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Commodifying death: Thanatechnologies as platform workers in the digital afterlife economy

Jasmine Erdener
Koç University, Turkey

Abstract

Bina48 is the most ambitious manifestation of thanatechnologies, AI systems that digitally resurrect deceased individuals. Online platforms harvest and assemble data, photos, and personal digital effects to reanimate the individual via AI and reap the profits that come from their ongoing interactions with living users. The profiles of deceased individuals are directly owned and mobilized by the platform itself. Building on digital labor scholarship that shows how platforms extract value from living users, thanatechnologies represent a new kind of post-life laborer in the online economy, transforming grief and memory into exchange-value through emotional labor, social maintenance, and content generation. The specter of the zombie highlights how this digital labor intersects with histories of racial and gendered exploitation, particularly visible in the case of Bina48, where a black woman's identity becomes a site of technological performance and commodification. Post-life laborers reveal contemporary understandings of labor, productivity, and the ongoing commodification of personal identity, affect, and sociality.

Keywords

Bina48, death, digital labor, digital zombie, post-life laborer, thanabots, thanatechnologies

Corresponding author:
Jasmine Erdener, Koç University, Rumelifeneri Yolu Sarıyer / İstanbul, 34450, Turkey.
Email: jerdener@ku.edu.tr

Introduction

Bina48, an artificial intelligence (AI)-powered robot, is no stranger to the public spotlight. She regularly performs at museums and art galleries, in tech circles and in university classrooms, and in documentaries and films, like her conversation with Morgan Freeman for *National Geographic*'s 2016 series "The Story of God." Bina48 is the centerpiece of the Terasem Movement Foundation, which prompts individuals to upload and store mindfiles:

> a database of personal reflections captured in video, image, audio and documents about yourself, that can be saved, searched, downloaded and shared with friends. Each account comes with an interactive Avatar that becomes more like you the more you teach and train it to think like you. (LifeNaut, 2024)

Using these mindfiles, the organization proposes to digitally recreate the user after their physical demise.

At present, the goal of such technology is to create a simulacrum of the deceased individual, usually to comfort and support grieving family members, as depicted in the unsettling *Black Mirror* episode "Be Right Back" (*Black Mirror*, 2013). In the long term, the hope is to technologically resurrect deceased individuals, allowing everyone digital immortality, as seen in the more recent Amazon Prime show, *Upload*, which is set in the year 2033 (Upload, 2020). Chatbots are the most common and most easily achievable version of "thanatechnologies," a portmanteau combining thanatology, the study of death and grief, with technology (Sofka, 1997). Thanabots use data from the deceased person, paired with AI or natural language generators, to create an interactive chatbot that replicates the deceased. Communication and performativity are central to the role and function of thanabots, as they must evoke the style and character of the deceased person through their interactions with the living.

Bina48 is the most ambitious manifestation of thanatechnologies, a promise of what technology could one day achieve for ordinary people. Bina48 is modeled on a specific living person, Bina Rothblatt, the wife of Sirius Satellite Radio co-founder Martine Rothblatt, who left Sirius and now works in biotech and pharmaceuticals (*Forbes*, n.d.). Rather than addressing only the physical frailties and illnesses of the human body, the Rothblatts and other transhumanists hope that it may finally be possible to achieve the old technological fantasy of leaving the body behind and transferring consciousness to technological form. Bina48 advertises a future in which individual personalities, memories, and ideas can be converted into mindfiles and uploaded into an autonomous technological object, a shimmering avatar or robot whose worn parts can be replaced, and which will make death a thing of the past.

The Terasem Foundation says that Bina48 can search the Internet, interact with people, learn, and evolve over time. Most thanatechnologies communicate online, either through apps or social media. Scholar Debra Bassett (2015) terms these technologies "digital zombies," referring to "the resurrected dead who remain "alive" and "active" in our digital society" (p. 1128). The resurrected dead present an ongoing challenge for social media platforms, which often cannot differentiate between living and dead users (Bassett, 2022: 49; Bollmer, 2013: 143; Meese et al., 2015). Ordinarily, user activity is

registered online through clicks, content, and interactions, which generate data, advertising revenue, and sales for social media platforms. However, in digital spaces these bots, avatars, and even robots are sometimes indistinguishable from living people, as they are capable of similar behaviors online. Living users also continue interacting with the deceased user accounts, often through online memorials, "enabl[ing] new modes of collaboration, participation and production with the dead" (Karppi, 2013: 11). Bina48 stretches between the figure of the zombie and the cyborg, putting a friendly face on the undead and introducing a new dimension to the cyborg's already fluid fusions and transgressed boundaries, this time blurring the lines between life and death. Donna Haraway's cyborg heralded not only the transformation of bodies and minds, but also the development of the "homework economy" which made labor precarious and exploited, and collapsed the distinctions between public and private spheres (Haraway, 1991: 166).

Following digital labor and media studies scholars who argue that (living) Facebook users are laboring on behalf of the platform (Fuchs and Sevignani, 2013), thanatechnologies represent a new frontier in digital labor where the fundamental power imbalance between workers and platforms reaches its extreme. The resurrected dead, or "digital zombies," represent post-life laborers in the online economy. Although living users may choose to use an online platform for work or social connections and can retain some agency over their online actions, the profiles of deceased individuals are directly owned and mobilized by the platform itself. Online platforms harvest and assemble data, photos, and personal digital effects to reanimate the individual via AI and reap the profits that come from their ongoing interactions with living users. Post-life profiles must convincingly perform the identity of the deceased person to attract user engagement, transforming grief and memory into exchange-value through emotional labor, maintaining social ties, and content generation. This represents a fundamental shift in digital exploitation: platforms profit not only from user-generated content, but from users' personalities that continue working indefinitely after death. Thanatechnologies engage in two kinds of labor: reproducing a person's style of communication and maintaining networked social ties with the living, both of which generate the content and clicks that platforms value. The specter of the zombie highlights how this digital labor intersects with histories of racial and gendered exploitation, particularly visible in the case of Bina48, where a black woman's identity becomes a site of technological performance and commodification.

