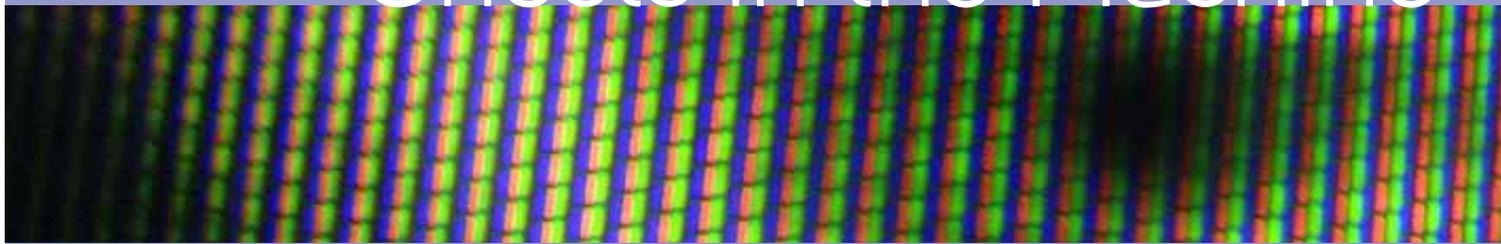




# Ghosts in the Machine



After decades of speculation about digital immortality, virtual life-after-death is emerging as a new domain of social ritual.

Although death will remain the inescapable result of life, how we deal with death will change in startling—if sometimes mundane—ways over the next decade. The continued infiltration of digital technology into every aspect of our lives will lead to a new model of life-after-death, where online shadows persist long after our physical bodies are gone. In its most basic form, this persistence of identity will mean ongoing issues with “cleaning up” the online presence of the departed, if only to avoid added pain for loved ones or the potential for misuse. But as more digitally proficient generations approach death, they will want to use these technologies to leave lasting records of their thoughts and beliefs, their values, and their influence. Ultimately, the abundance of self-documentation will allow us to create digital emulations of individuals, with growing—and potentially disturbing—accuracy. And these “ghosts in the machine” may enter into our society in ways that fundamentally alter the behavior and identity of the living.

—Jamais Cascio

critical balances



**EXPOSURE**  
accountability

As online visibility doesn't go away after death, end-of-life planning increasingly takes into account digital footprints.



**CONTAGION**  
isolation

Virtual ghosts may cluster in diasporas that link networks of strangers in previously unimagined communities.



**PERSUASION**  
regulation

Departed relatives are integrated into persuasive strategies for health, learning, and community participation.

# death: ghosts in the machine

## VIRTUAL LIFE, VIRTUAL DEATH: DIGITALLY ONLINE, BUT PHYSICALLY OFFLINE

One of the side effects of the rapid growth of digital identities is the disconnect that happens when a physical person dies but the virtual person lives on. Examples abound: Facebook users still complain about receiving automated messages encouraging them to contact now-deceased friends. Personal data available through online services remains present unless actively removed. And the websites of bloggers who die unexpectedly can remain online for years, frozen at the last moment of the blog's activity.

As the use of social networking technologies and massively multiplayer virtual environments continues to expand over the decade, more and more of us will face situations where the digital presence of friends and family persists, even after their physical bodies have died. If there's no standard method of laying a digital identity to rest, people may continue to encounter unexpected reminders of the deceased. Worse still, spammers or hackers may take over the abandoned identities for their own uses.

Professional services will emerge to handle the details of shutting down and clearing out digital personas after an unexpected death. As more businesses adopt social networking systems for official use, they will find it necessary to develop standard practices of their own. These virtual mortuary practices will be accompanied by online social rituals as well. Already, it is not uncommon to hold an online memorial service in online alternate realities for someone who has passed away in the physical world. But even these attempts to solemnize the passing of a virtual friend can take surreal twists, as reported in the stories of online funerals in massively multiplayer games—including a raid on a virtual memorial service by an opposing faction.

