Embracing Death Processes: A Humanistic Inquiry into Art, Technology, and HCI

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This paper investigates the theme of death within the realm of human-computer interaction (HCI) from the third wave humanistic perspective. Departing from techno-solutionism, the study adopts a critical approach informed by an ecofeminist standpoint. We conducted an exploration which resulted in the cartography of 30 contemporary artworks (from 2010 to 2023) engaged with digital culture and death processes. Ultimately, the paper maps and attempts to complexify the way death is approached in the digital age, questioning techno-solutionism and highlighting the importance of art projects in acknowledging the blank spaces, errors and glitches that come with the unavoidable ending of a cycle.

Our suspicion

This investigation was propelled by an internal, personal inquiry. Amorphous, turbulent, unknown. Discomforting in its own way, almost taking a life of its own. It found its path to outward expression and manifested itself in this written form.

Beginning at the juncture where technology and screens have become pervasive in our society, where disembodied data occupies real, physical space, we pondered how it may change over time, to whom it will belong, and what it will look like. We then questioned how death intersects with technology as a phenomenon that is unseen but experienced through its echoes and consequences.

This sparked a particular interest in analysing the landscape within our sphere of knowledge, which comprises artistic practices, technology and HCI. Our aim is to enrich what has already been done in this regard, as death concerns everyone, crossing all paths. This sense of discomfort led us to explore how artistic practices might complement current Human-Computer Interaction (HCI) approaches.

To that end, we gathered, researched, and pondered. The conclusion of this paper consists of a list of questions rather than answers.

Blurring the boundaries from a situated perspective

We approach the theme of death in the context of artefacts of human-computer interaction from a humanistic perspective (J. Bardzell 2009; S. Bardzell and Bardzell 2011; J. Bardzell and Bardzell 2015). Within human-computer interaction (HCI), the third wave is markedly humanistic and stands at the core of our philosophical and cultural positioning. The third wave expands beyond humans' relationship with technology, but also towards our cultural practices. We distance our-

1. Using knowledge(s) instead of knowledge recognizes the complexity of situatedness, recognizing that there are multiple positionings, and that we are all carriers of many Knowledge(s).

selves from techno-solutionism, which we define as the linear approach to applying a "one-size-fits-all" solution to problems (Kneese 2023, 138). We believe that techno-solutionism simplifies contextual diversity, and overlooks, for example, humanistic, ecological and spiritual approaches.

Through this lens, we align with critical perspectives towards technology, such as Glitch feminism, which embraces error, malfunctions, and failures to challenge the binary (both within computers and gender) and create ruptures (Russell 2020).

We believe that to engage with the theme of death, an eco-feminist perspective is crucial. We stand with Donna Haraway's Cyborg Manifesto (Haraway 1991) as a vehicle to expand this critical approach towards technology as well as to explore the nature-culture divide, and Situated knowledge(s)[1]. We pay special attention to her idea that "we are all compost"(Haraway 2016, 101) and "humus, not homo"(Haraway 2016, 55), which embraces the inherent life-death-life cyclical processes.

Similar to the third wave of HCI and Glitch feminism, Natureculture(s) opposes binary divisions and embraces intersectionality. It recognises the blurriness within distinctions such as nature and culture, subject and object, body and mind, and human and animal, highlighting their entanglements rather than their divisions. In addition, Karen's Barad Onto theory of entanglements and Agential Realist onto-epistemology (Barad 2007), aligns with our stance, as it introduces that material and meaning are inseparable from each other. It proposes a new way to relate to matter, subjects, and discourse.

In addition, Animism as a concept allows us to complexify the distinctions between animate and inanimate. It serves as an umbrella term shared among many ancient cultures to understand the aliveness of things (and perhaps their death). It endows that material, places and objects have agency. Similar to Barad's concept of agency, which proves that materials and objects are carriers and makers of meaning. Thinking through an animistic lens serves us to expand the territory that death covers in this research, which is not only limited to the demise of human beings.

This theoretical framework prompts us to delve into artistic practices that work through a critical and speculative lens. We believe the artists showcased in this paper visualise glitches, errors, and decay processes to create space for grieving in a profoundly different manner from startup culture.

With their artworks, they scrutinise the intersections of technology, embodiment, and ecology(s), to employ a relational approach, reflecting and complexifying this matter. We situate our study within a practical and theoretical stance, seeking to invoke reflection rather than optimisation.

Honouring the complexity

We present a situated review which has provided us with context on how this theme is currently being approached in literature and contemporary artistic practices. We strive to honour the complexity of the topic, viewing it through an expansive rather than narrow focus. Each study and artwork delves into the matter uniquely, creating new questions and conclusions, and elaborating new terminologies. After this review, we concluded that there seems to be a need to create overarching con-

cepts or expressions to relieve the semantic blurriness when approaching death.