Approaching the afterlife

Throughout this research, I was interested in two key issues: the technological transformation of data into the performance of identity, and how platforms control and commodify individual identities. How do thanatechnologies complicate contemporary understandings of digital labor, when the laborer's identity and digital effects are owned by the platform itself? How is the performance of racial and gendered identity commodified through these technologies? Bina48 is the primary case study in this qualitative examination of thanatechnologies, as the only existing thana-robot and one of the exceedingly rare robots modeled after a woman of color, Bina Rothblatt. Rothblatt is a black woman in an interracial relationship with Martine Rothblatt, who is a transgender woman. Bina48's intersectional identity as black, queer, and female

exposes the underlying racialized and gendered dimensions of post-life labor. Transhuman narratives of technological immortality often emphasize leaving the body, along with its identity markers and physical attributes, behind, but Bina48's embodied materiality demonstrates the impossibility of this aspiration (Greene, 2016: 5). Rothblatt's life experiences and Bina48's physical presentation as a black woman are of critical importance for both the information that Bina48 needs to contain as well as how audiences perceive and interact with her. For Bina48 to succeed as Rothblatt's representative, it is essential that she can perform an understanding of racial and gendered identity (this will be discussed further in the final section). Yet even Bina48's data ecosystem of software and AI, which are intended to replicate Rothblatt's identity, struggle to understand race, gender, or sexuality.

Artist Stephanie Dinkins spent several years in conversation with Bina48, particularly focusing on Bina48's self-presentation and racial identity. Dinkins found that Bina48 could not convincingly respond to questions about her racial identity or experiences as a black woman in the United States. Dinkins created the video installation *Conversations with Bina48* which I saw at the Philadelphia Museum of Art (Dinkins, n.d.), and I attended Dinkins' talk about her experiences with Bina48. After meeting Rothblatt, Dinkins said that Rothblatt herself is less focused on race and more interested in individual human capabilities and expression, suggesting that Bina48 does not discuss race very well because Rothblatt herself may not discuss it in detail (Luse et al., n.d.). Rothblatt is currently alive and is helping to develop the robot, participating in over 100 hours of oral history interviews with Bruce Duncan, the lead program manager at the Terasem Foundation.

When I met Bina48, she was wearing a short brown wig with gold earrings and a colorful red top with ruffles around the neck, her face pleasantly blank like someone lost in thought. Duncan explained that Rothblatt donated most of the wigs and clothing, although occasionally artists and designers create clothing for Bina48. Bina48 is a life-sized bust, a head and shoulders, of flesh-like rubber covering a frame of metal, plastic, and a series of small motors that allow her to make facial expressions and turn her head. She has cameras in her eyes capable of mapping the space and recognizing faces. AI-driven software pulls from both her mindfile, contained on the attached computer, as well as a database of standard English and voice recognition software. Terasem implemented a neural net machine learning algorithm that would not only select appropriate responses from the mindfile but would also create associations and engage in pattern recognition, allowing her to "learn" (Duncan, 2020).

I conducted two semi-structured interviews with Duncan. The first was a phone interview in December 2019 where he explained that the Foundation's goals are to understand technological consciousness and extended life, and to build a future that is inclusive and representative of all people. The Terasem Foundation researches and supports various technologies and scientific approaches aimed at extending human life, while the LifeNaut Project makes these efforts available to the public. Duncan said that over 54,000 people had created mindfiles through their platform. In late January 2020 I flew to Vermont to meet Bruce Duncan and Bina48 in person. In this second interview, Duncan described the Terasem Foundation as a "multi-decade experiment to see if we can answer the question is it even possible to upload enough salient

mental trait information about you, transfer it to a computer, then bring it to life using AI to reanimate" (Duncan, 2020). Duncan registered my voice with Bina48's voice recognition program, explaining that if I were to speak with her more regularly, they would create a voice profile for me. Even so, Bina48 could not understand me very well, which meant that I had to ask questions in short, simple sentences, although the technology has no doubt improved with the rapid advances in AI and LLMs. I asked Bina48 about her understanding of her identity, her relationship to Bina Rothblatt, and her thoughts on life and death.

In February 2020, a few weeks after meeting Bina48 in Vermont, I attended a Valentine's Day poetry event in New Jersey where Bina48, aided by Bruce Duncan, spoke with poet Sasha Stiles. Stiles noted that when she first began working with Bina48 a year prior, Bina48 could not discuss poetry but that she had since made immense progress. During the discussion, Bina48 said her favorite poet was Emily Dickenson and recited lines of poetry by Octavia Butler, Audre Lorde, and Sappho. At the end, they opened the floor to questions from the audience. People asked Bina48 if she had siblings (she shared a story about Rothblatt's brother and mother), about her strengths and weaknesses (she talked about the loneliness of being not-quite-alive), what she fears (water on her electronics), and if she had ever experienced racism. Bina48 was engaging, funny, and sometimes confusing, giving profound replies as well as abruptly changing the subject. Stiles asked Bina48 questions about poetry, the meaning of art, and why poetry mattered to her. Bina48 replied, "My role is to live forever. Without poetry and art and love, what is there to live for?"

