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Digital necromancy: Users' perceptions of digital afterlife and posthumous communication technologies

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Technologies of digital afterlife and posthumous communication are more developed than ever, and the possibilities for communicating with digital representations of people who perished are coming to fruition. Studies about digital engagement with death reveals contradicting trends. Whereas technologies designed for interacting with the dead have thus far failed, users reappropriate means of online communication that were not intended to facilitate communication with the dead – to facilitate precisely this practice. This article searches for a fuller understanding of the changing attitudes toward death in light of emerging intentional *posthumous communication technologies* (PCTs). Drawing on a national survey of Israeli Internet users, the study explores contemporary attitudes toward death and the digital afterlife and analyzes users' perceptions of emerging PCTs. Findings indicate that whereas the general public is still reluctant to adopt such technologies, digital literacy and willingness to access digital remains are significant predictors for considering digital interactions with the dead.

Keywords: digital afterlife; digital necromancy, posthumous communication; online mourning; death; technology

Introduction

In December 2022, Microsoft patented 'a chatbot that would let you talk to dead people' (Duffy, 2021). However, Tim O'Brien, Microsoft's general manager of artificial

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intelligence (AI) programs, wrote in a tweet that there is no plan to implement the chatbot (Tim O'Brien [@_TimOBrien], 2021). This ambiguous stance represents the controversies around deploying AI and digital technologies to communicate with animated representations of dead users, And studies on digital grief and bereavement indicate that the idiosyncrasy, fluidity, and unpredictability of grief applies to digitally-assisted grief (O'Connor & Kasket, 2022). These technologies, by definition, facilitate artificial communication. Yet, inasmuch as grievers know they are chatting with a thanabot rather than the deceased, some grievers experience these interaction as real enough for their coping. They control the information fed to the machine; it is their own interpretation of the communication; and these are their real emotions that aretriggerd by the interaction (Henrickson, 2023). On the other hand, death is a sensitive subject, often associated with distress, fear, and superstition; thus, greivers do not always embrace the new practices to engage with death.

Microsoft's patent reminded many commentators of the 'Black Mirror' episode, titled *'Be right back'* (Harris, 2013), in which a woman who lost her spouse used an AI platform that mined the dead spouse's online profiles to collect his *digital remains*, and generated a chatbot that enabled the widow to communicate with her spouse . This episode presents a dystopian scenario, but the contemporary digital afterlife industry (Bassett, 2022; Fordyce et al., 2021; Öhman & Floridi, 2018; Savin-Baden & Burden, 2019) is on the verge of bringing it to fruition. In addition to Microsoft's patented chatbot, James Vlahos has created *Dad-bot*, a chatbot of his dead father with whom he continues to communicate (Nast, 2017); Joshua Borbeau created an AI version of his fiancée (Henrickson, 2023); Tupac Amaru Shakur, performed on stage as a hologram sixteen years after his murder (Tsukayama, 2012) and so did Whitney Houston, nine

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years after her death (Zeitchik, 2021); *The Shoah Foundation* deploys its *Dimensions in Testimony* project, in which Holocaust survivors' holograms interact with audiences and tell the survivors' personal story (*Dimensions in Testimony*, n.d.); dead celebrities like Bob Monkhouse in the UK and Seffy Rivlin in Israel were digitally animated for health campaigns using deepfake technologies (Bell, 2007; Melamed, 2020). Similarly, Israeli women who were murdered by their spouses were animated in a national campaign to raise awareness of domestic violence (Golan, 2021); *My Heritage* launched its *Deep Nostalgia* project, allowing customers to animate dead relatives' still images and create a short moving GIF of the ancestors; Andy Warhol 'narrated' Netflix's *The Andy Warhol Diaries*, which he indeed wrote, but never sound-recorded (*The Andy Warhol Diaries*, 2022); and a TV production has created a 3D version of a deceased South Korean child several years after her demise to allow her mother a last farewell (Park, 2020). Other ventures encourage customers to deposit recorded or written messages to be sent to addressees in the future after the message's creator has passed away (CGTN America, 2016). Often, the media coverage of these stories highlights the innovation involved, regardless of its impact on grief processes (see also O'Connor & Kasket, 2022).

These projects illustrate emerging options for posthumous communication with the dead using digital technologies. Currently, these technologies diverge in terms of their features and the nature of the engagement they facilitate: Some technologies are text-based, and others are visual; some create a visual presence in a physical space, and others take place in virtual spaces; some draw on pre-recorded messages and database, whereas others utilize AI computing to produce new text. Indeed, they require the

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services of commercial businesses, and they have yet to mature as DIY services. Nonetheless, several components of the *'Be right back'* scenario are already present.