“ If technology evolved to the point that we'd basically have virtual immortality, I think that we could really build on some of the social needs that our communities face on a consistent basis. It's important, though, to begin to have the discourse that will ensure that the right type of infrastructure is developed that will allow the individual being immortalized to be preserved in a manner that is suited to their needs and wants—much like a will. ”

Taylor Stuckert  
Co-Director, Energize Clinton County

## HAVING THE LAST WORD: LEGACY AND MEMORY IN THE DIGITAL AGE

At the same time, the digital world also offers more intentional ways to integrate virtual practice into end-of-life ritual and even assure persistence beyond the grave. Web-streaming of funeral services, for example, is poised to become a standard feature offered by mortuaries and funeral homes. Taking advantage of inexpensive, high-quality video and audio streaming tools, funeral streaming providers allow people who cannot physically attend a service to listen, watch, and potentially participate virtually. Such services are particularly valuable in remote locations—in 2010, one funeral home in Montana webcast a third of the services it performed. And as climate, energy, and other sources of disruption become more volatile, virtual attendance may become the primary means of attending an out-of-area funeral.

The new practices will often give the departed a “last word.” Tombstones with embedded screens already show videos of (or by) the deceased. Services offer “last word” post-death email messages. Over the next decade, these kinds of digital ghosts may become more commonplace, even expected. Although some will likely view the fashioning of one's digital ghost as morbid, the practice will dovetail with the growing movement for more end-of-life control.

Two important trends will drive these new practices: the digital savvy of the aging Baby Boom generation, with the leading edge of the cohort into their 70s by 2021; and the growing practice of “life-logging” and similar self-documenting methods. Although the current set of self-documentarians are mostly young people, the practice is likely to trickle upward, with growing numbers of older people becoming active participants. The curating of digital ghosts may become standard practice for boomer-friendly end-of-

life care, allowing people to tell their own stories and articulate their own legacies.



---

## UNCANNY VALLEY OF THE DEAD:

### IMMORTALITY VIA EMULATION

More radical—and initially much less common—will be the creation of virtual personas emulating the personality of the dead. Some will see these constructs as interactive memorials, but as they become more sophisticated, they may be sought out as sources of advice and comfort. They won't be perfect copies, but will nevertheless seem to be remarkable, even unsettling, echoes of the living person.

These virtual emulations will likely take advantage of semantic web systems that can parse language, as well as increasingly accurate audio and video analysis—plus the growing abundance of media that people compile about themselves in this era of self-documentation. The greater the amount of media the deceased has made available, the more the emulation will be able to correctly model her or his voice, phrasing, speaking style, and, ideally, responses. Such technologies will likely be used first with actors, allowing dead performers to appear in new productions. But as the costs decline, these post-life avatars will find more widespread application.

One concern about these emulations will be the “uncanny valley” effect. As digital emulations of humans become more lifelike, they become more appealing—until they hit a point where the accuracy is so great that any deviations get magnified, and the emulation actually becomes disturbing. At present, the avatars require both significant sources of video and audio as a starting base as well as substantial “training” time by the still-living to respond properly. Unfortunately, the result for now remains more creepy than compelling, a sure sign that the avatar resides in the “uncanny valley,” triggering feelings of repulsion.