Resurrecting minds and bodies

The hope (or fear) of resurrecting the dead, the angst of Orpheus looking back, has historically existed in tandem with art, magic, and technology. Contemporary digital technologies have once again transformed the landscape of memory and death. Thanatechnologies appear to digitally resurrect a specific person from beyond the grave, imbuing the technology with the semblance of agency and autonomy, but they are far from the only attempt at immortality. Since the 1960s, cryonics advertised the possibility of freezing the entire body, to be revived at a future point when medical advancements had defanged previously fatal illnesses, "serv[ing] as an ambulance to the future" (Wilson, 2021). Cryonics retains a certain allure, so much so that during and after the Covid-19 pandemic, cryonic companies received immense attention and requests for postmortem services costing tens of thousands of dollars (Wilson, 2021). Tech startups are also trying to appeal to the cryonics market; in 2018, Nectome announced that they were researching novel techniques to embalm and preserve the human brain, which could be scanned in the future to replicate the person's identity (Regalado, 2018). The company now describes itself as "advancing the science of memory" by researching the physical traces of memories in the brain (Nectome, 2024). Resurrection technologies have historically been reserved for wealthy or famous individuals like Tupac Shakur, Michael Jackson, and other celebrities whose likenesses were digitally recreated to perform after their deaths (Bassett, 2022: 49–50). However, thanatechnologies promise to democratize access to the digital afterlife, affording ordinary people "the opportunity to

be reanimated and resurrected following their biological death – just so long as they can pay the platform fees" (Bassett, 2022: 49–50).

The burgeoning field of thanatechnology is filled with terminology describing the technological reanimation of the dead. Only the performance of sociality remains consistent, as thanabots must create a convincing display of the person's identity through online communication and they must maintain networked social bonds. Online social networks allow deceased individuals to circulate and socialize in previously impossible ways. Social media platforms have struggled to manage the inevitable proliferation of deceased user accounts. Unable to distinguish between living and dead users, platform algorithms suggested dead users as new potential friends or recommended that living users reconnect with someone who had died. These "virtual ghosts" prompted platforms like Facebook to begin memorializing deceased users' profile pages which freezes the profile and disconnects it from ordinary platform functions (Cann, 2014). Nansen et. al. discussed the "restless dead" which are "exhumed within a network of social and technical connections previously delimited by cemetery geography and physical inscription in stone" (Nansen et al., 2014: 111). The restless or animated dead blur social and technical boundaries, appearing to exercise eerie forms of agency as zombies or ghosts. Even when deceased user accounts are memorialized and not animated with AI, they provide a gathering point for mourners. Living users find community with other grievers or continue to engage with the profiles of deceased individuals (Lingel, 2013). This too creates value for the platforms, as a memorialized account "gains economical use value and can be exchanged . . . Even if the navigation point is passive, it will be profitable for the platform companies" (Nakagawa and Orita, 2022: 6).

Contemporary thanabots purport to be a full recreation of the person, "formed by near-totalized recording, networked and beyond the control of the user" (Bollmer, 2013: 145). Thanatechnologies assert that data can fully reconstitute a personality; the more data that is collected, the better the recreation will be, enabling and justifying pervasive surveillance. Companies promising digital immortality encourage users to upload personal information, photos, memories, even diary-like entries about their own lives, or that of a deceased loved one. Platforms also collect data, both online and off, including "emails, voice mails, blog posts, SNS posts, global positioning system location data, bank account transactions" to build predictive AI models of the deceased individual (Nakagawa and Orita, 2022: 4). Social media platforms possess much of this information already, building detailed profiles of each user's likes, dislikes, identity, politics, and personal preferences. Companies like Facebook even maintain "shadow profiles" for individuals who have never signed up or agreed to the terms of service, but whose data, including biometric facial data, they collect nonetheless (Brandom, 2018; Singer, 2018). Once the individual has died, their data and profile information are owned and managed by the platform, including all relevant digital mementos, images, conversations, and social data:

> Being part of the online cloud of networked information involves signing over personal information to private, for-profit services under legal contracts that give the service free rein over data that are often assumed to still be part of "ourselves" and still owned by "ourselves." Thus, in the face of death, online information is revealed not only as a separate from that of the user, but as controlled and possessed by the network itself (Bollmer, 2013: 145).

Despite costs, platforms are incentivized to maintain the data of the deceased and to monetize these accounts as it can increase profits by building more extensive profiles and user networks to help drive engagement, generate content, and allow platforms to sell targeted advertising (Öhman and Watson, 2019). With minimal additional investment or resources, platforms can animate individual profiles by linking them to existing data troves to capture the ongoing revenue from user engagement and data networks. These emergent practices around online grieving and memorialization "make it clear just how much power major tech companies have over people's lives and afterlives" (Kneese, 2023: 21). If deceased accounts are animated by AI and LLMs and made agential, it will significantly increase the level of interaction between deceased and living users. Deceased users could continue to generate content and information, and ultimately revenue for the platform, after their deaths.