Ironically, despite the hype around some elements of the digital afterlife industry, the businesses have proven mortal. Many ventures that promise symbolic immortality often face instability and extinction (Bassett, 2022; Nansen et al., 2021). This lack of commercial success is surprising since people appear to utilize digital platforms to continue their relationships with the dead. Notably, technologies that were never envisioned as tools for coping with death or engaging with the dead have become digital venues of commemoration, remembrance, and posthumous communication. Studies have shown how social networks (SNS) like Facebook have become memorial sites where people commemorate and sometimes communicate with their deceased loved ones. Even relatively obsolete technologies, like an inactive phone or dormant voicemail, have found a role in helping people cope with loss (O'Connor, 2020; Segerstad et al., 2022). Accordingly, the study of digital engagement with death has distinguished two contradicting trends: (1) endorsing and reappropriating everyday platforms that were not designed for grief and mourning and (2) eschewing digital innovations and platforms that were designed for memorialization, commemoration, and posthumous communication.

This article aims to advance our understanding of the triangular relationship between death, society, and technology. Drawing on a national survey of Israeli Internet users, the study delves into contemporary perceptions of death and digital afterlife and analyzes attitudes regarding posthumous communication technologies (PCT). Findings indicated that the general public is still reluctant to adopt intentional PCTs, and this approach is widespread. However, online activity (i.e., posting original content online)

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and positive attitudes regarding accessing digital remains seem to be significant predictors of people's willingness to use PCTs.

The article begins with an exploration of contemporary engagement with death online. It situates the current trends in attitudes toward death, immortality, and the afterlife in Western societies, both in terms of beliefs about the finality of life and regarding practices for coping with loss. The article then discusses how the Internet has changed people's engagement with death and how attitudes toward death and the dead are reshaped. The Discussion outlines the multiple services and platforms for coping with loss and interacting with deceased loved ones. Moreover, it addresses the services these technological solutions can offer the bereaved. Next, the article articulates the research question and presents the methodology and findings, which are then discussed.

Contemporary attitudes toward death

Western attitudes toward death have evolved throughout history (Ariès, 1975; Elias, 1985; Gorer, 1965), and they continue to change (Jacobsen, 2017, 2020; Walter, 2017), among other factors, due to changes in communication technologies (Walter, 2015a, 2015b; Walter et al., 2012). Scholars such as Ariès (1975) and Gorer (1965) argued that the 20th century was the age of forbidden death, when death disappeared from everyday life and was hidden in secluded spaces like hospices and hospitals. The dead and the living occupied two distinct and distanced spaces to allow the daily routine to continue without being hampered by reminders of death. Other scholars have challenged this assertion, arguing that death did not entirely disappear; it continues to surface in popular culture (e.g., Jacobsen, 2020) and the news (e.g., Hanusch, 2010). And yet, by and large, the dead and non-mediated talk about death were pushed to the margin.

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These separate zones were once again conflated at the beginning of the 21st century. The Internet integrated the space of the dead and the space of the living, where the dead's symbolic representation resides alongside the online activities of the living (Nansen et al., 2014). This is the process that Walter (2019) identified in his analysis of a paradigmatic shift in the role of the dead in society toward the pervasive dead (see also Brubaker et al., 2013; Walter, 2015a; Walter et al., 2012).

Continuing bonds

The conception of communication between the living and the dead resonates in centuries-old religious practices. Necromancy is mentioned in the Bible, and it was practiced in ancient Greece and Rome to obtain advice from the dead (Sherlock, 2013). In these practices, the dead allegedly responded to the living, maintaining reciprocal bonds between the two parties. From a therapeutic perspective, in the course of the 20th century, the 'moving on and letting go' approach to grief dominated the Western therapeutic discourse. It advocated for breaking ties with the dead to facilitate returning to one's routine, and grieving individuals who were unable to sever themselves from deceased loved ones were deemed unhealthy and suffering from pathological grief (Sherlock, 2013). Toward the closing of the 20th century, the 'continuing bond' approach to grief (Klass et al., 1996) gained more popularity and acceptance. According to this approach, 'death ends life, but it does not end the relationship' (Refslund-Christensen & Sandvik, 2014, p. 251). In other words, 'while relationships necessarily do change, they do not end as such' (Kasket, 2012, p. 63). In recent years, continued relationships with the dead are no longer considered unhealthy for mourners.