As mentioned above, our study does not seek to provide clarity, but rather to deepen the complexity of the subject matter. In doing so, we reflect upon some key conceptualizations of death, for example, Massimi and Charise's triad of differentiated definitions towards death, mortality and dying (Massimi and Charise 2009). We further question, investigate and contemplate how the end of life might work as a gerund, rather than a static, inanimate topic. We complement such terms with Oxford's Learner Dictionary's definition of death "Death of *something*. The permanent end or destruction of something" (Oxford 2024) to elaborate an entangled, object-oriented ontological expansion to this notion.

> *The difference between life and non-life is neither thin nor rigid...we coexist with and as ghosts, specters, zombies, undead beings and other ambiguous entities, in a thick, fuzzy middle region excluded from traditional Western logic'. (Morton 2017, 55)*

Adding up to Barad's already mentioned theory, we cannot solely attribute death to living beings, but recognize it as a distributed phenomenon involving various material and discursive elements. This is reflected in the artworks provided in this exploration, as they approach death from multiple angles, moments and attach it to multiple recipients.

Although we encountered that the way in which authors address the topic is vastly rich, critical and heterogeneous, there seems to be a general consensus on how techno-solutionism and *Thanatechnology* (Özdemir et al. 2021) is ill-equipped to handle the unfathomable intricacy and '*messiness*' of the unavoidable end of a life cycle (Kneese 2023, 35).

We encountered that the first and second wave HCI disciplines often analyse the process in a practical manner due to their positivist bias. Authors such as Albers, Sadeghian, Laschke and Hassenzahl shine a light on this matter by providing a thorough literary investigation of HCI in regards to death processes (Albers et al. 2023). They concur that most of the studies focus on a Thanatosensitive approach (Massimi and Charise 2009) which mitigates the negative aspects of grief, but consequently overlooks the potential benefits of a broader, spiritual perspective towards the end of a life cycle.

> *We suggest that thanato-technologies should also cater to the spiritual needs of dying people [...] Similarly, narratives about the afterlife, roles of the dead, and death rituals could inspire new concepts and theoretical understanding. (Albers et al. 2023, 18)*

Their conclusion also prompted us to delve into artistic practices, as we believe they can enrich this solution-oriented attitude. The authors also agree that involvement, communal exchange and collaboration are crucial for navigating this complex topic.

What hides between 0s and 1s

We present authors who, instead of adopting a pragmatic, epistemological approach, provide a rather situated, testimonial, philosophical and humanistic perspective. We can observe a tendency towards semantic exploration and analysis. Authors piece together their unique elabora-

2. This meaning, whether creating installations, platforms, exhibitions and performances that involve technological development.

tion of concepts (many of those grabbing onto established scholar definitions), to question and expand the present, heterogeneous state of this notion.

The conclusions they appear to draw from this practice focus on visualising the communicative, reflexive, and creative potential hidden in errors or voids that emerge when something fails to function flawlessly. They provide a critical view on the predilection within Western epistemology for binary categorization, and suggest to embrace the inherent value that exists in this state of "in-betweenness" (Marangoni, 2021; Kneese 2023). We believe this binarism consequently affects the trouble of engaging with these cloudy, grey areas lying between 1's and 0's (Forlano 2016; Bollmer and Guinness 2018).

Tamara Kneese postulates that death in the ephemeral digital culture presents itself as a *glitch*, casting light on unforeseen errors, unemphatic digital interactions, non-commercializable user demands, industrially hidden power dynamics and unaccounted responsibilities towards the dead and their data. The author also enriches HCI scholar terminologies such as *digital remains* (Carroll and Romano 2010; Savin-Baden and Mason-Robbie 2020) to hybridise the nature of the lingering, disembodied, posthumous data:

> *I use "digital remains" along with "communicative traces" to refer to more expansive forms of social data. Although communicative traces can become digital remains, I use communicative traces to point to the slippage between living data and the data of the dead. (Kneese 2023, 21)*

Fig. 1 *Merciless Entropy* by Mariana Marangoni, 2021.

The artistic loom

Despite having observed various cases which also speculate on how techno-solutionism appears to be directly influenced by capitalism, positivism and linearity (Öhman and Floridi 2017; Kneese 2019; Özdemir et al. 2021; Agarwal 2023), we consider artistic practices to provide a fertile soil to study the topic. We believe the artists and their artworks[2] provide a much more knotty, loom-like perspective towards death processes.