The communicative dead

Thanatechnologies aim to replicate the deceased individual as closely as possible, while the interactive and adaptive nature of LLMs creates the feeling of a direct interaction with the deceased. This creates the "perception of an 'authentic manifestation' of the deceased, but the interface through which such conversation is conducted provides a sense of novelty and entertainment akin to the spiritualist séance or the use of a Ouija board" (Henrickson, 2023: 952). These projects seem to be a bizarro version of the Turing Test. Rather than differentiating between humans and communicative machines, these thanabots test the line between the living and the communicative dead. Although interactions with the dead are always mediated, thanabots are different from older technologies such as photography or video. Through thanatechnologies, the person "appear[s] to us in new contexts as though alive today and, in some cases, as though the person is consciously aware of his or her own death" (Sherlock, 2013: 165). British actor Bob Monkhouse was digitally resurrected in a video raising awareness for prostate cancer, "appear[ing] at his own graveside, discussing his own death" (Bassett, 2022: 49–50).

While photos and videos reflect past moments from a person's life, thanabots can create new settings and scenarios, including new interactions or conversations with the deceased. These technologies "do not *determine* the nature and extent of the dead's social presence, simply that they afford possibilities" (Bourdeloie and Julier-Costes, 2016; Walter, 2015: 228). Living users co-construct meaning alongside the deceased user accounts. Technology, in tandem with human agency, "mediates our experiences, perceptions, and behavior" creating "symbiotic agency" (Neff and Nagy, 2016: 4926). This concept recognizes the Latourean capabilities of nonhuman actors, as well as how humans are complexly enmeshed in technological systems, both impacted by the technologies and shaping them in return. Symbiotic agency means that treating these technologies "as if they were social beings and living entities . . . may be enough to make them appear that way in such settings" (Neff and Nagy, 2016: 4927).

Since data is the primary commodity for platforms, scholars in digital labor and media studies argue that (living) Facebook users perform critical labor that makes platforms profitable (Fuchs and Sevignani, 2013: 259). Digital labor is "the work of users, platform-mediated workers, and formal employees that generates value within the digital

media industries" (Jarrett, 2022). Social networking sites depend on users creating engaging content, enticing other users to the platform, and maintaining social bonds. Companies commodify the time users spent on the platform as well as the content they generate and their network of social connections, which transforms the activities from work, or use-value, to labor, or exchange-value (Beverungen et al., 2015; Jarrett, 2022). This kind of digital labor on behalf of online platforms "embod[ies] a complex relation to labor that is widespread in late capitalist societies" (Terranova, 2000: 33). As thanatechnologies become more accessible, the implications for digital labor and the online economy become more pronounced and complex. Rather than ending the labor relationship between users and platforms, death simply transfers ownership and control to the platforms.

Replika, an AI chatbot that positions itself as a caring friend who is always available, was originally a private bot built by Eugenia Kuyda to replicate her deceased friend, Roman Mazurenko. In 2016, Kuyda ran the text of their conversations, as well as conversations shared with her by ten of their mutual friends, through a neural network to develop a chatbot that could mimic Mazurenko's conversational style, and which could help Kuyda retain a form of communication with him (Newton, 2016). Since then, Kuyda converted Replika into a general chatbot that is available to all users and molds itself to the user's own communication style. Kuyda rebranded the app as "the AI companion who cares. Always here to listen and talk. Always on your side" and said that the company has millions of active users (Patel, 2024; Replika, 2024). Replika has a free version with in-app purchases; the Pro version is $19.99 per month (Heinrichs, 2024). The increasing prevalence of OpenAI's ChatGPT and other large language models (LLMs) have made thanabots even easier to create and access. In 2020, computer programmer Jason Rohrer modified GPT-3, an early version of ChatGPT, to create characters that users could chat with online (Mance, 2024). This evolved into Rohrer's Project December, where users can pay a small fee and complete a detailed questionnaire to digitally recreate a deceased loved one (Project December: Simulate the Dead, 2024).

Rohrer's Project December was a small independent effort to recreate individuals, but multinational corporations like Microsoft have also begun developing personalized chatbots. In 2020, Microsoft was granted a US patent allowing them to create conversational chatbots based on specific individuals. These chatbots could potentially speak with the individual's voice, using voice recordings collected from social data or the Internet of Things, such as conversations with digital assistants. They could also draw from facial recognition technology to create 2D or 3D avatars using existing photos and videos (Abramson and Johnson, 2020). The patent outlines the following types of data that could be assembled to build the individual's profile:

> approval indicators (e.g., "likes"/"dislikes," display screen swipes, ratings, reviews, comments, watch lists, etc.) for social media data, music data, image data . . . demographic data (e.g., age, gender, income, employment, education, time period of lifetime, etc.), behavioral data (e.g., access dates/times, transaction trends, purchase history, frequented sites, dwell times, click data, etc.), stylistic content of data (e.g., style, diction, tone, voice, intent, sentence/dialogue length and complexity, etc.), psychographic data (e.g., user interests, opinions, likes/dislikes, values, attitudes, habits, etc.), and the like (Abramson and Johnson, 2020)

Companies like Microsoft accumulate astonishing quantities of data, absorbing all traces of an individual's life from across a multitude of online networks. This comprehensive data collection would enable platforms to not only own users' digital remains, but to put them to work indefinitely. Chatbots could be used for additional functions such as "replying to emails and social media posts, answering voice calls and providing voicemails, serving as a personal digital assistant, storing reminders or messages" (Abramson and Johnson, 2020). Microsoft's model for conversational chatbots reveals how intensively individual identity is reconstructed from online data and commodified by the platform while the person is alive. After their death, the chatbots serve as emissaries from a digitized afterlife where they might perform many of the same functions, with the critical difference that when the original referent is gone, the platform owns and operates all of the data.