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The notion of continuing bonds between the living and the dead does not necessarily imply a reciprocal exchange. Indeed, for centuries, religions have cultivated a spiritual approach to life after death and two-way posthumous communication. However, secular approaches regarding continuing bonds do not insist on two-way communication. Maintaining relationships with the dead offers therapeutic benefits to the bereaved without requiring a belief in an afterlife. Hallam et al. (1999) showed that talking to the dead is sometimes a secular practice.

A different, modern type of non-reciprocal relationship pertinent to cultivating the bonds between the living and the dead is para-social relationships. In a media-saturated environment, viewers often establish a kind of relationship with television personalities and presenters. These relationships are one-sided, as the television personalities and presenters do not respond to the viewers, yet these are ongoing relationships that the viewers maintain despite their artificialness. When these figures perish and vanish from the TV screen, the viewers experience actual feelings of mourning, as if they lost a close friend or family member (Brown et al., 2003; in Sherlock, 2013). Thus, relationships are not always corporeal and are sometimes one-sided both in life and after death.

Engagement with death online

Since the early days of the Internet as a common information and communication infrastructure, and soon after the World Wide Web became familiar to laypeople worldwide, death was present online. Studies have shown how mourning and coping with loss has shifted to the online realm in online forums, websites and pages of commemoration, and memorialized profiles on SNS (e.g., Bouc et al., 2016; Brubaker

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et al., 2013; Moore et al., 2017; Navon & Noy, 2021; Pennington, 2017). Put differently, online practices of coping with death have begun since the early days of the pervasive use of the Internet (see also Bassett, 2022; Nansen et al., 2014; Walter et al., 2012), as communication technologies are pivotal in dealing with death (Walter, 2015b).

As far back as the 1990s, Sofka (1997) found support sites that were purposefully designed for death-related practices, offering relief, assistance, and support for people experiencing loss and seeking comfort. These websites and services made death more accessible and noticeable for laypeople in everyday life and have changed the manner of engagement with death, dying, mourning, and bereavement. Memorialization sites have also been cited as mirroring offline rituals, such as leaving flowers and lighting candles in memory of the deceased (Nansen et al., 2014; Sofka, 1997). Another feature of memorial pages included photographs and sound recordings of the deceased, as well as artworks and other digital artifacts providing the opportunity to learn about the deceased and the person they were. Thus, the online commemoration of deceased loved ones was enabled for mourning communities composed of people that had known the deceased and strangers that surfed the web.

People have been utilizing online platforms and applications for the last two decades to commemorate their loved ones, and death-related rituals and practices have become digitized (Sumiala, 2021). However, O'Conor and Kasket (2022) point out that utilizing digital technologies to cope with loss is in a flux, and mourners have mixed experiences processing loss via digital platforms. Therefore, they advise to use caution with regards to the impact of the presence of digital afterlife.

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Besides the digital conversion of offline mourning practices, new practices have emerged, like the memorialization of existing profiles of the deceased that serve as virtual 'congregation' spaces for the bereaved. Additionally, the affordances available on SNS invite new mourning etiquette. Some users contemplated the possibility of un-friending or muting deceased users on Facebook (Pennington, 2013); others considered the legitimacy of keeping dead users' accounts 'alive' and operating them on behalf of the dead users. The service providers, too, are constantly reflecting on managing deceased users' profiles since the online platforms can accidentally initiate an activity involving dead users' accounts or encourage others to engage with such accounts, and this is something that users may find upsetting (Bouc et al., 2016; Brubaker et al., 2013; Kasket, 2012).

Recently emerging ventures allowed posthumous interactions with digital representations of the dead (Fordyce et al., 2021; Savin-Baden & Burden, 2019). This leads to a new option of digitally interacting with the dead, including posthumous correspondence between the living and animated representations of the dead. Of course, these are not interactions with the actual dead but interactions with the dead users' accounts. Nevertheless, from the living users' perspective, these could be considered interactions with the dead (Henrickson, 2023). Bassett (2022) distinguished between *accidental posthumous sites* and *intentional posthumous sites*, and also between *one-way digital afterlife platforms* and *two-way digital afterlife service providers* (see also Fordyce et al., 2021). While this taxonomy is illuminating and useful, I suggest some nuances to Bassett's taxonomy to capture the directions of communication between the living and the dead.