Examples like Mariana Marangoni's transdisciplinary approach to the topic perhaps can serve as evidence of the relationality and intricacy in which artists comprehend this matter. The artist elaborates a thorough, ecofeminist study towards decay in websites whilst simulta-

3. We must disclaim that we are generalising the term artists, as we are not able to fully corroborate if artists refer to themselves as such.

neously providing context to the metaphor that propels her installation "Merciless Entropy" (see Table 1 [30]). She not only provides factual, numerical information towards the ecological impact of a crumbling internet, but also introduces her own terminology, *internet entropy*, as "a sprawling space that is lost in the loop of higher internet speed, hardware improvements, '*web bloat*', and planned obsolescence" (M. B. Marangoni 2021). She embodies her critical standpoint through her art piece, drawing an analogy between decay in the digital realm and architectural ruins (see Figure 1), while also comparing analogue to digital degradation (Salera-Marangoni 2021).

Rather than offering a polished, solutionist formula that races to optimise decay, the intertwined manner in which she connects the topic to other fields may serve as an example of how art seeks to deepen the complexity of the subject. The artists[3] we'll be featuring in the following sections not only explore innovative ways on how technology can be hacked into a non-solutionist nature (see Table 1), but also participate in the debate by interweaving concepts, summoning new terminologies, exhuming socio-systemic glitches and creating fluid ways to dialogue with death and cyclicity. They seem to find the creative potential in what remains broken, not trying to resolve but rather to enrich debate (J. Bardzell and Bardzell 2015, 28) whilst resonating with what cannot be avoided.

Our exploration

We conveyed an exploration of contemporary artworks (from 2010 to 2023), which deal with the selected topic. Our aim was to expand as much as we could the way in which artistic practices relate to death processes. We also selected artworks based on their engagement with digital culture, whether through the use of technological instruments or existence within digital platforms.

To select the artworks, we searched keywords such as *decay, grief and software, digital grief, mourning, glitch, death*, and *dead data* to find works that dealt with death processes and technology. We delved into curated, digital art repositories such as The Couch, Rhizome, e-flux, and Arena. Literature and scholarly publications reviewed pointed us to other artworks. A total amount of 35 projects were researched, from which we selected 30 (see Table 1), discarding the ones that didn't have an artistic background or intention such as Chatbots or apps like Replika, an AI tool used often used by the bereaved to deal with the postmortem processes.

This resulted in a varied list of artworks that approach death processes in multiple, different formats. Some of these approach the topic in a more direct manner, whilst others in a more abstract, tangential way. We also dismembered complex artworks which included different mediums as separate objects, such as *Ghost* by Asa Horvitz which comprises a performance, a website, and an AI interface. We also included keywords, which we gathered from the artist's statement of the work or external text and reviews about the work.

In the initial phase, we pre-selected 30 projects, followed by the organisation of these into a structured tabular format with certain metadata from the artists and their work (age, residency, gender, date of release, medium, documentation and keywords). We present a table of the selected works and a brief description in Table 1.

Table 1. Artworks and descriptions (reduced version without metadata).

N	Artwork	Description
1	Donate Yourself	An AR journey and website that introduces virtual, visual and sonic expressions of our organs, cells and body of data. It proposes that, after death, they can become a collective gift of information for the next generation. (Pisillides and Body>Data>Space 2021)
2	999 years, 13 sqm (the future belongs to ghosts)	A 13 square metre room installation containing a "living" wall powered by microbes. It contains a hovering spirit and references the ever forever changing nature of organic matter subjected in the capitalist context. (Evans and Amstrong 2019)
3	The Collapse of PAL	A live AV-performance first performed on national Danish television. It features the "Angel of History", who reflects upon the demised and outdated PAL television signal. (Menkman 2011)
4	Dear Mr Compression	A multimedia project that also features the "Angel of History", as it directly addresses the compression algorithm, which alters and distorts the transmission of images, videos, and data across the internet. (Menkman 2010)
5	GHOST (AI interface)	A musical performance aimed to turn the artist's individual grief into a collective experience, using personal archives and spiritual texts. The lyrics were made in collaboration with a custom-trained AI language model. (Horvitz 2023)
6	GHOST (AI interface)	An interface where the audience can converse with the trained AI language model (the same utilised for the GHOST performance). The AI creates text based on the training (which is available to download) and the user's input. (Horvitz 2023)
7	GHOST (website)	Digital version of GHOST (performance) where the audience navigates through texts, profound music and images from personal archives of the artist and documentation of the performance. (Horvitz 2023)
8	I'm sorry I made you feel that way	An interactive experience and performative self-portrait. The artist's biometric data is collected daily via a wearable smart ring device and linked with an artificial avatar which deteriorates when its human is tired or stressed. (Menegon 2023)