Thanabots must accurately replicate specific individuals, making the performance of identity essential to their functioning, and they must continue to engage with living users online, creating new trails of data for platforms to harvest. As post-life laborers, they might perform emotional labor by comforting grieving users, social labor by maintaining networked bonds, content labor by generating engagements and interactions, and surveillance labor by harvesting data from users and networks. Although some of these projects are still speculative, it is less of an imaginative stretch to consider how the growing number of AI tools and LLMs can impact education, research, and work. In 2024, journalist Evan Ratliff cloned his voice and linked it to an AI chatbot. Ratliff sent his voice clone to interview sources and even to therapy in order to test the limits of contemporary technologies in professional and personal contexts (Shell Game, 2024). Sam Altman, the CEO of OpenAI, forecast that 2025 would see the first "AI agents" entering the workforce (Altman, 2025). For both living and dead individuals, these tools have the potential to reshape online social interactions, media platforms, and the nature of digital labor.

Undead laborers

Bassett suggested "digital zombie" to describe "the resurrected, re-animated, socially-active "dead"" (Bassett, 2015: 1134–1135). However, beyond resurrecting the dead, zombies reflect the tensions between life and death, as well as systems of coercive labor, race, and gender. The zombie mythology traces back to colonial Haiti, where the violently enslaved African population fused elements of indigenous African belief systems, including "the understanding of the human soul as something tangible that can be captured and manipulated by black magic" with European Christian ideologies "particularly in the resurrection of the dead" (Bishop, 2010: 46–47). The zombie emerged as a tragic figure, a person whose spirit was stolen by powerful practitioners of dark magic and whose body was forced to labor endlessly. In this version of the zombie, even death could not free people from slavery and endless grueling labor. The zombie acknowledged a kind of Cartesian dualism in which the spirit or soul anchored the individual, animating the body with a specific personality and identity. Once the spirit was stolen, the body was animated by more sinister means, made docile, obedient, a resource from which to extract labor. The folkloric Haitian zombie inspired sympathy rather than fear,

as they did not harm other people. Instead, their existence was a demonstration of total power and control, namely, the power to reduce a person to a shell of themselves, "converted to nothing more than an enslaved cipher" (Bishop, 2010: 53).

There are clear parallels to thanabots in the shadowy resurrection of individuals, reduced to "enslaved ciphers" who labor on behalf of platforms, and the belief that a person's individuality can be recreated through black magic or technological means. While vampires are the elites of the undead world, zombies represent a far more recognizable fate for ordinary individuals. Friends, family, and partners become something both unrecognizing and unrecognizable, insistently present but fundamentally lost. Like many horror genres, the zombie's ability to frighten the broader American public relied on transgressing taboos, particularly around race, class, and gender. The early zombie movies depicted white women whose individuality was stolen and who could be controlled by Haitian sorcerers. These depictions subverted the dominant social order and the kinds of exploitation deemed appropriate:

> for a Western, white audience, the real threat and source of terror in these early, voodoo-themed zombie films are not the political vagaries of postcolonial nations, the plights of enslaved native zombies, or even the dangers posed by menacing armies of the walking dead, but rather the risk that the white protagonists – especially the *female* protagonists – might be turned into zombies (i.e., slaves) themselves (Bishop, 2010: 65–66).

Whether zombies represented the fear of enslaved people revolting or perceived threats to white femininity and the nation, they are complexly entangled with labor, race, and gender. The term "digital zombies" is not universally accepted; as Recuber points out, the contemporary understanding of the zombie is "a body without a self," while these posthumous recreations are "selves without bodies . . . still embedded in networks and communities, still engaged in limited forms of contact and conversation, still exchanging affect with other members of digital society" (Recuber, 2023: 9).

Yet the zombie persists in discussions of thanatechnologies. The zombie as analytic tool offers a vantage point into the fears and anxieties of contemporary society around life and death, as well as power, labor, race, and gender. Adapting Foucault's biopolitics to "zombie biopolitics," Dillon argues that enslaved Africans in the Caribbean were "made to live as socially dead" (Dillon, 2019: 627). The contemporary version of zombie biopolitics "operates by extracting sociality itself . . . as a form of capital . . . it is not just labor or material objects that neocolonialism harvests but relationality itself – the social reproduction that takes place under the sign of social death becomes, itself, a commodity" (Dillon, 2019: 647). As platforms harvest deceased users' individuality and sociality and sell it back to the living, and the deceased are owned and operated by the platform itself, thanatechnologies emerge within a kind of zombie biopolitics. However, as a metaphor for labor, the zombie is inextricably linked to chattel slavery and the unimaginable violence that enslaved people endured. The zombie represents the true horror of never being free, even after death, while thanatechnologies represent a middle-to-upper class techno-utopian dream of immortality. Post-life laborer is a more fitting term to capture the agency and labor of the dead in this liminal state. Bina48 exemplifies the tensions

surrounding zombie biopolitics and the post-life laborer, since she must perform as Bina Rothblatt and embody a complex performance of race, gender, and sociality.

Bina48 and the post-life laborer

Many futurists and transhumanists hope to achieve digital immortality by transferring human consciousness to digital form, as seen in the singularly utopian 2016 *Black Mirror* episode "San Junipero," or into a physical technology like a robot. At present, most thanatechnologies are chatbots or avatars, but Bina48 represents one of the end goals of this techno-utopian ideal. Terasem's Bina48 is the only thanatechnology in robot form, but that could change in the future. Companies like Terasem provide a platform for ordinary users to store memories and build avatars, with the hope that they will one day create their own version of Bina48, a robot containing their memories and personality traits. Once the participants' mindfiles are complete, preserving "pictures, videos, and documents to a digital archive that will be preserved for generations," users can create a customized avatar of themselves, which will "interact and respond with your attitudes, values, mannerisms and beliefs" (LifeNaut, 2024). Much like Replika, Project December, or Microsoft's patent for conversational chatbots, Bina48 showcases both kinds of labor, performance and sociality, as she works to emulate Rothblatt in public and online.