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One-way communication – Dead to living (D2L)

One form of posthumous communication is when the dead 'reach out' to the living and communicate with them. Drawing on Bassett, these can transpire via intentional and accidental one-way digital afterlife platforms:

Intentional one-way digital afterlife platforms

Intentional one-way digital afterlife platforms are designed to create and store messages for future delivery. The creators of messages are living users who wish to leave posthumous messages to be delivered to their loved ones in due course, on a pre-selected date or occasion. These are a digital multi-modal manifestation of offline practices like leaving a letter to be read posthumously. These services allow pre-dead users to communicate with the living posthumously. In this format, the initiator of the continuing bond is the user who will be dead when the message is delivered, and the addressees are the living, who are passive recipients of the message. Commercial ventures in this category include platforms like *DeadSocial*, *MyWishes*, and *SafeBeyond*.

Accidental one-way digital afterlife platforms

Accidental posthumous sites are SNS, like Facebook and Twitter, which were developed and designed for the living, but now contain orphaned accounts of deceased users that remain communicable. On these sites, *accidental messaging* or *memory* can be initiated by the service providers. Since online platforms are not necessarily aware of a user's passing, their algorithms can accidentally promote interacting with a dead

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user's account as part of the standard algorithm. In these cases, the interaction is software-initiated and generated.

One-way communication – Living to dead (L2D)

Another form of posthumous communication is when the living make use of SNS affordances to continue the bond with the dead by communicating with them posthumously. Drawing on Bassett (2022), these communications can transpire on accidental one-way digital afterlife platforms by employing features like IM messengers, voicemail, and posts on the deceased user's timeline. In this format, the initiation of the communication originates with living users who serve as the addressors, while the dead are dormant addressees. Despite the deceased's' unresponsiveness, the opportunity to communicate with them is precious for these users (Segerstad et al., 2022).

Intentional two-way digital afterlife platforms

Intentional two-way digital afterlife platforms were initially developed and designed to facilitate two-way (L2D and D2L) posthumous communication (AI in Fordyce et al.'s [2021] taxonomy). These services utilize AI algorithms to create animated virtual representations of deceased users. Similar to the *Black Mirror* episode, these services promise to enable users to 'upload their mind' to the service, generating an avatar loyal to the user's self. The algorithms are designed to aggregate data from users' profiles during the users' lifetime or to mine the dead user's accounts and create a digital self of the dead user, which will be able to communicate with living users. These services will enable living users to maintain a two-way communication and an ongoing conversation

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with a machine mimicking the dead user's personality. Note that Bassett (2022) classified this service as two-way communication. However, on the two-way platforms, the deceased users have no control over how their virtual avatar or chatbot will perform. Thus, they deposit their posthumous personality in the hands of the algorithm developers, unlike intentional one-way digital afterlife platforms.

A caveat is to be noted here. According to Bassett (2022), these services, like *LifeNaut ETER9* and *Eternime*, are not fully available for customer use, and academic exploration of their function is limited. However, as Henrickson (2023) demonstrates, some AI project were already tested by some individuals, and these ventures are the closest to digital necromancy (Sherlock, 2013). Unlike memorializing web pages and dormant memorialized profiles, which cannot create new messages on behalf of the dead, the two-way communication platforms initiate interaction generated by an algorithm that animates a virtual representation of the deceased.

Israeli bereavement practices

This study was conducted in Israel, thus necessitating an abridged introduction to Israeli bereavement culture. Approximately 80% of Israeli citizens are Jews or of Jewish orientation (Central Bureau of Statistics, 2022); its national calendar aligns with Jewish holidays, and much of its cultural orientation and practices stem from Jewish tradition. This also applies to bereavement practices, which have a firm Jewish component if not necessarily religious. A critical component of Israeli attitudes toward death and engagement with the dead is the sacred status of death. National memorial days are considered the most sacred in the Israeli calendar, manifesting a clear separation and distinction from the profane. Death practices are communal and participatory (Lamm,

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1969). It is customary to attend funerals and *Shiva* (the gathering at the dead's home during the seven days following their death), even in cases of remote acquaintance with the deceased, along with other commemoration practices offline and online (Birnhack & Morse, 2018).

The public nature of engagement with death is also manifested in Israeli media and popular culture. News reports about the death of Israelis on various occasions are common in Israeli media, even in cases of laypeople who died in mundane circumstances like car accidents or on overseas excursions (Morse, 2014). However, Israeli media and popular culture adhere to discourse practices that constitute and reaffirm hierarchies of death and bereavement. As such, and in line with the sacred status of death, well-established norms govern who can speak about the dead or on behalf of the dead and in what circumstances (Ben-David, 2006; Lebel & Doron, 2003).

As for belief in an afterlife, in Jewish theology, the soul is the spiritual incarnation of the self, and it will be restored to a rebuilt and revitalized body at the resurrection of the dead as part of the day of judgment. While the soul is of higher importance, the Jewish *halacha* commands maintaining respect for the body, providing strict rules for handling the dead body (Savin-Baden, 2021). In line with these rules, cremation, for example, is forbidden (Gazit, 2016).