9	One last click and I'll be gone	A series of AR, videos and digital-self-body-portraits clones. The clones are forced to follow a monitored cursor, struggling with the limits of the virtual environment and leaving visual traces of their movements. (Menegon 2022)
10	All alone, together	A generative live simulation and a social WebVR immersive installation, where the virtual clones of the artist's 3D-scanned body are merged as a result of an algorithmic anomaly. (Menegon 2020)
11	Unfinished Farewell	A website which reenacts a public virtual tomb, documenting the pandemic victims. It provides an image and information about the deceased which vanishes when hovered with the cursor. Users can leave messages and release their grief. (Li 2020)
12	Funeral for Digital Data (performance)	A three-day-long ritual for digital data performed by the artist. By activating a material installation, the ceremony becomes a site where data can be grieved and digital devices can be mourned. (Petrozzi 2022)
13	Funeral for Digital Data (website)	A website containing the personal and collective archives of the lost data and hardware. At the bottom, it states: *When it's the last time you experienced the loss of data?* And the only clickable button: SHARE. (Petrozzi 2022)
14	Knows too much	A workshop and installation, taking a collective digital spell to reframe the human and device connection. Participants interrogate their own smartphones and print their algorithmic lives. Closing with a magic circle where digital and discarded objects relate to four elements. (Petrozzi 2021)
15	Die with Me	A chatroom application that users can only enter when their phone is about to die (only 5% battery remaining entry). (Depoorter 2018)
16	Suicide Machine	A website and bot that removes your profile from Facebook, Linkedin, MySpace and Twitter. Every piece of information and every content piece is deleted one by one in front of the user. (Gamba and moddr_ 2010)
17	Smell of Data	A new scent is attached to a scent dispenser that can be connected to your devices via Wifi, and will release a puff to alert internet users of data leaks. (Wijnsma 2019)

18	Recursive Truth	A video based on generative AI research, using deep fakes and video games mods to delve into loss, memory and truth as a medium. (Rossin 2019)
19	The Sky is the Gap	Multi-user virtual reality installation, where users can control or scrub time through their movements. (Rossin 2017)
20	Ephemeral Data	A ten-day group performance that visualised the shift in digital culture. They created a sand mandala representing Utrecht's digital infrastructure, which was wiped at the end. Nothing was documented and it will never be repeated. (Van Loon 2019)
21	Permanent Data	Installation that uses a 12km glass fibre Direct Access Cable (DAC), usually used to connect households to a digital network under the ground. The cable is printed with the Gutenberg bible mixed with contemporary YouTube comments. (Van Loon 2020)
22	0°N, 0°E	A video installation around the cyber-myth of Null Island, a geolocation of data files that are missing their coordinates. An invitation to enter a collective, technologically mediated memory of nature. (Mora 2020)
23	Matrix Vegetal	A video and installation with sculpture-totems and dry Brugmansia flowers. The artist aimed for a temporary disengagement with the digital matrix to create an alliance with the vegetal matrix instead. (Dominguez 2021)
24	Goodbye, My Sunny Child (Life is Brief)	A monologue-video-concert starring a dying Tamagotchi, reflecting on its past life and performing a duet song with a human performer. (Moreno Roldan 2021a)
25	Salvapantallas Fantasma	An audiovisual installation composed of several obsolete televisions and an analog television transmission system. (Moreno Roldan 2021b)
26	New Mystics	A digital platform for exploring collaboratively the interconnections of magic and technology. Featuring both human and non-human voices, with texts co-authored by the Language AI GPT-3. (Bucknell 2021)
27	Inanimate Species	An installation that displays 19.125 pinned images of insects and Intel 4004 microprocessors, exposing the link between the explosions of technocapitalism and the acceleration of climate change resulting in the decline of essential ecosystems. (Moll 2022)

28	Rituals on Wasted Technology	A sound installation comprising two of his sculptures, APES and SWANS. He creates a post-apocalyptic landscape in which the recycled, animal-resemblant kinetic sculptures symbiotically relate to each other. (Barotti 2023)
29	Hyperlinks or it didn't happen	A video that follows the journey of a CGI version of the demised actor Philip Seymour Hoffman, alongside other digital entities like rendered ghosts and holograms. They explore existential questions and ethical dilemmas related to personal data ownership. (Evans 2014)
30	Merciless Entropy	A monumental, sculptural digital artwork that displays the results of a web crawler script searching for broken URLs and dead-end links. (M. Marangoni 2020)

Fig. 2 FigJam general workspace screenshot.

