snippets as well.

You will also have the chance to participate in three (3) synchronous workshops where we will:

- 1) Discuss the project, brainstorm prompt ideas, and get started;
- 2) Listen to and build on the database; and,
- 3) Reflect on the experience and discuss a license.

1 of 5

2022-02-08, 1:54 a.m.

As an output for this thesis, the submissions will be represented as a node graph (example: <https://dl.airtable.com/.formViewCoverImages/04c4fdda89147db7b12f7c5bf421d591/48cd3590>).

#### RISKS AND BENEFITS

Possible benefits of participation include the chance to connect and collaborate with other members of the Black diaspora on a collective database, fostering a sense of joy, kinship, connection, and camaraderie among participants.

There also may be risks associated with participation, such as finding some of the existing audio snippets or anecdotes shared by other participants upsetting or triggering.

#### QUESTIONS, CONCERNS

If you have any questions about this study or require further information, you can contact me, Candide Uyanze, at [candide.uyanze@ocadu.ca](mailto:candide.uyanze@ocadu.ca). This study has been reviewed and received ethics clearance through the Research Ethics Board at OCAD University [#102112]. If you have any comments or concerns, please contact the Research Ethics Office through [research@ocadu.ca](mailto:research@ocadu.ca).

Please complete the following form:

Full Name \*

Email address \*

Preferred pronouns

Are you over the age of 18? \*

Yes

No

Please describe your ethnicity / cultural background \*

(ex: Congolese (mukongo), Nigerian, Kenyan, Ghanaian, Togolese, Haitian, Afro-Brazilian, etc.)

Please list the languages that you currently speak, read, and/or understand: \*

Where do you currently live? \*

(City, Province/State, Country)

What kinds of sounds would you like to contribute to the database?

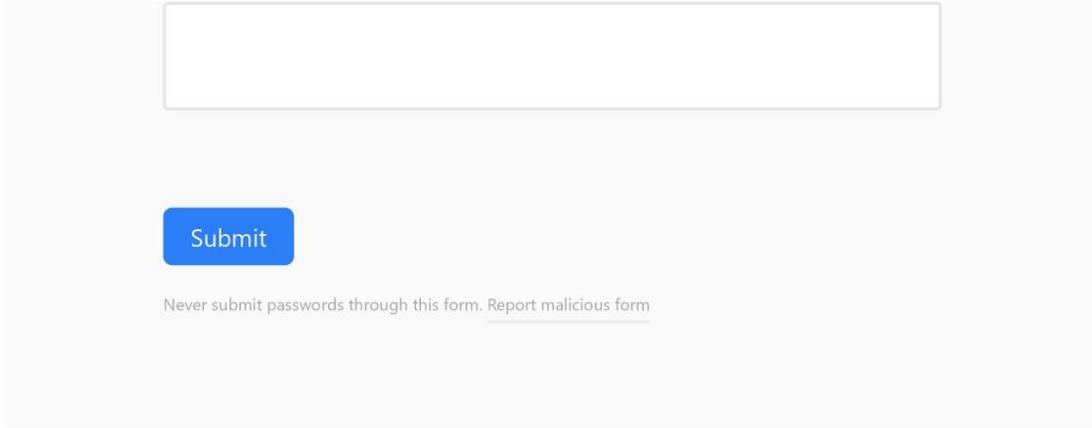
(it could be a phrase, expression, song, onomatopoeia, saying, etc. in any language)

Please indicate your availability (Eastern Timezone): \*

We will be meeting for three virtual workshops in Feb-early March. Help us decide on a day and timeframe that works for everyone.

- Mon: 9am-12pm
- Mon: 12pm-3pm
- Mon: 3pm-6pm
- Mon: 6pm-9pm
- Tue: 3pm-6pm
- Tue: 6pm-9pm
- Wed: 6pm-9pm
- Th: 9am-12pm
- Th: 12pm-3pm
- Th: 3pm-6pm
- Th: 6pm-9pm
- Fri: 9am-12pm
- Fri: 12pm-3pm
- Fri: 3pm-6pm
- Fri: 6pm-9pm
- Saturdays
- Sundays

Anything else to add?