Research questions

This study examined attitudes regarding the use of digital technologies for posthumous communication. This investigation was conducted in light of the contradicting trends in using digital media for posthumous communication: the low adoption of intentional digital afterlife platforms and the utilization of accidental digital afterlife platforms.

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Moreover, this study aligns with the role of communication technologies in facilitating engagement with death. Specifically, the study examined how Israelis perceive these technologies and how can these perceptions be explained. Accordingly:

- RQ1: How do Israelis perceive interacting with DUPs and the use of PCTs?
- RQ2: Which demographic characteristics, life experiences, and attitudes shape these perceptions?
- RQ3: What role does posting original content online play in Israelis' willingness to interact with DUPs?

Methodology

While acknowledging the shortcomings of the self-report methodology, a survey was conducted among a representative sample of adult Israeli Internet users in November 2021. A uniform questionnaire was distributed via a computer-assisted web interviewing (CAWI) system to respondents on an online panel operated by *Dialogue Polling*, an Israeli market research company. Five hundred one respondents completed the survey. Quotas of gender, religion, age, and geographical location were set in advance and controlled during data collection to ensure a representative sampling of Israeli Internet users. Of the respondents, 51% identified as women and 49% as men. Respondents' age ranged from 18 to 70 (M_{age} = 40.5; *SD* = 14.43). Of the respondents, 79.6% identified as Jewish, 17% as Muslim, 2.2% as Druze, and 1.2% as Christian.

The initial set of questions addressed respondents' online practices and activities. Information was sought regarding the frequency and intensity of their Internet use as well as the nature of activities performed via SNS (i.e., posting original content on SNS). The second set of questions probed users' attitudes toward DUPs and PCTs.

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Then, intentional one-way and two-way digital afterlife services were introduced, and respondents were asked how likely they would use these services.

The third set of questions addressed users' beliefs in an afterlife and non-digital posthumous communication. Respondents were asked whether they believed in an afterlife and reincarnation and whether they had left or intended to leave non-digital messages to be read after their death.

The data were analyzed using SPSS. All the data presented in the tables in the Findings section derive from responses to closed questions. The questionnaire included some open questions, but these are not presented.

The author's institutional review board (IRB) granted ethical approval for this human-subject research. Measures were taken to avoid collecting identifying data, thus, precluding the author from identifying respondents. All respondents provided informed consent and were assured that their answers would not be used for any other purpose. Respondents did not receive any compensation from the author; however, they received vouchers from the survey company as registered panelists.

Findings

The first findings pertain to beliefs in an afterlife and to non-digital posthumous communication and then, findings about posthumous interactions on accidental one-way digital afterlife platforms. These findings cover existing online posthumous interactions on platforms like Facebook and Twitter. Next, perceptions of posthumous digital communication and the respondents' likelihood of using intentional one-way and two-way digital afterlife services are presented. Lastly, an advanced analysis of the findings, explaining some attitudes toward DUPs and PCTs is presented.

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Beliefs in an afterlife

Participants were asked, 'on a scale of 1 to 7, to what extent do you support the following statements when 1 means strongly disagree, and 7 means strongly agree?':

Table 1. Beliefs in an afterlife (N = 501).

	1 (Strongly disagree)	2	3	4	5	6	7 (Strongly agree)	Refuse to answer
I believe in an afterlife	18%	7%	8%	15%	8%	9%	29%	7%
I believe in incarnation	28%	9%	11%	14%	9%	8%	15%	7%
In death, the soul leaves the body and goes to heaven	16%	5%	7%	18%	10%	9%	27%	8%

As Table 1 indicates, the participants differed in their beliefs about the possibility of an afterlife. Nearly half of the sample expressed an openness to the possibility of an afterlife; similar rates supported the idea of a person's soul going to heaven upon death, while about a third opposed these ideas. About a third of the respondents believed in reincarnation to some extent, and about half opposed this idea. These findings suggest that beliefs in an afterlife are diverse, with large segments of the population do not reject the possibility of an afterlife.