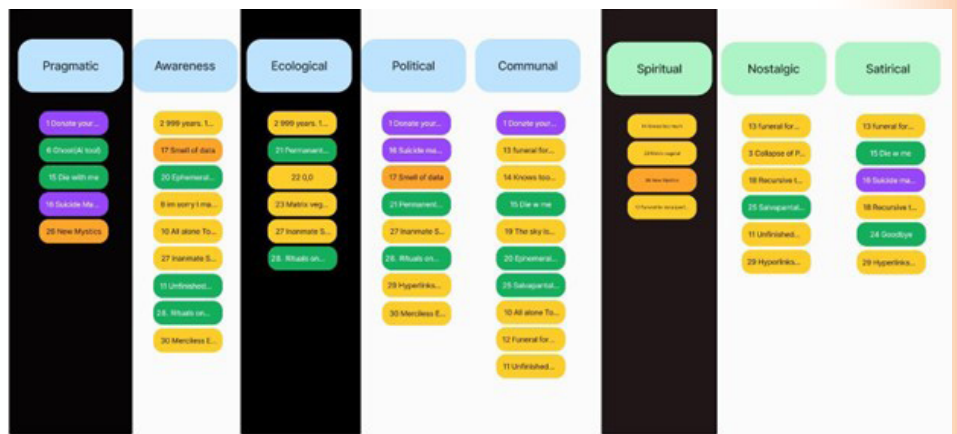**Fig. 3** FigJam sectioned workspace screenshot (artworks organized by gender).

Fig. 4 FigJam sectioned workspace screenshot (artworks organized by gender).
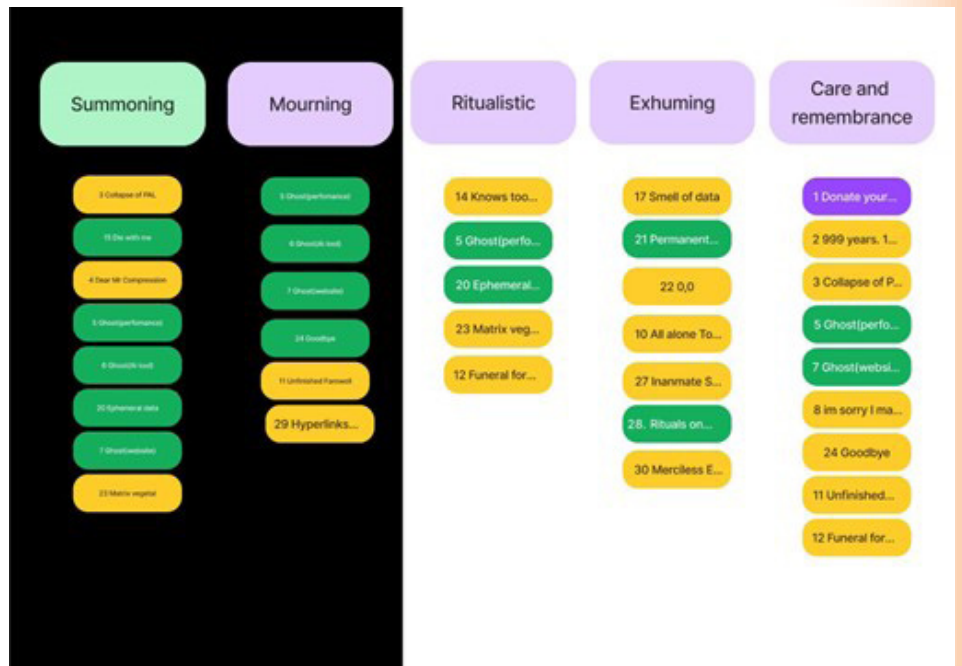

Fig. 5 FigJam sectioned workspace screenshot (artworks organised by gender).

We then laid them out into a cartography, organising them and mapping them out through labels (see Figure 2), which helped us to understand their nuances and relationships. This process consisted of creating a free list of qualities per artwork and adding them to the table.

We gathered a total of 51 labels. Some labels came directly from keywords we found in the previous phase, whilst others from our own associative perception relating to other works. The use of a visual tool such as FigJam (see Figures 2, 3, 4 and 5) allowed us to rapidly and intuitively interact with the gathered data. These labels were then compared, discerned and grouped throughout two iterations which resulted in 18 final groups we refer to as *clusters*, defined in Table 2.

We then mapped the artworks to as many clusters as we pertinently considered. While doing this process, we refined nomenclatures and re-structured our labelling system by moving some labels from one

group to another. This resulted in a final group of defined clusters and associated artworks. We encountered ourselves making several iterations regarding the distribution, to map the amount of artworks per cluster and metadata.