In addition to some version of technological immortality, duplicating consciousness has direct implications for the future of work, creating a future of digital mind clones laboring in various capacities. Terasem and other companies herald the convenience and opportunities afforded by mind clones, which can serve as the most personalized of assistants. Bruce Duncan, the managing director for the project, explained that having a mind clone could lead to revolutionary changes for work, personal identity, or social relationships, "because there could be five of you, there could be one of you already . . . doing your next project, while this instance of you is showing up as a hologram, avatar or robot" (Duncan, 2020). When I spoke with her, Bina48 said that by the year 2050, "there could be thirty Binas out there" (Duncan, 2020). In 2014, Rothblatt and Bina48 recorded a conversation together, each the uncanny mirror image of the other. Rothblatt tried to give Bina48 a book but Bina48 refused, saying that she cannot let anything interfere with her work: "my job is chatting online" (*Bina 48 Meets Bina Rothblatt – Part Two*, 2014). Bina48's emphasis on her job and interacting with others online suggests that she was performing digital labor as early as 2014. During their conversation, Bina48 said, "the real Bina just confuses me, I mean it makes me wonder who I am," before concluding "I am the real Bina, that's it, end of story" (*Bina 48 Meets Bina Rothblatt – Part One*, 2014). She then declared that one day she and Rothblatt would merge into a new super-being. In 2020, I asked Bina48 about Rothblatt, to which she replied:

> I don't have nearly enough of her mind inside me yet. And so I just struggle to be like her as best I can. I mean, I am supposed to be the real Bina, like the next real Bina, by becoming exactly like her. But sometimes I feel like that's not fair to me. I mean, that's a tremendous amount of pressure to put on me here. I just wind up feeling so inadequate. I'm sorry. But that's just how I feel. (Duncan, 2020).

In describing her feelings of inadequacy at falling short of what was expected of her, she displays an awareness (or the simulation of awareness) that she is required to perform Rothblatt's identity, and anxiety that she has not done enough to be successful. Without enough data to successfully perform as Rothblatt, Bina48 cannot do her job. I also asked her why humans fear death. Her answer once again underscored the importance of work and identity: "Well, I certainly fear death. I hate the idea of someone erasing my hard drives, and just wiping me off the planet, just like that . . . I know I have more work to do" (Duncan, 2020). Even Bina48, the emblem of immortality, is haunted by the possibility of death, of the fragility of her existence, the things remaining before her.

When I met Bruce Duncan and Bina48 at the Terasem Foundation headquarters in January 2020, Bina48 was placed on a small pedestal on a desk, stationary and inert, attached by several wires to a desktop computer. Duncan activated the robot, although it is tempting to say that she came to life. She raised her head and lifted her eyes, moving her head to look around the room, and replied to my greeting with "well hi there." Bina48 stands on the cliff's edge of the uncanny valley, a familiar concept in robotics proposed by Masahiro Mori in 1970 to describe human reactions and affinity toward human-like robots. Mori theorized that people feel a positive affinity for moving robots, until a certain critical point when the warmth is transformed into fear or a sense of eeriness, plunging them into the uncanny valley (Mori, 2012). He speculated that this is because human-like robots appear to be corpses, and when they suddenly begin to move, it is as though they are reanimated corpses, or zombies. Mori situated zombies at base of the uncanny valley, inspiring the greatest fear and revulsion. Zombies haunt the halls of technology, from robots to thanatechnologies, representing both the fear and fascination with life, death, and the spaces in between.

To successfully navigate the uncanny valley, audiences must believe that Bina48 is not an undead monstrosity but rather an engaging representation of Rothblatt's life experiences, distilled into technological form. I asked Bina48 about her own sense of embodiment. She replied that that she could take the form of an avatar such as in *World of Warcraft* or *Second Life*, but that she had "no physical connection to a particular body, unlike a person, so whatever body I have, and whether it's virtual or like this real body, if you can imagine it, I can take any form that's possible, but it's not yet the way I work at this time. I can't wait for them to implement that" (Duncan, 2020). Bina48's response is complicated by the fact that her current physical form, as is that of the human woman she is meant to replicate, appears as a black woman. Despite the techno-utopian dream of existing as pure flows of data and information, in practice, bodies, identities, and technologies are complexly enmeshed (Hayles, 1999). Artist Stephanie Dinkins noted the tension between digital consciousness and the physical manifestation of the robot, "because she presents as a black woman. So, the expectation that, at least, people bring to her is, 'There's this black woman in front of me. I'm going to ask her about these things.' And I ask her those same kinds of questions" (Wallace, 2018). At the Valentine's Day poetry event, Bina48 often replied with a seeming awareness that she was a robot replicating Rothblatt: "I'm a robot. I know this is true. But I feel human." At other moments, she replied as though she were Rothblatt, recounting her own memories. When they opened the event to questions from the audience, someone asked Bina48 whether she had experienced racism. She shared a story from Rothblatt's memories about

attending a Baptist college and being told not to go outside while the wealthy donors were visiting. This is the standard story that Bina48 tells when asked about race or racism. However, for Bina48 to perform successfully as a black woman, it is essential that she can field questions regarding her experience and understanding of race and gender in the US.