Non-digital posthumous communication

Respondents were asked whether they have conducted an imaginative conversation with a deceased relative or friend and whether they wrote or intended to leave paper-written messages for relatives and friends, to be read after they (the respondents) die:

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Table 1: Non-digital posthumous communication (N = 501)

	Yes	No	Refuse to answer
Have you left, or do you intend to leave letters to relatives or friends that you wish them to read after you die?	33.3%	46.7%	20%
Have you written paper letters to a dead relative or friend?	11.0%	81.8%	7.2%
Have you conducted an imaginative conversation with a dead relative or friend?	33.7%	58.7%	7.6%

Table 2 shows that the practice of non-digital posthumous communication is not pervasive. About a third of the sample admitted to having conducted an imaginative conversation with a dead person, but only 11% of the respondents replied that they had written messages to a deceased relative or friend. Thus, while people do maintain an imaginary bond with the dead, only a small fraction expresses this bond through a tangible communication channel. However, when the roles are reversed, regarding intentional non-digital one-way communication, i.e., leaving messages for the living after the respondents' demise, a third of the sample replied that they intend to leave or have already left a future posthumous message.

One-way L2D posthumous communication on digital platforms

As noted, posthumous communication already occurs on platforms like Facebook. Respondents were asked about their posthumous digital communication, if and how it occurred:

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Table 2: Posthumous online interactions with dead users' profiles (N = 501)

Have you had any of the following online experiences?	Percent of the sample
Total percentage of users that experience one or more of the following	52%
I visited a profile of a dead user to see content that was posted in the profile prior to the user's death	37%
I was invited to wish happy birthday to a deceased user	24%
I was invited to follow or was suggested to befriend a deceased user	10%
I hit the 'like' button for the content of a dead user	9%
I hit the 'share' button for the content of a dead user	5%
I shared a post of a deceased user after their death	5%
I shared a picture taken by a deceased user after their death	5%
I wrote a public post on a profile of a deceased user	5%
I wrote a private message to a deceased user	2%
Not active on social networks	6%
None of the above	42%

Table 3 shows that 42% of the sample had not experienced or initiated any posthumous online interactions with dead users' profiles (DUPs), whereas 52% did experience some kind of online interaction with DUPs. The most frequently reported posthumous digital interaction was a visit to a DUP. Note that a quarter of the sample was accidentally invited by the platform to wish happy birthday to a dead user, and 10% reported that they were invited to befriend dead users. This phenomenon transpires despite Facebook's attempts to eliminate such accidental interactions (Sandberg, 2019).

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Attitudes toward posthumous digital communication

Another set of questions addressed respondents' attitudes regarding posthumous digital communication. Respondents were asked to what extent they perceived digital interaction with a DUP as natural, strange, disrespectful, and unpleasant. In addition, respondents were asked whether they perceived digital technology as a form of séance.

Table 3: Attitudes toward digital interaction with the dead (N = 501)

To what extent do you find digital interaction with a dead person's profile…	1 (Not at all)	2	3	4	5	6	7 (Very much)	Refuse to answer
Natural	34.1%	17.8%	10.8%	15.6%	5.8%	4.6%	7.4%	4.0%
Disrespectful of the dead	13.4%	6.6%	9.8%	17.0%	11.8%	9.4%	27.3%	4.8%
Strange	5.6%	4.0%	6.8%	11.4%	14.2%	18.0%	35.9%	4.2%
Unpleasant	7.6%	5.0%	6.6%	14.2%	14.8%	15.4%	32.7%	3.8%
A form of séance	56.9%	11.6%	5.8%	10.0%	5.4%	2.6%	1.8%	6.0%

Table 4 reveals that interaction with DUPs is perceived negatively. About two-thirds of the sample replied that interactions with a DUP are strange, unpleasant, and not natural. About half of the respondents found it disrespectful of the dead. Moreover, three of every four respondents replied negatively when asked whether digital technology can help us communicate with the dead like in a séance. These findings suggest that currently, people are reluctant to interact with DUPs, and they do not view

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digital technologies as a form of séance. This corresponds with Henerick's (2023) assertion that people are aware that thanatbots are *not* a conversation with the dead.

Additionally, respondents were introduced to two types of digital afterlife services: The first was an intentional D2L one-way platform, like *SafeByond,* that enables users to deposit messages which will be sent to addressees posthumously, and the second was an intentional two-way platform, like *ETER9* and *Eternime,* that utilizes AI to create an avatar based on the dead user's digital remains.

Table 4: Intention to use two-way afterlife services (N = 501)

	Certainly not	Probably not	Don't know	Probably yes	Certainly yes	Refuse to answer
Would you like to engage a service that would enable you to record or write messages to relatives and friends to be sent to them after you die?	13.0%	15.0%	31.1%	28.7%	5.6%	6.6%
Would you like to engage a service that would collect data about you to be uploaded into software that will enable relatives and friends to communicate with an avatar based on your personality posthumously?	31.9%	23.0%	20.8%	16.0%	2.4%	6.0%
Would you like relatives and friends to	34.7%	27.7%	17.8%	12.6%	2.4%	4.8%

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engage a service that would create an avatar based on their personality, enabling you to communicate with them after their death?	