The image shows a screenshot of a web form. At the top, there is a single-line text input field. Below the input field is a blue button with the word "Submit" in white text. Underneath the button, there is a line of text that reads "Never submit passwords through this form. [Report malicious form](#)". The entire form is set against a light gray background.

## Appendix B — Marketing Materials

DIGITIZED DIASPORA MEMORY

# CALL FOR PARTICIPANTS

Are you a member of the African diaspora over the age of 18 interested in contributing to an audio database for a graduate thesis study? Swipe to learn more...



DIGITIZED DIASPORA MEMORY

The purpose of this study is to connect the larger African diaspora through digital storytelling.

Selected participants will contribute to an open access database of audio snippets and memories which can be sampled, reused, repurposed, remixed, etc. by the public.

DIGITIZED DIASPORA MEMORY

If you are selected as a participant, you will be asked to contribute audio recorded responses to the audio-recorded memories of other participants, and other participants will have the chance to engage with your audio snippets as well.

You will also have the chance to participate in three (3) synchronous workshops with fellow participants.

DIGITIZED DIASPORA MEMORY

If you're interested, complete the interest form at:

**[bit.ly/diaspora-memory](https://bit.ly/diaspora-memory)**

(Deadline: Feb 11 2022)

## Appendix C — Participant Consent Form

Consent Form | Digitized Diaspora Memory

<https://airtable.com/shrRik01fTu70Lu6i>

### Consent Form | Digitized Diaspora Memory

Please read the following consent form carefully:

Date: Feb 7th 2022

Project Title: Digitized Diaspora Memory: Leveraging User-Generated and Open Tools for Collective Audio Storytelling

Principal Investigator:

Candide Uyanze, Graduate Student  
Faculty of Graduate Studies  
OCAD University  
candide.uyanze@ocadu.ca

Faculty Supervisor:

Judith Doyle  
Faculty of Art, Graduate Studies  
OCAD University  
(416) 977-6000 Ext. 207  
jdoyle@faculty.ocadu.ca

Secondary Advisor:

Camille Isaacs  
Faculty of Liberal Arts and Sciences, Graduate Studies  
OCAD University  
416-977-6000, Ext. 4250  
cisaacs@faculty.ocadu.ca

#### PURPOSE

- This study is designed to explore crowd-sourced storytelling through collective memory. Selected participants will contribute to an open access database of audio snippets and memories which can be sampled, reused, repurposed, remix, etc. by the public.

- This research is being completed by a graduate student in partial completion of a master's degree, and the results will contribute to a thesis.
- Up to twenty (20) participants will be recruited to participate in the study. Participants are asked to contribute to the archive asynchronously, and attend three (3) synchronous virtual workshops to learn how to contribute to the database.
- To qualify, potential participants for the in-person workshops must identify as being Black / of sub-Saharan African descent (this includes Afro-Caribbean, Afro-Latine, etc.) and be over the age of 18.

#### WHAT'S INVOLVED

As a participant, you will be asked to complete a demographic questionnaire and contribute audio recorded responses to the audio-recorded memories of other participants, and other participants will have the chance to engage with your audio snippets.

Participation will take approximately 1hr of your time, more or less depending on your desired level of engagement.

You will also be asked to participate in a series of three (3) workshops over the months of February 2022 and early March.

The first workshop (1.5hrs) will be informational. I will be explaining what we'll be working on (a collaborative database joined by sounds), explaining the outcomes, answering questions, demonstrating how to use the collective database, and getting everyone on the same page. From there, we will start a quick brainstorming session of different sound prompts to get started.

The second workshop (1.5hrs) will be a check-in, where we review the submissions so far, adjust, and move on to responding to each other's submissions.