Cluster	Description
Pragmatic	Has a purpose and its main focus resides in resolving that practical problem, seeking specific quantitative solutions.
Awareness	Raises a particular topic in the audience. It searches to shine a light on a specific subject to raise engagement.
Ecological	Concerned with nature processes and climate justice, with organic materials the relationship between human and more than human.
Political	It engages in deliberate communication aimed at critiquing and interrogating a specific issue, emphasising the responsibility to take action toward its resolution.
Communal	Aimed to gather collective testimonials and cultivate an immersive communal experience. It prioritises the group processes over individual concerns, fostering a sense of shared involvement.
Spiritual	Concerned with mysticism and esotericism. Mediates between the physical and the metaphysical realms, as well as engaging with animism and the afterlife of objects or materials.
Nostalgic	Evokes a feeling of nostalgia, Awareness remembering the past with an emotional and melancholic tone.
Satirical	Introduces humorous critiques, implementing blunt, sarcastic language, dark humour and metaphors.
Summoning	Focused on evoking specific emotions to an audience, luring them into the work in a sort of poetic enchantment.
Mourning	Involves the grief processes of emotional, psychological, and sometimes physical adjustment to the reality of a loss.
Ritualistic	Engages in a ceremonial series of actions, often with spiritual undertone and communal gatherings. It might use specific objects, implemented with intention and care for rituals.
Exhuming	Digs up and illuminates what was previously unseen, forgotten, or buried—both in physical and metaphysical realms. Exhumation reveals glitches, errors, failures, anomalies, and the specter of death.
Care and Re-membrance	The act of memorialising. "Re-membering" recognizes the inseparable entanglement of different elements within a larger system.

Phygital	The hybridity concerning the physical body and digital self. It refers to the digital embodiment that involves both flesh and bones, as well as pixels and data.
Spectral	Relates to the intangible, immaterial, eerie and ghostly. It can be associated either with objects, living beings or afterlife entities.
Decay	Refers to the gradual deterioration or decline of something over time, often resulting in the loss of quality, functionality, or vitality.
Obsolescence	The state of being outdated, forgotten, or rendered obsolete due to advancements or changes in the present context. It is related to the ending of a life span, the decline or discontinuance of certain practices, ideas and objects.
Sensorial Incarnation	The act of something immaterial, digital or metaphysical incarnates into a material form. The viewer experiences the transition from the imperceptible to the perceptible.

Next, we analysed all the work done in FigJam and decided to discard some of the contrasted metadata (the artist's nationality, age, the artwork's medium, date, etc.), to focus on the data that we perceive to be more relevant. We decided upon selecting the gender metadata to draw our conclusions for this paper.

From a quantitative analysis, we note that there is a bigger percentage of women overall (Table 3). The clusters with a larger number of men are *Summoning* and *Mourning*, and the one with most women is *Spectral*, followed up by *Decay, Care and Remembrance* and *Communal.* The clusters that are the most populated and heterogenous are *Communal, Awareness and Political.*

What we can draw from this exploration is that there is a broader spectrum of labels which relate to a more metaphysical aspect of death. We encountered more nuanced terms, such as *empty, void, ceremonial, ghostly,* and *mysticism.* Clusters such as *Spiritual, Ritualistic, Exhuming, Spectral, Decay, Summoning and Sensorial Incarnation* may serve as evidence of how art can cater to the need to engage with the topic in a broader way, a practice that may be lacking in HCI (Albers et al. 2023).

Cluster	Artworks by Women	T	Artworks by Non-binary	T	Artworks by Men	T	Artworks by collectives	T
Pragmatic		0	[26]	1	[06][15]	2	[01][16]	2
Awareness	[02][08][10][27][30]	5	[17]	1	[11][20][28]	3		0
Ecological	[02][22][23][27]	4		0	[21][28]	2		0
Political	[17][27][29][30]	4		0	[21][28]	2	[01][16]	2
Communal	[10][11][12][13][14][19]	6		0	[15][20][25]	3	[01]	1
Spiritual	[12][14][23]	4	[17]	1		0		0
Nostalgic	[03][11][13][18][29]	5		0	[25]	0		0
Satirical	[13][18][29]	3		0	[15][24]	2	[16]	1
Summoning	[03][04][23]	3		0	[05][06][07][15][20]	5		0
Mourning	[11][29]	2		0	[05][06][07][24]	4		0
Ritualistic	[12][14][23]	3		0	[05][20]	2		0
Exhuming	[10][17][22][27][30]	5		0	[21][28]	2		0
Care and Re-membrance	[2][3][8][11]12][24]	6		0	[5][7]	2	[1]	1
Phygital	[8][9][10]	3		0		0		0
Spectral	[3][4][9][11][18][19][22][29]	8		0	[5][7]	2		0
Decay	[2][3][4][8][10][30]	6		0		0		0
Sensorial In-carnation	[8][12][14][17][30]	5		0	[20][21]	2		0
Obsolescence	[12][13][14][29][30]	5		0	[24][25][28]	3		0

Acknowledging the blank spaces

To add to Kneese's glitch analogy, our exploration leads us to conclude that death paradoxically presents itself as an exhuming force. The blank spaces it leaves as it expands over every aspect of our existence ignites a particular type of paranoia, a fervour to resolve all. It evidences an intrinsic human necessity to fill every vacant space with a plethora of meanings and formulas that offer a momentary solace.