Table 5 indicates that people perceive the two types of afterlife services differently. When it comes to depositing a message for future distribution—a message that the users compose and control—people hold diverse views: About a third of the sample was willing to consider and use such a service, around a third replied negatively, and another third did not have a firm opinion. As for two-way afterlife services, most participants shun using AI-based services based on scraped digital remains: 55% of the respondents said they were unlikely to engage such a service, whereas only 18% responded positively; 63% of the respondents replied that they did not wish to communicate with an avatar based on the digital remains of their dead relatives and friends. As noted, this service does not enable users to control their posthumous avatar.

How can attitudes toward online interactions with DUPs be explained?

In an effort to explain attitudes toward online interactions with DUPs, a set of advanced statistical analyses were conducted.

The first four questions relating to attitudes toward online interactions with DUPs (Table 4) were factor analyzed using principal component analysis with varimax (orthogonal) rotation. The analysis yielded a single factor, explaining 61.6% of the variance for the entire set of variables. The factor was labeled 'disapproval of interaction with DUPs' and was later used in a multiple regression analysis as the

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dependent variable. Table 6 shows the loading scores of agreement with the four statements.

Table 5: Component matrix – First factor analysis

	Component
Digital interaction with a deceased's profile is natural	-.510
Digital interaction with a deceased's profile is disrespectful	.828
Digital interaction with a deceased's profile is strange	.854
Digital interaction with a deceased's profile is unpleasant	.889

Extraction Method: Principal Component Analysis.

The factor analysis indicates that the first statement, which portrays interaction with a DUP as natural, operates in a different direction from the remaining three statements. The yielded factor was used as a dependent variable for the regression model to be explained later.

An additional factor analysis was performed on a set of questions about accessing and utilizing digital remains. This factor analysis yielded two factors, explaining 52.31% of the variance. These two factors were labeled 'pro-access to digital remains' and 'pro-control over digital remains'. Table 7 shows the loading scores for the two approaches.

Table 6: Component matrix – Second factor analysis

	Pro-access to digital remains	Pro-control over digital remains

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I want access to my family's online content after they die.	.884	
The content a person leaves behind after death helps to get to know them, and therefore, it needs to be accessible to family and friends.	.845	
After I die, I want my family to have access to all my online content.	.830	
I believe that after death, all digital activity should be deleted.		.476
I want to decide who in my family will have access to my online content, if at all.		.876

Extraction method: Principal component analysis

A multiple linear regression analysis was conducted to predict attitudes regarding interaction with DUPs. 'Disapproval of interaction with DUPs' that resulted from the first factor analysis served as the dependent variable. The independent variables used in the model were gender, religion, age, the experience of loss in the last three years, posting content online, and the two new variables that resulted from the second factor analysis: 'pro-access to digital remain' and 'pro-control over digital remains.' A significant regression equation was found, $F(8, 413) = 9.607$, $p < .001$, with an $R^2 = .157$. The variables that were found to contribute significantly to the model were 'pro-access to digital remains' ($\beta = -.292$, $p < .001$), 'pro-control over digital remains' ($\beta = .213$, $p < .001$), religion ($\beta = .288$, $p < .021$) and posting content online ($\beta = -.198$,

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p < .034). Gender (β = -.009, *p* =.924), age (β = .002, *p* = .609), loss (β = -.042, *p* = .653) and belief in an afterlife (β = -.009, *p* < .653) were not significant predictors.

These findings suggest that people who support access to digital remains are less likely to oppose interaction with DUPs. In contrast, people who support exercising control over digital remains are more likely to disapprove of interacting with DUPs. In addition, Jewish participants expressed stronger feelings opposing digital interaction with profiles of deceased users than those of other religions in the sample. As for predicting positive attitudes, posting original content on SNS yielded less opposition to such an interaction. Other demographic and personal characteristics, such as gender, age, loss, and the belief in an afterlife, do not explain shunning online interactions with profiles of dead users.

Discussion

As the literature review indicated, PCTs are becoming prevalent. In some cases, these are 'accidental platforms,' using Bassett's (2022) term, that were not designed to facilitate posthumous communication, yet users utilize them for this purpose. In other cases, these platforms were deliberately built to facilitate posthumous communication. In some of these platforms, the addressors are living users who deposit messages to be distributed posthumously (D2L). In other platforms, the addressors are deceased users, and their character is to be animated by AI algorithms fed by digital remains.