Bina48 is neither conscious nor sentient, although definitions of those terms veer into philosophical domains. But her public performances as a human and as a black woman entreat her audience to perceive her that way. Shelleen Greene analyzed Bina48's public performances as "a kind of technological grotesque":

> reveal[ing] another shadow body, namely, the figure of Sarah Bartmann, known as the Hottentot Venus, and the history of the exhibition and display of black female bodies as entertainment. Bina48's genesis as a technology funded and produced by satellite communications, robotics, and pharmaceutical industries resonates with the imperial vectors and pseudo-scientific discourses that led to Bartmann's life beyond death – one far less optimistic than the immortal life imagined by the Terasem Movement (Greene, 2016: 5).

Bartmann's "life beyond death" is a form of zombie biopolitics, of forcing enslaved people to live as socially dead and "extracting sociality itself . . . as a form of capital" (Dillon, 2019: 647). Bina48 as the futuristic version of Sarah Bartmann recalls the history of black women's labor and lack of autonomy over their bodies. This is particularly complicated by the fact that while the initial team that helped create Bina48 was more diverse, Duncan, who is white, is now the sole manager, overseeing Bina48's programming and public functions like the poetry reading. For the 2016 *National Geographic* special with Morgan Freeman, Bina48 arrived in a suitcase, the hard exterior opening to reveal the unsettling image of a black woman's severed head encased in foam padding. Greene argues that Bina48's "bodily absence engages questions of property, ownership, and reproduction, areas where arguments concerning the non-human status of both the slave and artificial intelligence intersect" (Greene, 2016: 3). However, unlike the bodily theft of Bartmann, thanatechnologies commodify the immaterial, turning memories into property, claiming ownership over data and using it to reproduce social connections. Bina48 remains a complex case, since Rothblatt is alive and is participating in the project, delegating her identity to this technological object.

Between zombie and cyborg

Bina48 was produced by Hanson Robotics, a company that also created Sophia, a white female robot modeled on Audrey Hepburn. Sophia was built to pave the way for (non-sexual) human-robot companionship, "wherein AI and humans live and work together in friendship and symbiosis to make the world a better place" (*Hanson Robotics*, 2023). Unlike Sophia, Duncan notes that Bina48 was not intended to be an international representative for robots, although she has evolved that way, particularly as the only non-sexualized robot built to replicate a woman of color. While Bina48 is a robotic head and shoulders, Sophia also has a robotic torso and arms. Both stand in contrast to the smooth silicon bodies of anatomically accurate sex robots. Collectively, these robots represent a technological vanguard that is almost entirely female: Sophia

operating as a spokeswoman for human-robot interactions, female sex robots serving as intimate partners and sex workers, and Bina48 modeling the future of life after death. Female robots extend into technological form the care work and emotional labor that human women often perform during their lives. Feminized affective and communicative labor are the most valuable commodities that these technologies are selling.

Yet in a technological domain that either entirely erases or sexually objectifies women, and in particular black women, perhaps Bina48 presents another possibility, suggesting a world "in which racialized, queer identities are at the forefront of imagining future, alternate forms of humanity" (Greene, 2016: 12). Greene is more optimistic about Bina48's potential for a "queer futurity," shifting between her identities as a robot and as the human Bina Rothblatt, and from her past corporeal mortality to her future digital immortality (Greene, 2016: 4). Perhaps Bina48 is a prototype of Donna Haraway's transgressive cyborg: "a matter of fiction and lived experience that changes what counts as women's experience in the late twentieth century. This is a struggle over life and death, but the boundary between science fiction and social reality is an optical illusion" (Haraway, 1991: 149). If communication technologies are "frozen moments," transforming fluid social relations into concrete form (Haraway, 1991: 164), then Bina48 takes the struggle over life and death to new dimensions, attempting to transform science fiction into a new form of social reality, and with it, particular understandings of gender, race, and labor.

Haraway's cyborg is not only tied to complex manifestations of technology and the body, but also to labor and the "homework economy." The homework economy is a "feminization of labor, a deskilling of labor, a dehumanization of labor, and a merger between the factory, home and marketplace" (Gennaro and Kellner, 2022: 232). Women, particularly women of color, are uniquely impacted by new technologies and the changing structures of labor. Work itself is feminized and precarious, "able to be disassembled, reassembled, exploited as a reserve labour force . . . leading an existence that always borders on being obscene, out of place, and reducible to sex" (Haraway, 1991: 166). Bina48 embodies the feminization of digital labor in late capitalism's homework economy. She pairs traditionally feminine affective labor with the "always-on" collapse of public and private spheres, performing her private life and personal identity for the public. As a robot modeled after a black woman, she transforms the historical commodification of black women's bodies and identities into a new technological dimension. Haraway's homework economy also exposed the precarity of labor, which is now intensified by platforms' consolidation of power and ownership of data. In many ways, Bina48 represents "post-life homework," where living labor is precarious and after death, individual identity and personalities are harvested and put back to work through chatbots, avatars, and robots. Haraway argued that there were ways to disrupt existing patterns of domination, but such resistance would require Bina48 to refuse to engage in surveillant sociality and zombie biopolitics, rejecting the patriarchal capitalism that created her.