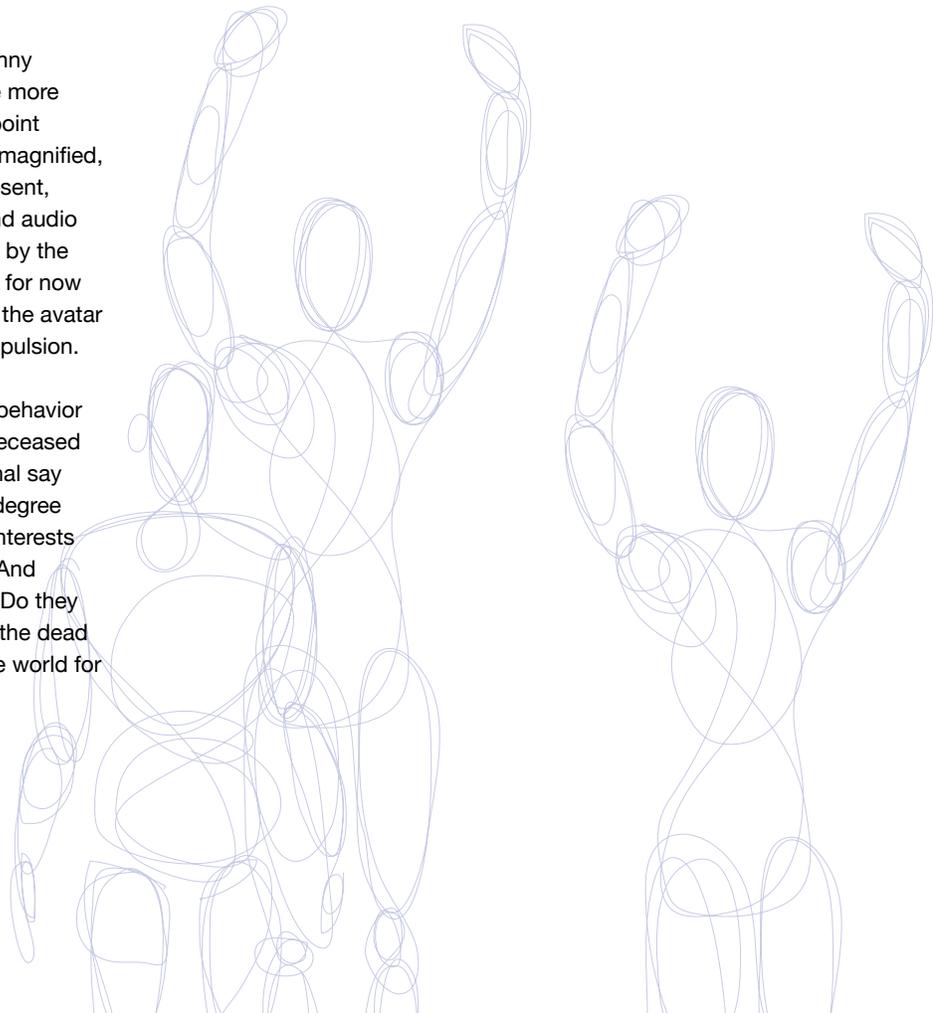
Even after visual issues are resolved, questions about behavior and accuracy will remain. Does the avatar act as the deceased truly behaved, or is it an idealized version? Who has final say over what the avatar can or can't talk about? To what degree would a memorial avatar be seen as representing the interests of the deceased, giving its statements added weight? And finally, do memorial avatars interact with one another? Do they have their own social networks, creating a diaspora of the dead that influences the relationships of the living around the world for generations to come?

---

“That is not dead which can  
eternal lie. And with strange  
aeons even death may die.”

H.P. Lovecraft  
Author, *Necronomicon*

---





RosettaStone uses RFID technology to digitally augment grave markers. At present, the markers only store text and images, but they could potentially offer video, audio, and any other form of digital information about the deceased, all accessible over a standard

smartphone. Some designers have proposed putting copies of (or access to) online materials of the deceased into digital headstones, pulling from Facebook, Flickr, and other content-rich sites. Moreover, makers of digital headstones appear to be willing to take quick advantage of emerging networking technologies, such as Near Field Communication (NFC): the RosettaStone headstone content can be accessed with an NFC-enabled phone.



Memorial avatars, intended to look, sound, and behave identically to the deceased, are an excellent example of a technology that's not quite here, but will clearly be very disruptive when it hits. Virtual Eternity is a social platform for memorial avatars with personal, family, and global "galleries" of memorialized people. Membership rates range from Free to \$24.95 per month.



Web streaming of funerals and memorial services is already making in-roads into traditional end-of-life practices, especially for those who can't make the trip to

the burial location. These include especially elderly friends of the deceased. It's just a small leap to imagine mobile services on a device like an iPad, as in this *Artifact from the Future: The Mobile Memorial Service*. Within a decade, such handheld media devices will undoubtedly be interactive, allowing remote "attendees" to eulogize their departed friends and relatives—perhaps even over coffee at Starbucks.

## the quick list

- › *Surface Detail*, Iain M. Banks. New York: Orbit Books, 2010 (a novel in which society makes digital representations of those who have died and punishes them as sinners in a virtual Hell)
- › *Your Digital Afterlife: When Facebook, Flickr and Twitter Are Your Estate, What's Your Legacy?* Evan Carroll & John Romano. Berkeley: New Riders Press, 2010
- › "Digital Immortality," Gordon Bell & Jim Gray. San Francisco: Microsoft Research, October 2000. [research.microsoft.com/apps/pubs/default.aspx?id=69927](http://research.microsoft.com/apps/pubs/default.aspx?id=69927)
- › "For Funerals Too Far, Mourners Gather on the Web," Laura M. Holson. *New York Times*, January 24, 2011. [www.nytimes.com/2011/01/25/fashion/25death.html](http://www.nytimes.com/2011/01/25/fashion/25death.html)
- › The Digital Beyond Blog, [www.thedigitalbeyond.com](http://www.thedigitalbeyond.com)