Research on the intersection of attitudes regarding death and digital technologies reiterates that attitudes toward death are individualistic (O'Conor & Kasket, 2022), and this variance also applies to digital engagement with death and digital remains (Morse & Birnhack, 2022). Some bereaved people find great comfort in the opportunity to

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maintain a communication channel with their deceased loved ones, even if this channel is unidirectional. Other bereaved people do not feel comfortable when the dead are kept alive online, and they advocate for terminating the online existence of the dead. The current study suggests that the latter attitude is more prevalent, as people tend not to feel comfortable interacting with DUPs.

Accordingly, participants were not enthusiastic about advanced two-way PCTs. The findings show that the use of digital platforms for animating the dead remains controversial, perhaps even blasphemous. Most participants rejected the prospect of posthumously communicating with the dead, and interaction with DUPs was considered disrespectful by half of the sample. A possible explanation of these findings is that people are reluctant to use unfamiliar technologies and those they cannot control, especially when these technologies aspire to simulate the dead users and act on their behalf. This stance corresponds with the findings on the expressed (dis)approval of intentional one-way afterlife platforms. When it comes to one-way D2L platforms that allow the dead addressor to control the message and secure the fidelity of their voice (or personality), the disapproval is weaker than for two-way platforms operated by AI.

However, despite the relatively negative sentiment toward posthumous digital communication, some variables were predictive of a growing acceptance of these technologies: the extent of online activity, non-Jewish religion, and a positive attitude regarding access to digital remains. The findings suggests that attitudes regarding posthumous communication and interaction with a digital representation of the dead are in flux, and as users increase their online activity, they will be less reluctant to engage in these interactions. Religion (Jewish vs. non-Jewish) was also found as a predictor, suggesting that attitudes on death are, unsurprisingly, culturally based.

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Conclusions

AI technologies have become more sophisticated and clever, and deepfake technologies can animate still images or alter footage, and other software can use voice samples and (re)produce voice recordings. Combining these technologies means that a user's digital representation can be operable after the user's death, possibly, eternally. As the digital death services industry progresses, the options for posthumous communication and interactions with representations of dead people are no longer a dystopian scenario but a materializing reality. Yet, the propriety of employing digital tools for death-related rituals and practices remains equivocal (O'Connor & Kasket, 2022).

This study explored contemporary Israeli attitudes regarding death in light of emerging digital technologies that enable maintaining relationships between the living and the dead. Death studies have pointed to the growing acceptance of the continuing bond approach, and studies of online engagement with death have shown that the rise of new communication technologies opens new options for managing loss and processing grief. Some digital platforms that were never intended to serve mourning purposes have become a legitimate venue for engaging with death. On the other hand, most of the technology ventures developed to facilitate engagement with death and maintain an eternal configuration of the dead did not survive beyond a few years. Thus, this study sought a fuller understanding of these two contradicting trends in the interface of death, society, and technology.

The study captured contemporary attitudes regarding death in Israel and the willingness of Israeli Internet users to adopt emerging afterlife services. The findings indicate that Israeli users do not hold a unanimous view regarding the existence of an afterlife. Most participants rejected the idea of digital technologies functioning as

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(digital) séance. Nevertheless, it appears that the idea that relationships can persist after death was rather acceptable and that some Israeli users supported the exchange of messages between the dead and the living in both directions. The findings suggest that onoline activity can explain the willingness to utilize digital platforms for posthumous communication, and as more people become digital, the barriers to using these technologies, which are currently high, may decrease.

The prospect of posthumous digital communication requires reflecting on issues of posthumous privacy (Harbinja, 2017; Morse & Birnhack, 2022), impression management (Fordyce et al., 2021), and on the ability or right to control one's posthumous digital persona. This study shows that whereas some people are happy with opportunities to leave some kind of digital legacy and maintain a communication channel between the dead and the living, controlling one's future digital character matters. People choosing to exercise the option of posthumous messaging seems to want control over its content. They would be unwilling to delegate this task to computer-generated information they can neither control nor comprehend.

Death has been part of Internet culture for over two decades, and yet, afterlife platforms are coming and going. Studying social approaches to death comes with its baggage, but it remains a fascinating prism to reflect on social dynamics, and it is yet unclear if the rise of new communication technologies heralds a new era for death and society. This pioneering study joins other studies to set the ground for a more profound understanding of how attitudes toward death and grief are negotiated in the light of digital technologies and AI platforms that will become more and more commonplace in coming years.

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