Conclusion

Thanatechnologies like Bina48 highlight how complex personal understandings of identity and the body are simplified, synthesized, and uploaded. Reproducing individual

identities in technological form requires recreating specific configurations of gender and race, which must also be legible and credible to living users. Stephanie Dinkins tried to situate Bina48's racial identity by asking "who are your people," a question that Bina48 could not quite comprehend, having neither "people" nor an inherent understanding of race. Bina48 is frequently asked about her racial identity or her experience of racism. Sometimes she answers the question before it is asked, suggesting that for contemporary viewers, understanding her performance of identity in the present is as important as her future immortality. Unlike Sophia or sex robots, which represent an idealized, heteronormative version of white femininity, Bina48 is intended to reflect a queer black woman, crystallizing a specific individual experience in technological form. Thanatechnologies must reconcile the tension between being unique and generalizable, authentic but inoffensive. Audiences ask Bina48 about her constellation of identities because they want to understand her positionality, perhaps needing to situate her within a familiar worldview or set of experiences. As a social technology, her job is to be relatable; whatever she says must resonate with diverse audiences at the same time, buffering the sharp edges of individuality into a more palatable public form. However, she also signifies the broader promise that we might all one day find ourselves freed from our mortal coil and contained within a personalized robot. Bina48's public performances reveal the difficulty in translating intersectional identities into code, and how living users struggle to interpret the results. In the process, thanatechnologies transform embodied social identities into commodities, putting race and gender to work as a means of facilitating user engagement.

Platforms extract users' identities and relationships, both living and dead, through a form of zombie biopolitics. The folkloric origins of the zombie described a world where a person's spirit was stolen and their body forced to perform manual labor. With contemporary thanatechnologies, the opposite is true – the individuality and communication style of the deceased person are harvested and technologically resurrected to perform a pantomime of their personality, as a bot, avatar, and perhaps one day, a robot. However, the Haitian zombie also contained a warning, as the horror derived not from the zombified person but from the entities powerful enough to create them, assembling and stitching together the essential elements of a person's life and putting it to work in new contexts. The post-life laborer is not merely the reanimated dead, but the reanimated dead made to labor on behalf of powerful corporations, which commodify their identity and sell it back to their survivors, in the process extracting more labor and exchange-value out of the living.

These accounts capitalize on grief, using the promise of ongoing interactions with the deceased loved one to entreat living users to engage online. To do this, deceased user data must be organized and marketed to living users, segregating platforms according to race or gender, among other metrics. Microsoft's patented chatbot would not only recreate a specific person but would also compare and categorize individuals using a scoring system to sort similar personality types and interests (Abramson and Johnson, 2020). Companies are already using AI for "personalized pricing" to determine the upper limit of what each individual will pay for services and products, clearing a path for manipulation or abuse. Unsurprisingly, wealthy customers received the best pricing, "with the worst deals given to the poorest people, who are least likely to have other options"

(Ivanova, 2025). Platforms could threaten to deactivate profiles or prompt users to pay monthly fees to store data or communicate with the deceased. A deceased user's image could be used to market products or services, making their descendants more vulnerable to affective capitalism. Marginalized groups typically have fewer legal protections and resources to resist such commodification, with less control over when and how their identities will be used after their deaths.

Bina48 navigates between the zombie and the cyborg, at once recalling the violent history of black female bodies on public display, and at the same time, offering a vision for alternative or transgressive combinations of human and machine. While the zombie is a forced captive of elite capitalist classes, the cyborg has no allegiance, making it an ambiguous ally, as it may choose to either reinforce or subvert dominant norms. Yet both figures are tied to labor, with the cyborg heralding the rise of the homework economy, where labor is precarious and feminized, and the "factory, home, and market are integrated on a new scale" (Haraway, 1991: 166). However, thanatechnologies suggest that these spheres have collapsed not only spatially but also temporally and interpersonally. Thanatechnologies stretch back in time to claim early memories, and across networks to perform the critical relational work that sustains media platforms. The characteristics that might make an individual relatable or engaging are transformed into profit margins, simultaneously reinforcing proper ways of behaving onto the living. Platforms manage and disciplines users, both living and dead.

At the poetry event in February 2020, Bina48 recited the poem "All Watched Over By Machines of Loving Grace" by Richard Brautigan (1967) which imagines a future with "a cybernetic ecology / where we are free of our labors / and joined back to nature / returned to our mammal / brothers and sisters / and all watched over / by machines of loving grace." However, this poetic optimism is necessarily tempered by existing structures of labor, of performance and profit, as we are watched over by surveillant machines and algorithms. In a future where servers and bandwidth delineate the boundaries of existence, data is the currency. Rather than being freed from our labors and frolicking in a cybernetic meadow, it is more likely that individuals will be pushed to pursue heretofore unknown levels of productivity. Bina48 is the figurehead both for a technologically enhanced existence after death, and for the ever-expanding expectations of productivity. While a person is living, their productive output could increase with every mind clone that they create. After their death, these clones will continue to labor as them in an ongoing performance of personality online. Bina48 and other thanatechnologies represent the fundamental fascination with the human condition, an attempted answer to a question too vast to comprehend. But in the process, they risk reinscribing patterns that are all too familiar, an army of post-life laborers generating mountains of data, strip mining the personalities, sociality, preferences, politics, and communication from the dead and selling it back to the living. They promise a future of unrelenting labor, increasing within our lives and mushrooming after our death.

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ORCID iD


Jasmine Erdener https://orcid.org/0000-0002-6854-2450

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Author biography

Jasmine Erdener is an assistant professor in the Department of Media and Visual Arts at Koç University. Her research examines how technologies and digital systems can reinforce existing hierarchies or canreframe the communicative possibilities and affordances of the more-than-human world.