The third workshop will be a postmortem (1 hr). We will listen to the audio snippets, reflect on the experience, provide feedback, select a license for the archive, and discuss next steps. Until the database goes live online, participants will have two additional weeks to add to the database or remove their own snippets.

#### POTENTIAL BENEFITS

Possible benefits of participation include:

- the chance to connect and collaborate with other members of the African diaspora on a collective database,
- an opportunity to meet new faces, bond over similar anecdotes, vent, and learn from different cultures,
- a sense of joy, kinship, connection, and camaraderie among participants, and
- a sense of fulfillment in collaborating on a collective work.

I cannot guarantee, however, that you will receive any benefits from participating in this study.

#### POTENTIAL RISKS

There also may be risks associated with participation. It is possible that participants may find some of the existing audio snippets or anecdotes shared by other participants triggering or upsetting.

For example, one participant might recount hurtful childhood memories, which may bring up feelings of anger, stress, upset, embarrassment, not belonging, etc. This is, of course, dependent on the direction that the exchanges take.

Measures will be put in place to address these risks and discomforts. Participants are free to step out or quit the study if the subject matter of the conversation becomes overwhelming.

Depending on the subject matter, I will also make sure to send a follow-up correspondence with participants that contains

resources that can aid in after-care.

## CONFIDENTIALITY

This survey collects two types of data:

1. Material generated by the demographic questionnaire which will be considered confidential; your name will not be included or, in any other way, associated with the data collected in the study. Furthermore, because our interest is in the average responses of the entire group of participants, you will not be identified individually in any way in written reports of this research.
2. Raw data (audio recordings) which will not be confidential and will be part of an archive which will be published online and downloadable by the general public. You can indicate your preference of whether or not your real name is used in published material on the signatory page at the end of this form.

### Audio-recording:

- Audio recorded during the in-person workshops will be stored by myself, Candide Uyanze, in a secure cloud storage with 2-Factor-Authentication enabled.
- For audio submitted asynchronously: All participants will have access to the secure database storage where audio will be uploaded. From there, a link will be generated which can be used to embed the audio in other online applications. As such, you can withdraw your data by deleting your file in the storage. Each participant is encouraged to enable 2-Factor-Authentication.
- As a participant, you have the right to review/edit your audio recordings or transcripts prior to submitting them to the archive.

Data collected during this study (from the questionnaire) will be stored on a password-protected, encrypted hard drive and cloud drive by myself, the project PI, for a maximum of three years, after which time the data will be deleted.

Access to this data will be restricted to me (Candide Uyanze) and my graduate thesis advisors, Judith Doyle and Camille Isaacs.

#### INCENTIVES FOR PARTICIPATION

I will reimburse each in-person workshop participant up to \$20 each for any costs incurred from this study.

#### VOLUNTARY PARTICIPATION

Participation in this study is voluntary. If you wish, you may decline to answer any questions or participate in any component of the study.

Further, you may decide to withdraw from this study at any time, or request withdrawal of your data prior to data analysis, and you may do so without any penalty or loss of benefits to which you are entitled. Your choice of whether or not to participate will not influence your future relations with OCAD University or the investigator involved in the research (myself, Candide Uyanze).

To withdraw from this study, let me, the Principal Investigator (PI), know at any point during the study by email at [candide.uyanze@ocadu.ca](mailto:candide.uyanze@ocadu.ca).

To withdraw your data from the study, please contact me by email at [candide.uyanze@ocadu.ca](mailto:candide.uyanze@ocadu.ca) no later than three (3) weeks after the final workshop. Participants also have the option of receiving a copy of their data prior to destruction. Audio submitted asynchronously will be managed by each participant

in our shared database and can be deleted from there.

#### PUBLICATION OF RESULTS

Results of this study may be published in reports, professional and scholarly journals, students theses, and/or presentations to conferences and colloquia]. In any publication, data will be presented in aggregate forms. Quotations from interviews or surveys will not be attributed to you without your permission.