Nevertheless, we find there is a distinction between art and technology in their attempt to fill in these blank spaces. The way in which technology and art approach the topic is very different. The binomial dogma that often underlies technology doesn't consider buried, glitchy or grey areas. Perhaps, this is the time when what lays underground, silent, between the creeks of 1 and 0's emerges to haunt us all.

As opposed to trying to solve the topic of death, art mimics its exhuming nature. It is within these empty creases that artists find ways to question, complexify, embrace and challenge such matters. Some artistic practices provide agents who encounter death in its multifaceted and ever-changing nature a way to portal to this particular type of unknown.

In fact, art which encompasses technology as a tool to critique or help this matter is almost accidentally integrating it to the issue. It repurposes technology's obsession to provide practical answers and

4. We are referring to all artists that identify as women mentioned in this paper. We recognise that woma-nhood doesn't only belong to cis--women and that it expands beyond biological sex.

metamorphosizes its perfectionist DNA into a much more empathetic, admittedly flawed, communal and powerful vehicle.

The works of the artists featured in this paper adopt a voice of their own, with which spectators, users and mourners interact with. The questions they come up with aren't made to be completely answered by techno-solutionism. Instead, art practices that use technology and make HCI proposals, critique the established forms of ritualizing, caring, coping and memorialising the dying, deceased and their potential afterlife, while proposing new approaches and methods. These converse with this void, without trying to fill it. They deliberately create glitches, errors and failures that aren't looking to be solved.

As death refuses to have any time or structure, approaching the topic requires a sort of humility, a surrender to what we cannot control. In the same way artistic practices mimic the exhuming force of death, the way in which some artists[4] address this topic can be also related to a more honest, porous attempt to approach cyclicity (which inherently comprises the ending of one).

An interesting observation is to note that, throughout this exploration, we've encountered a higher representation of female theorists and practitioners' voices who focus on this topic.

This can be observed not only in the presented literature, but also in the woman artists present in this paper.

Clusters such as *Spectral, Spiritual, Decay*, and *Phygital*, which deal with the intangible, cyclic and blurry nature of death processes, have a larger percentage of women artists.

The *Spectral* cluster approaches death in its immaterial, auratical and ghostly qualities (Table 1, e.g. [2, 3, 11]). In some way, it already acknowledges that the topic itself is something too separated from our human capacity to grasp. There is an ethereal nature associated with this group of labels. Peace is made with what cannot be seen, yet exists. In addition to that, the non-traditional or religious forms in which this techno-auratic realm is approached in the artworks that are part of the *Spiritual* cluster (Table 1, e.g. [23, 26]), as well as the cyborg-integration of our digital and biological selves in the *Phygital* cluster, show us that perhaps women are the ones more concerned in creating new strategies, dynamics and spaces to approach this topic. These go about conversing with what lies between binaries. They honour the agency of our unfleshed, digital avatar, as seen in (Table 1, e.g. [8, 9, 29]), as well as mingling with mourning techniques that involve invisible data.

The end of a cycle is directly related to the Decay cluster. The fact that many of these artworks are propelled by women denotes an acceptance towards the way in which death slowly advances towards every process. To add up to the humbleness mentioned before, this cluster implies the posthuman notion and acceptance towards considering ourselves beautifully flawed, dying specimens. They commemorate erosion, creating artistic representations that do not seek immortality or reparations (Table 1, e.g. [4, 10]), in an attempt to approach "finitude as a blessing and not a curse" (Kneese 2023, 25). We ponder: Does a correlation exist between the cyclical biological nature inherent to women and their innate capacity to engage in contemplation of life's intricacies through a non-linear, interwoven lens?

The decline implied in the *Obsolescence* cluster, which addresses topics very closely tied to the discontinuing (and consequently death sentencing) (Table 1, e.g. [24, 25, 30]) has no particular gender majori-

5. Deepening the debate arou-
nd gender within technology falls
outside of the scope of this paper.
However, it does cross our research
and might be considered relevant
and enriching as a hypothesis on
how gender is related to ways to
address this topic.

ty. This shows that there is a general approach to deterioration, but the manner in which it is approached isn't gender-innocent.

We find compelling the ways in which feminist perspectives[5] can enrich the existing techno-solutionist practices. Nobody has a recipe as to how to transit the uncertainty of death but, from our point of view, feminist approaches and methods seem to stand comfortably in this dense fog, creating tools to walk blindly.

Breaking the line

There is an evident linearity driven by startup culture (Kneese 2023) that aims to optimise grief and hack death with the promise of immortality. We believe death breaks this line. It evidences its failures.

What we can draw from our exploration is that this clearly manifests in the lack of digitally adapted mourning rituals, the masked, commercially driven promises to preserve digital legacies, the lack of empathetic tools towards the decay and demise of beings, objects and their bereaved, and the fetishization of immortality for our digital selves. Maybe the topic shouldn't be solved, nor optimised, as death cannot be escaped, altered, hacked, mapped or linguistically grasped.

In artistic practices, we've encountered works which incarnate or express emotions, awareness or political perspectives (Table 1, e.g. [17, 21, 28]) towards death via their artworks. These artworks problematize a linear approach to the phenomenon. Perhaps, as technology has advanced, we have overlooked cultural legacies as significant as ancestral knowledge rituals, which encode methods for managing cyclical ecological harmony with the environment. How to integrate everything that is approaching death into our discourse as a fundamental part of the cycle? How can we reconcile with decaying processes, deterioration and unavoidable endings?

Knowledge(s) from other cultures which perceive objects from an animistic lens, enrich these processes, (Table 1, e.g. [22, 23, 26]). Looking at objects as animated beings becomes a useful strategy to incorporate nuances into the way we perceive death. The animistic approach when commemorating the lifetime of hardware, ritualising the death of discarded devices (Table 1, e.g [24]) and mourning data that has been lost (Table 1, e.g [12, 13]), recognises that technology might also revolve in cycles, a perpetual rhythm of creation and decay. How is HCI broadening its approaches and methodologies to better relate, reflect and consider planetary, ancestral knowledge(s)?

Fostering collective engagement

There is hopefulness in the variety of genders and the multidisciplinary artworks that fall into the clusters of *Communal, Awareness* and *Political*, which are woven with each other. We value visions that portray the democratising nature of death (Table 1, e.g. [1, 10, 15]). Death is inherently a social activity (Kneese 2023, 21) as we are made human through addition, not subtraction (Jackson and Kang 2014).

We perceive that these processes are enriched by togetherness. Dialoguing with the blurry "messiness'' of death processes requires communal care and exchange, not in a frenetic quest to solve it, but to simply be able to transit it. Some of the artworks present in the table require a

clear collective gathering to take place or channel expression and emotion (Table 1, e.g. [5, 11, 14]).

In the same way that mourning practices require collective gathering, art practices cannot be separated from their social nature. Certain artworks gather people to surrender to the cyclicity of compost (Haraway 2016). Decomposing evidences that dying is an unwoven, knotted collective experience. A memorial isn't about the demised things or beings only, it is about creating a spectral, ritualistic loom that holds the space for the tensions of unanswered questions.

With this research we are not attempting to arrive at concise solutions and answers, but rather to complexify, to continue to trouble the topic and our perspective towards it. We question ourselves: Are the empty spaces death leaves necessary to birth new processes? Should we cease the quest for solutions, and surrender to the tacit? What remains unresolved also occupies a space in this life. It should be respected and honoured. Are we neglecting the sacred potential of the end, the empty, the blank? Are we scared of embracing the intrinsic fertile nature of death, in a misunderstanding of life as a complex cyclic phenomenon?

Further research

As an initial approach to the topic of death, we recognize that it encompasses a broad range of interpretations, making it difficult to grasp all at once. Our primary objective is to explore what has been said, done, and expressed by mostly contemporary theorists and artists on this subject.

Although our goal is to explore various perspectives rather than narrow our focus, there are some specific areas that stand out, such as the idea of the "death of data" or hardware, as well as the emergence of new terminologies related to death and technology. These concepts are intriguing because they reflect unforeseen scenarios that traditional language struggles to describe.

We also find it crucial to expand our artwork repertoire, as we've noticed that a big number of them are related to the climate crisis and troubling futures. We also find that conveying an analysis between lesser artworks might also be fruitful to further go into detail into the context in which they were produced (possibly engaging with the artists themselves).

Since most of the selected artworks are by European artists, we plan to broaden our scope to include works from other regions, such as the Global South. By doing so, we can explore diverse cultural, religious, and ancestral knowledge(s) on death, along with various rituals and their connections to technology.

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