I will email participants individually to share a link to the published thesis document and thesis website containing the embedded database of audio.

#### CONTACT INFORMATION AND ETHICS CLEARANCE

If you have any questions about this study or require further information, please ask. If you have questions later about the research, you may contact me (Candide Uyanze), the Principal Investigator, or the Faculty Supervisor (where applicable) using the contact information provided above. This study has been reviewed and received ethics clearance through the Research Ethics Board at OCAD University [#102112].

If you have questions regarding your rights as a participant in this study please contact:  
Research Ethics Board c/o Office of the Vice President, Research and Innovation  
OCAD University  
100 McCaul Street  
Toronto, M5T1W1  
416 977 6000 x4368  
research@ocadu.ca

### Consent Agreement \*

I agree to participate in this study described above. I have made this decision based on the information I have read in the Information-Consent Letter. I have had the opportunity to receive any additional details I wanted about the study and understand that I may ask questions in the future. I understand that I may withdraw this consent at any time.

- Yes, I consent to participation in this study.
- No, I do not wish to participate in this study.

### Attributing quotes

Yes, I wish to be attributed for my contribution to this research study. You may use my name alongside statements and/or quotations that you have collected from me.

### Audio Recording Agreement

I agree to be audio-recorded for the purposes of this study. I understand how these recordings will be stored and destroyed, and agree to have them be part of a database which can be accessed, downloaded, and repurposed by members of the larger public.

Full Name

Date

(today)

You will be prompted to provide an e-signature after you submit this form

|              |          |
|--------------|----------|
| mmmm d, yyyy | hh:mm pm |
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[Submit](#)

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## Appendix D — Feedback and Licence Selection Form

Post-Workshop Feedback Form | Digitized Diasporic Memory

<https://airtable.com/shrDSIH6VfSNIJ6KX>

### Post-Workshop Feedback Form | Digitized Diasporic Memory

Hello! I would like to thank each one of you from the bottom of my heart for participating in this study!

As the study comes to an end, I wanted to get everyone's input on which license to use for our collection of audio recordings, and general feedback on the experience.

If you missed the last meeting, here is the recording and reference material: <https://candideu.notion.site/Digitized-Diasporic-Memory-Instructions-cf346bb02cb44480a64bf30df336e43c#db3b4b99664c4749ab6f2e0b3141250b>

Here are some links to learn more about Creative Commons licenses:

- <https://www.youtube.com/watch?v=srVPLrmlBJY>
- <https://creativecommons.org/licenses/>
- <https://creativecommons.org/get-cc-savvy/breaking-cc-licenses/>

**\*\*Please review and complete this form before Monday, March 28th\*\***

**\*\* SELECTING A LICENSE \*\***

Do you have a preference for the Creative Commons license to use? \*

Yes, and I will indicate my choices in the next questions

No, I'm okay with whichever license

### Should we require attribution?

If someone uses one of our snippets, they must give credit to the person speaking and to the project.

Yes

No

No preference

### Should we allow for commercial uses?

Ex: Someone could download our snippets and resell them for profit, or remix one of the snippets and monetize the remix

Yes

No

No preference

### Should we require Share-Alike?

If someone were to incorporate one of our snippets in their own work, they would have to publish their work under the exact same license as us.

Yes

No

No preference

### Should we allow for derivatives?

If someone remixes, modifies, or repurposes some of our snippets, are they allowed to publicly share their derivative work?

If "no" is selected, people will still be allowed to share the work, but it has to be presented "as-is".

- Yes
- No
- No preference

\*\* FEEDBACK ON THE STUDY \*\*

Your answers can be provided in point-form.

What did you learn?

What did you find challenging?

What did you enjoy the most?

What did you enjoy the least?

What did you gain from the experience?

What could be improved if this were to be done again?

Any additional notes, feedback, comments, suggestions?

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